3D Visualization of DICOM Images for Radiology Applications Tutorial

Sonia Pujol, Ph.D.

Surgical Planning Laboratory
Harvard University
Loading a DICOM volume

First, click on Load DICOM Data
Loading a DICOM volume

The DICOM Details window appears
Loading a DICOM volume

Click on LocalDatabase and select the folder 3Dvisualization_DICOM_Data-Part1
First, click Import.

Then, locate and select the folder `dataset1_CT-Thorax-Abdomen` in the `3Dvisualization_DICOM_Data-Part1` directory, then click Import to import the selected volume.
A window indicating the completion of the DICOM volumes appears, as well as the patient1 dataset. Click OK to close the window, then click on the patient1 dataset.
The file hierarchy appears after patient1 is selected. Click on **CT_Thorax_Abdomen**, then click on **CT_Thorax_Abdomen CT**.
Once CT_Torax_Abdomen CT is selected, the snapshots of the DICOM images of the file are displayed in the bottom-left corner of the DICOM Details window. Click Load Selection to Slicer to load the volume to Slicer.
Loading a DICOM volume

Slicer displays the axial, coronal and sagittal slices of the DICOM dataset

Select **Conventional** Viewer
Loading a DICOM volume

Select the module **Volumes** in the Modules Menu
Loading a DICOM volume

Under the Window Level Editor Presets, click on **CT-abdomen**, or adjust manually the Window and Level using the Manual W/L slider.
Position the mouse cursor over the red banner in the Red Viewer to display the slice menu. Click on the Link Icon to link the three slice controls across all Slice Viewers.
Loading a DICOM volume

Click on the **Eye icon** to display the three anatomical slices in the 3D Viewer.
Loading a DICOM volume

Use the left-mouse button in the 3D Viewer to rotate the 3D volume
Loading a DICOM volume

Click on the icon next to the ‘1’ in the blue banner to center the 3D view on the scene.
Loading a DICOM volume

Click on the Slicer layout menu icon, and select the **Conventional Widescreen** layout.
Loading a DICOM volume

This is how the screen should look after clicking Conventional Widescreen layout.
Loading a DICOM volume

Use the red slice, yellow slice and green slice sliders to slice through the volume in all three anatomical directions.
Acknowledgments

• National Alliance for Medical Image Computing (NA-MIC)
  NIH U54EB005149

• Neuroimage Analysis Center (NAC)
  NIH P41RR013218

• Parth Amin, WIT ’16
• Matthew Flynn, WIT ‘16