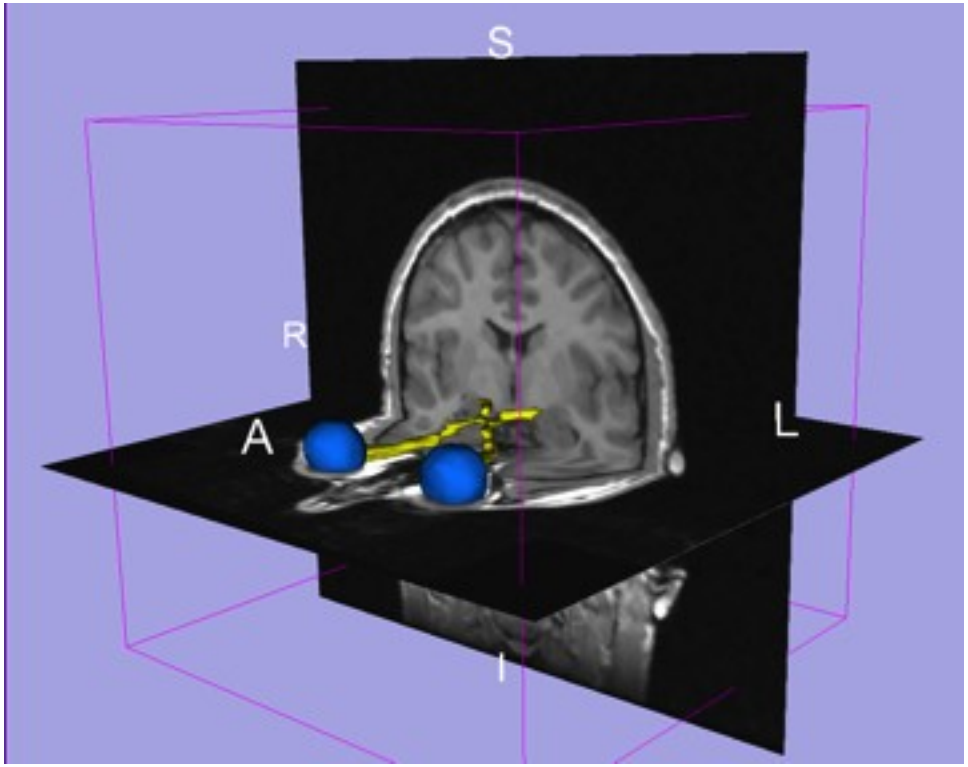
Slicer3 minute tutorial

Sonia Pujol, Ph.D.

Surgical Planning Laboratory
Harvard Medical School

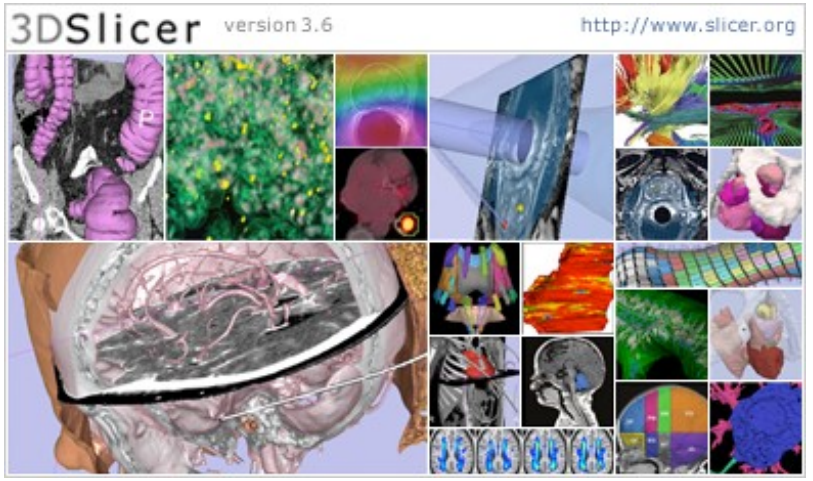
Slicer3 minute tutorial

This tutorial is a short introduction to the advanced 3D visualization capabilities of the Slicer3 software for medical image analysis.



The Slicer3 software

- An end-user application for image analysis
- An open-source environment for software development
- A software platform that is both easy to use for clinical researchers and easy to extend for programmers



Download the material

Slicer3 is a multi-platform software running on Windows, Linux, and Mac OSX.

- Download and install the Slicer3.6 software from the Slicer web site

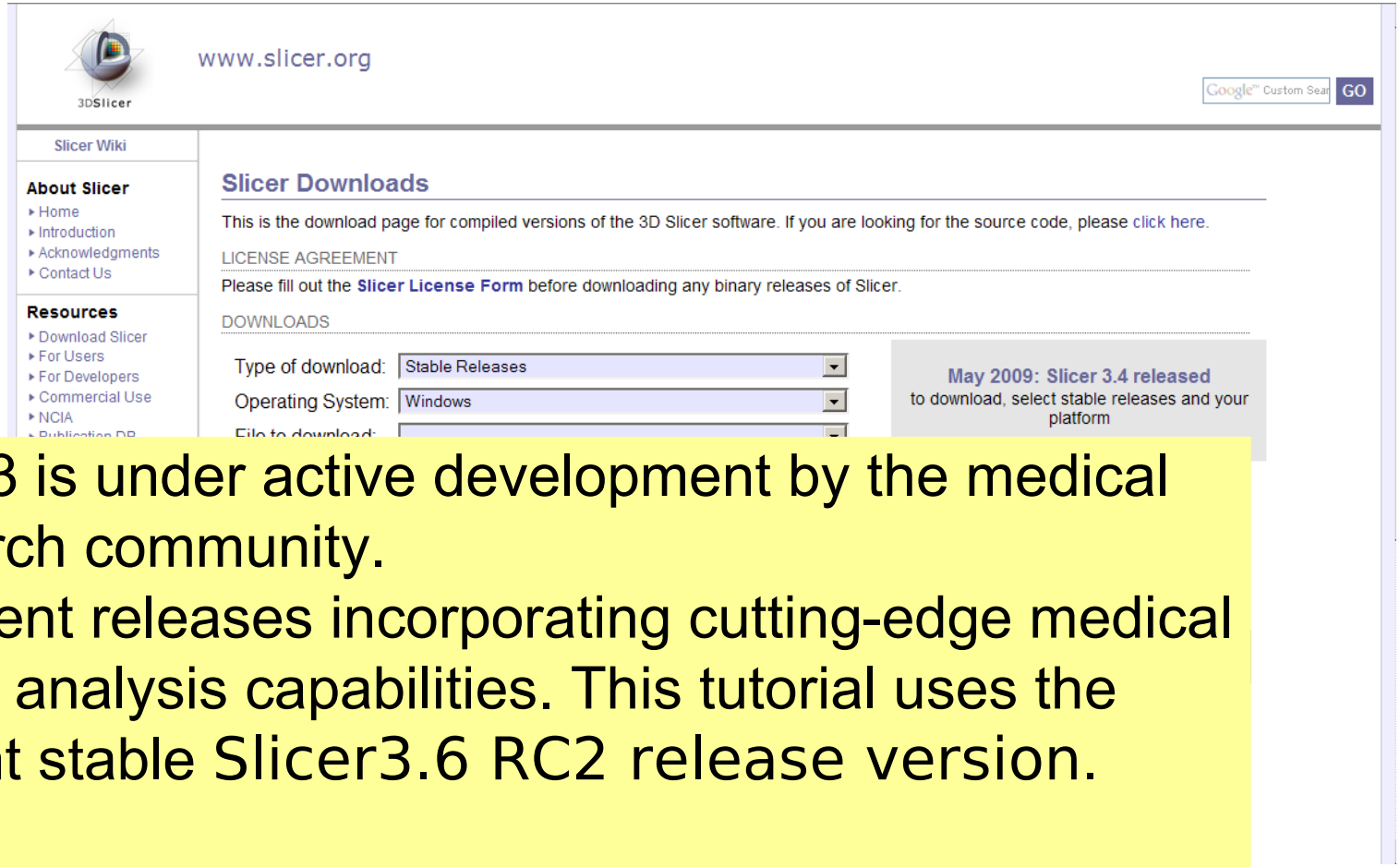
http://www.slicer.org/pages/Special:SlicerDownloads

Disclaimer

It is the responsibility of the user of 3DSlicer to comply with both the terms

of the license and with the applicable laws, regulations and rules.

Download Slicer3.6



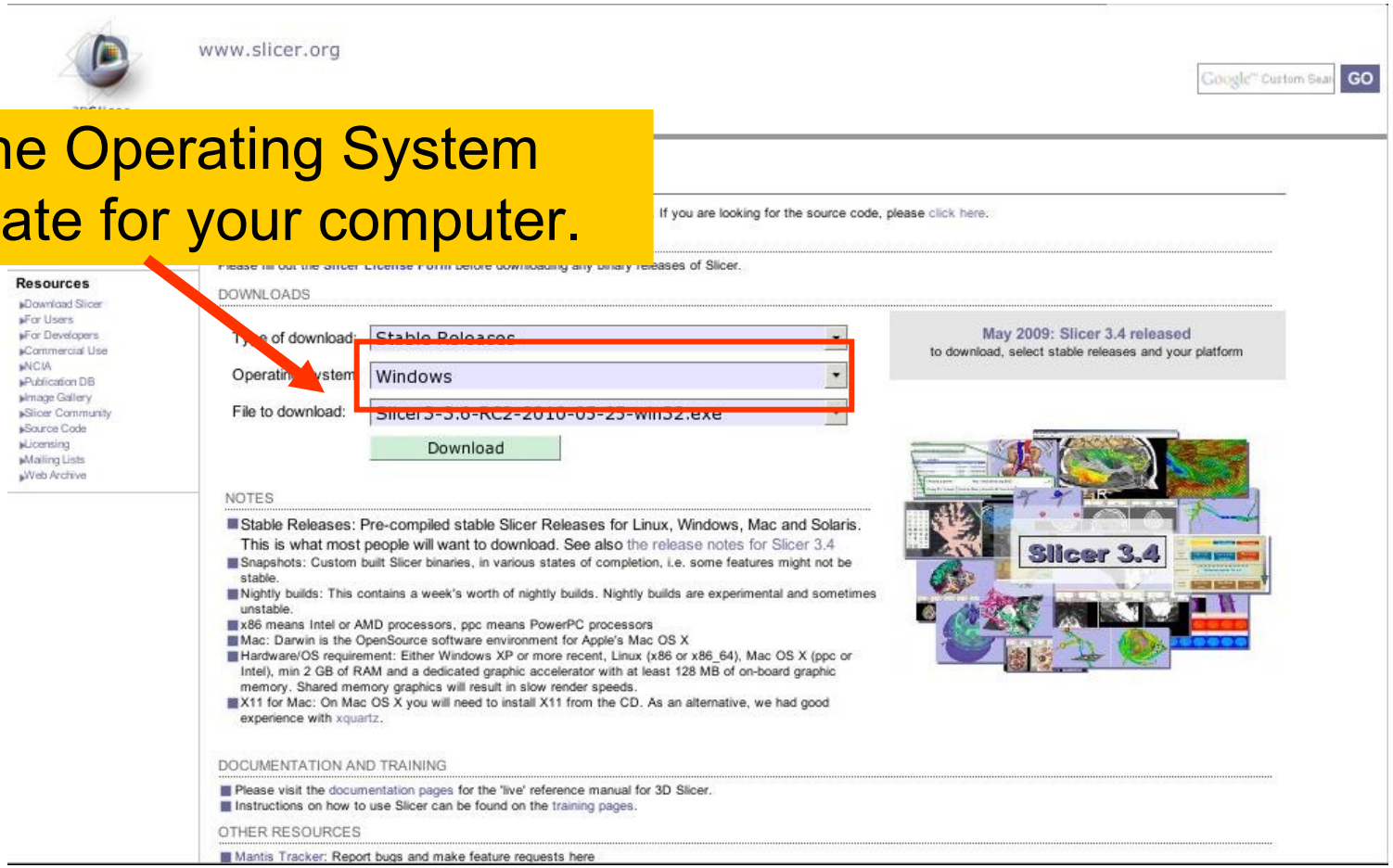
Slicer3 is under active development by the medical research community.
Frequent releases incorporating cutting-edge medical image analysis capabilities. This tutorial uses the current stable Slicer3.6 RC2 release version.

Download Slicer3.6

Select the type of download
'Stable Releases'

Download Slicer3.6

Select the Operating System appropriate for your computer.

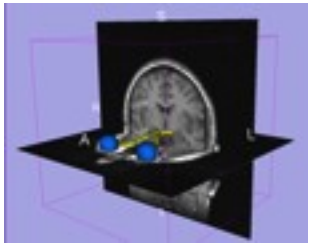


Download Slicer3.6

Select the Slicer3.6 release and click on Download.

Download the material

Slicer3 is a multi-platform software running on Windows, Linux, and Mac OSX.



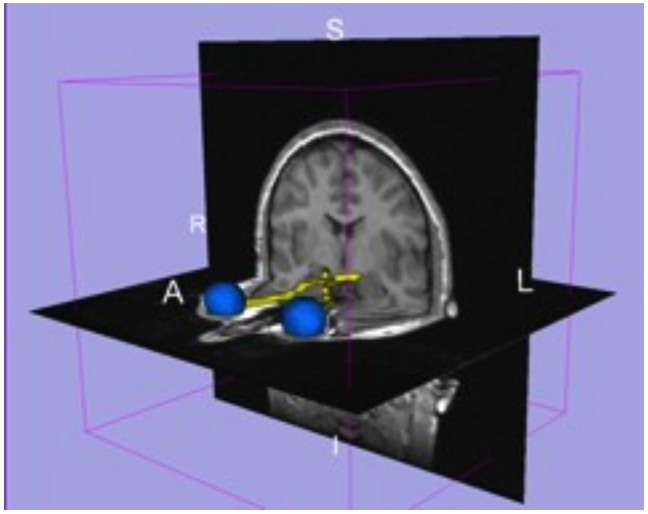
- Download the training dataset:

Slicer3minuteDataset.zip

http://www.slicer.org/slicerWiki/index.php/Slicer3.6:Training

Tutorial Dataset

- The Slicer3minute dataset is composed of an MR scan of the brain and 3D surface reconstructions of anatomical structures.



- The data are part of the SPL Brain Atlas developed by Talos et al. The atlas is available at: http://www.spl.harvard.edu/publications/item/view/1265

Start Slicer3

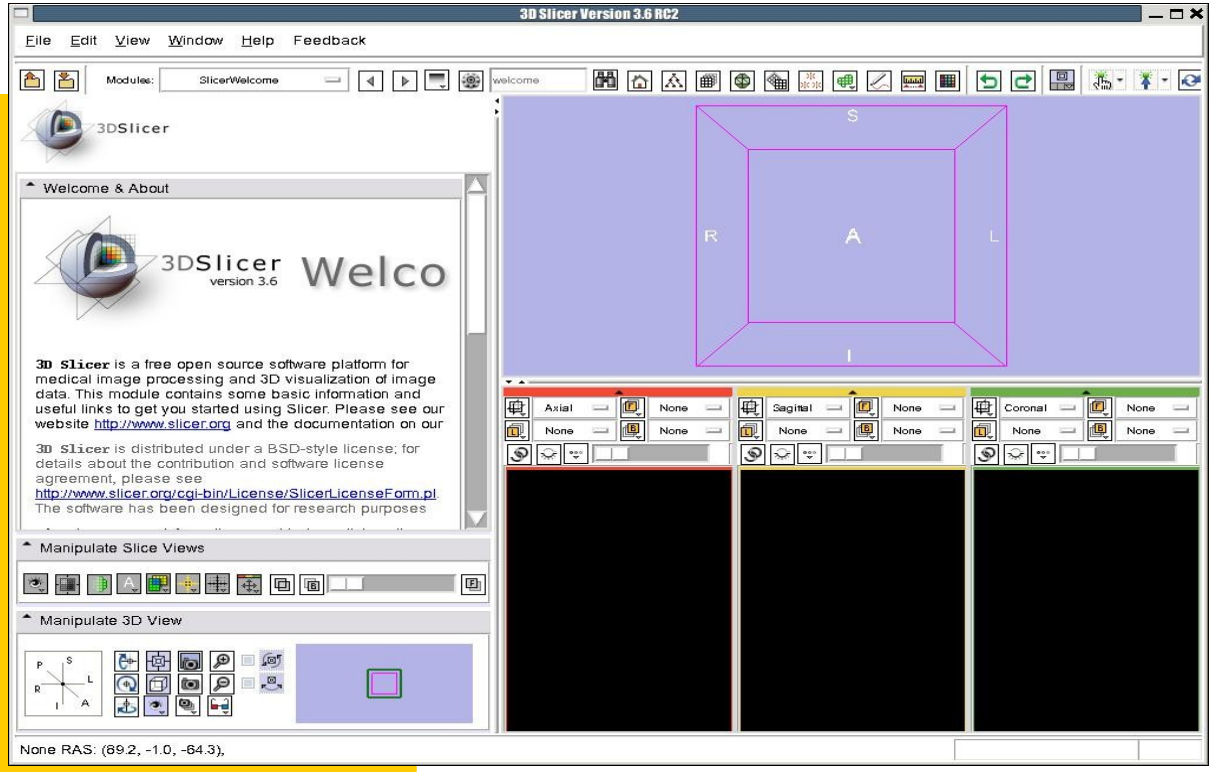
Linux/Mac users

Launch the Slicer3 executable located in the Slicer3.6 directory

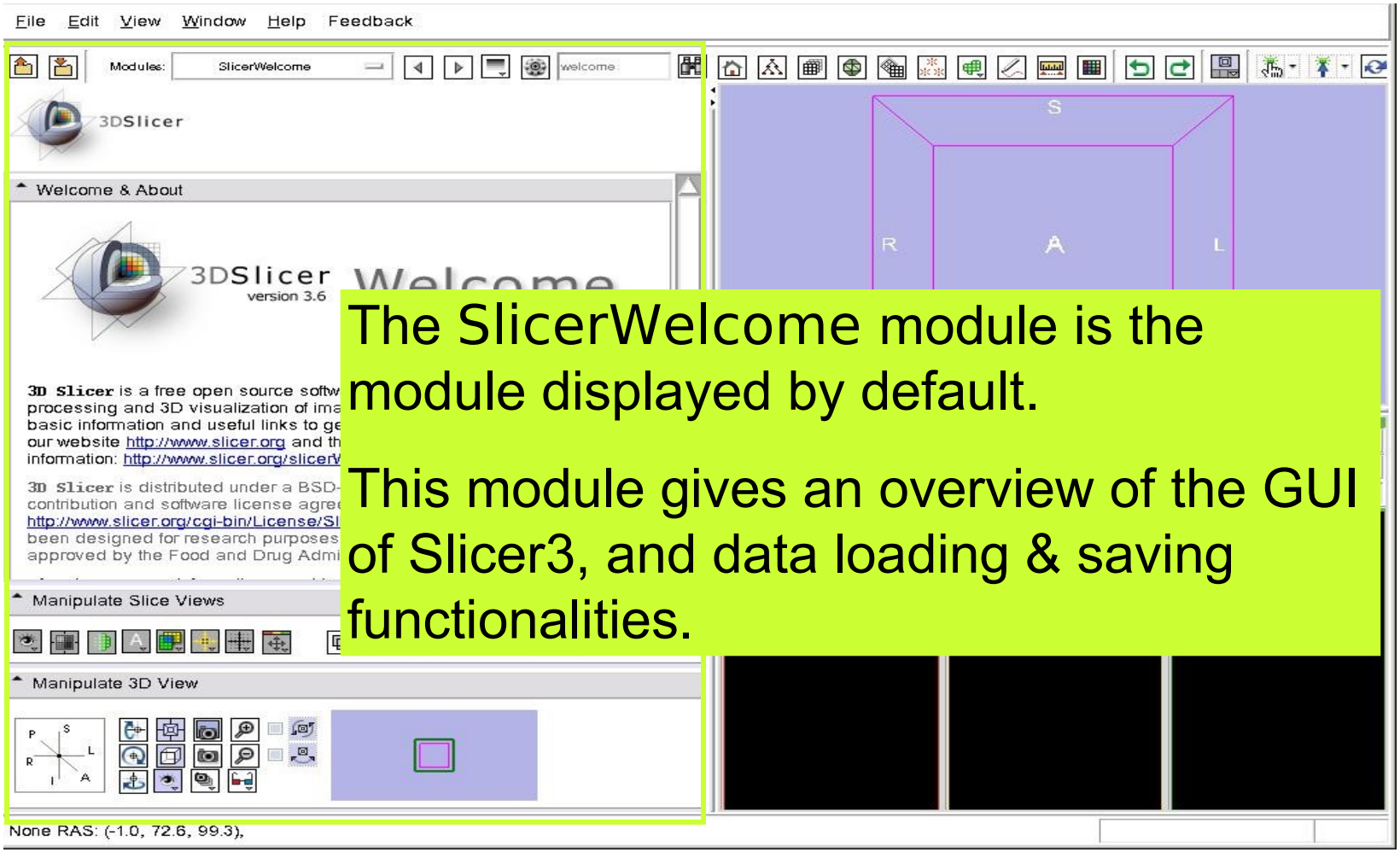
Windows users

Select

Start → All Programs → Slicer3 3.6-RC2 2010-05-25→Slicer3



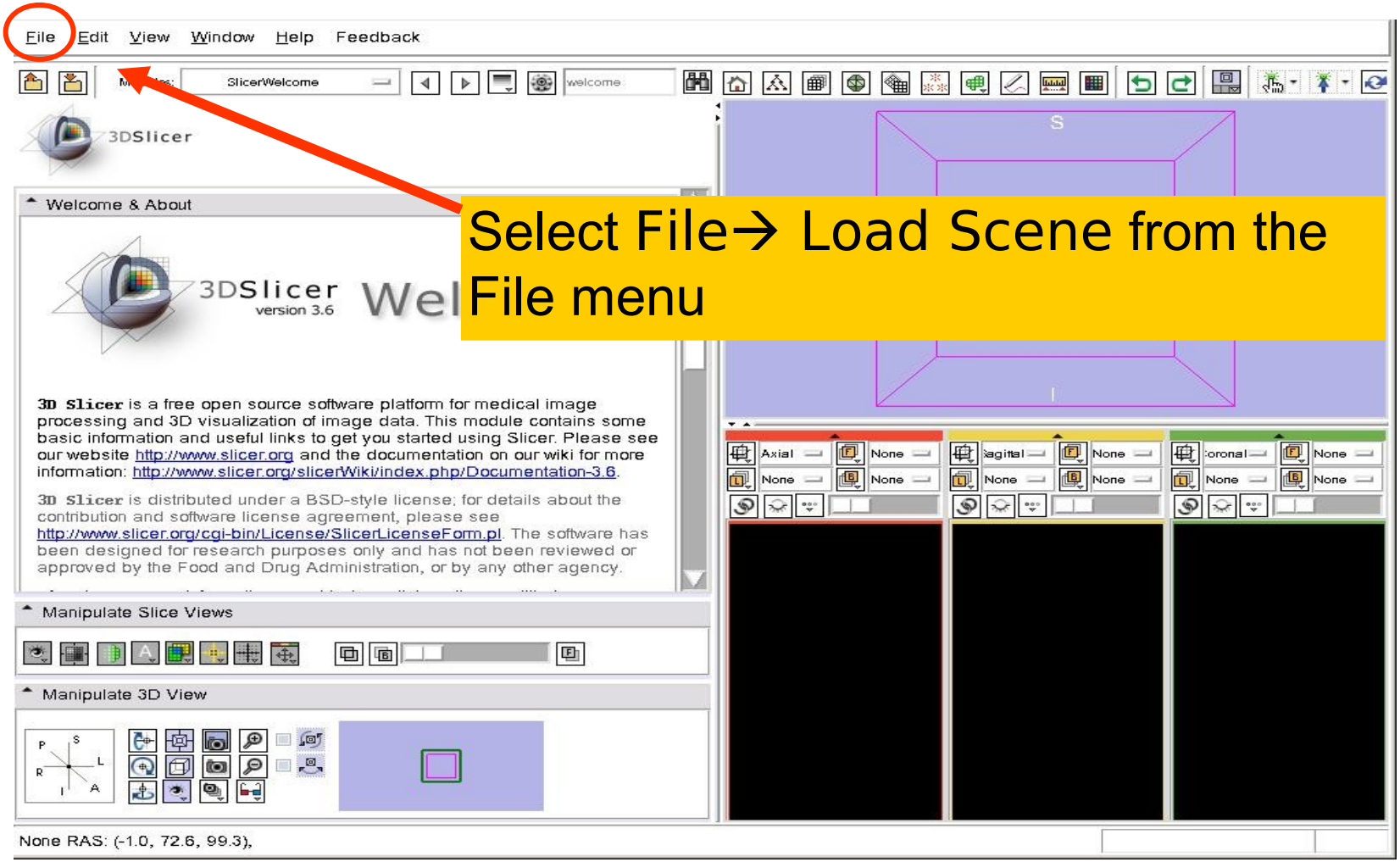
Slicer Welcome



The SlicerWelcome module is the module displayed by default.

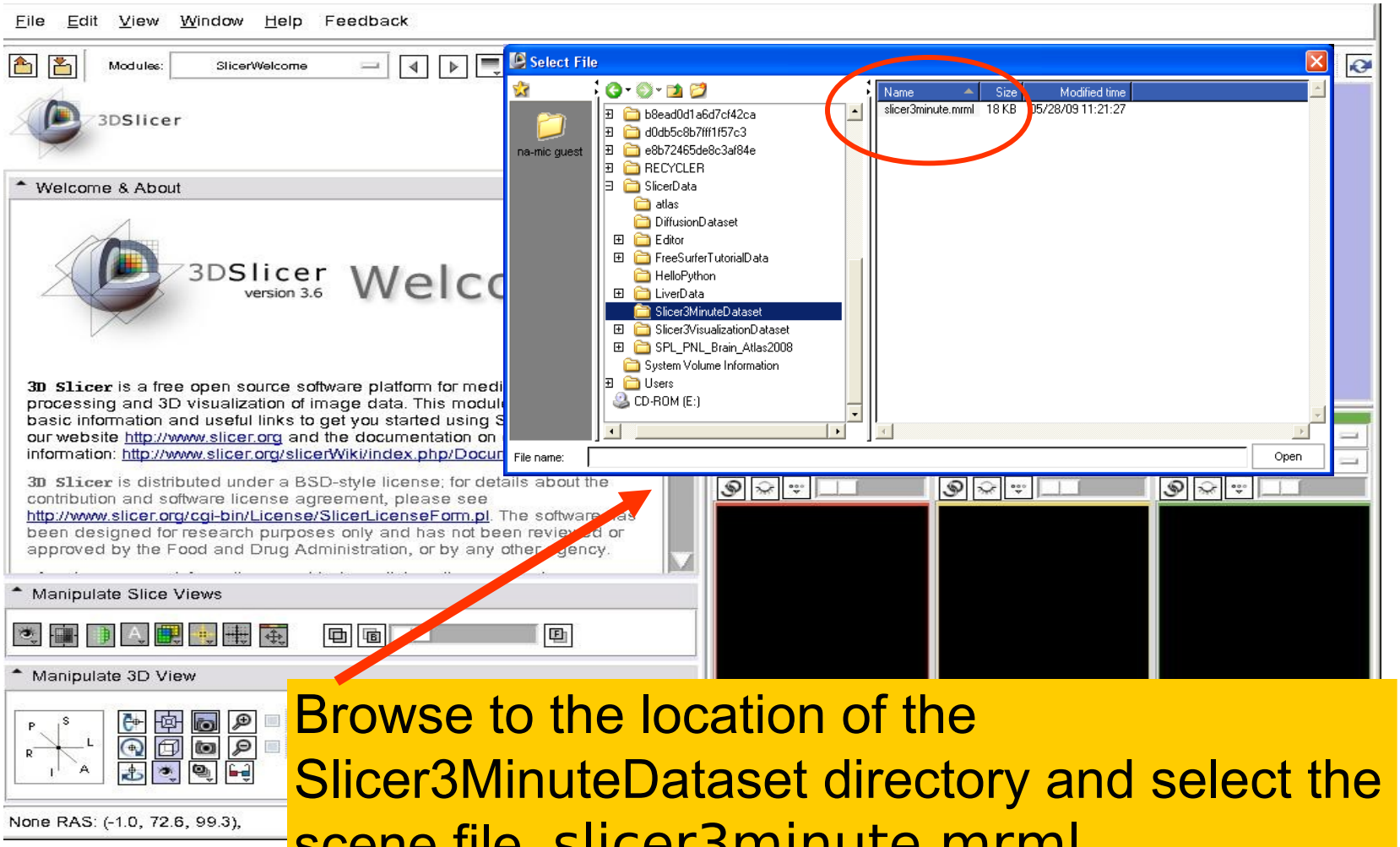
This module gives an overview of the GUI of Slicer3, and data loading & saving functionalities.

Loading a 3D Scene



Select File→ Load Scene from the File menu

Loading a 3D Scene

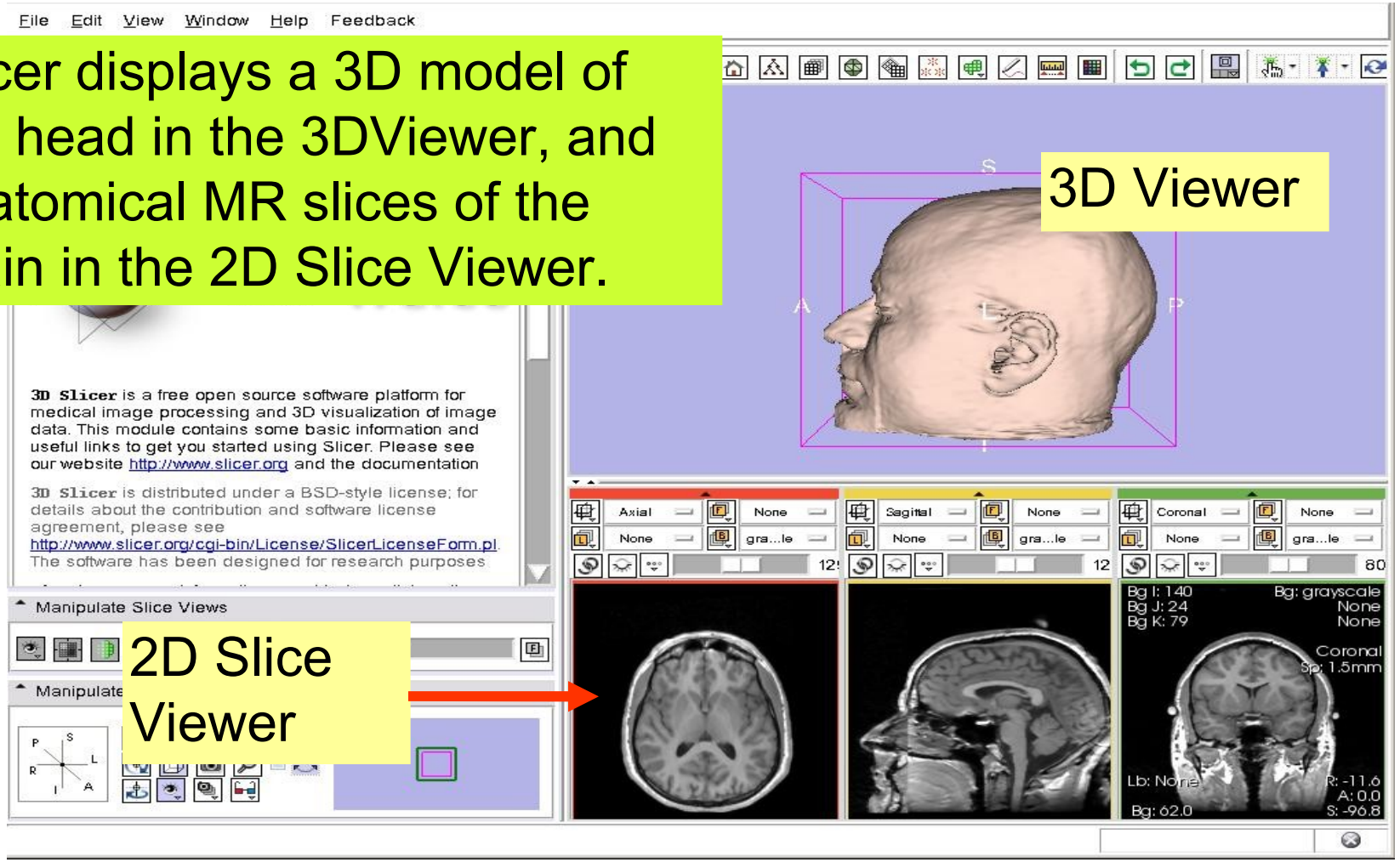


Browse to the location of the Slicer3MinuteDataset directory and select the scene file slicer3minute.mrml

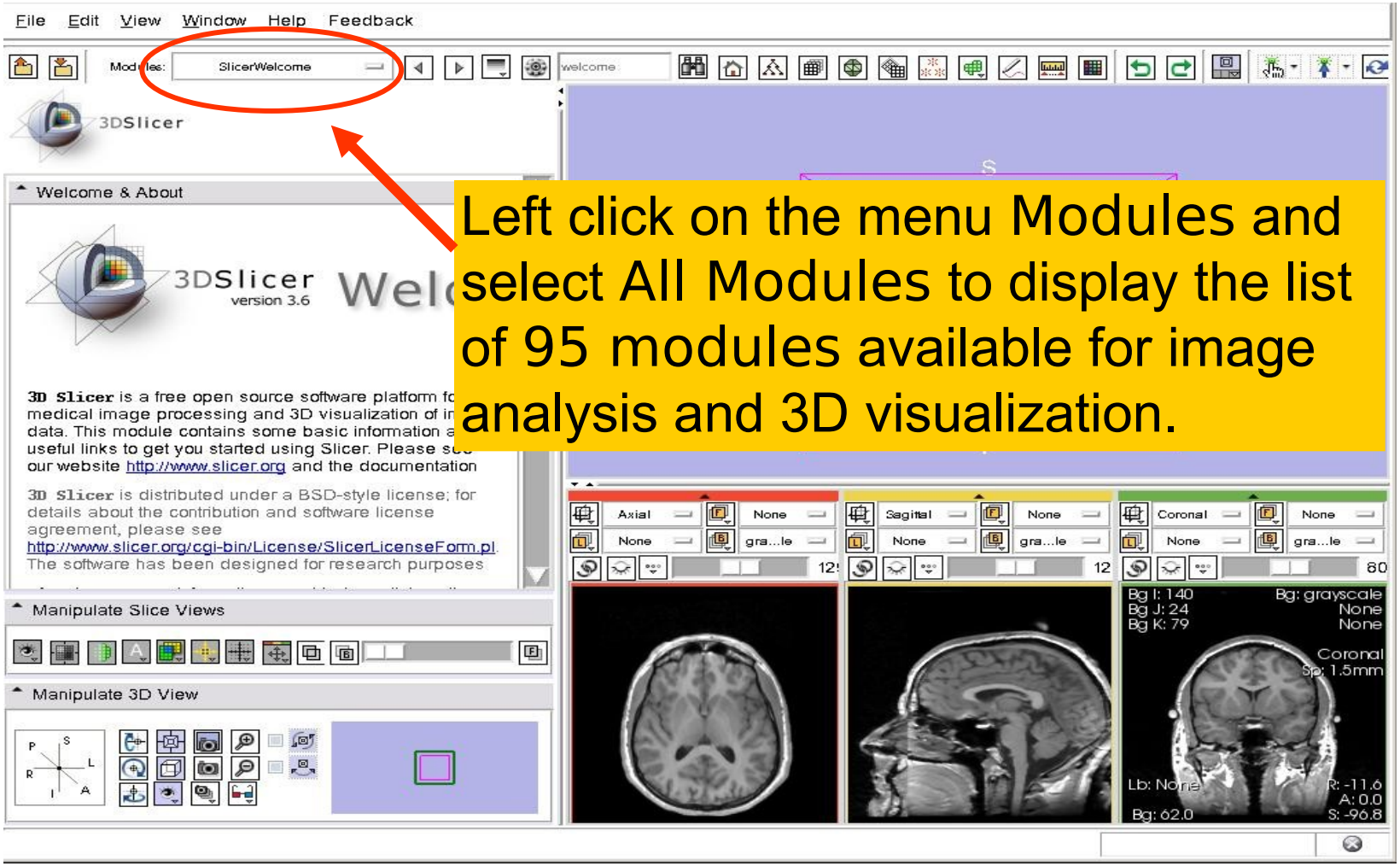
Click on Open to load the scene

Loading a 3D Scene

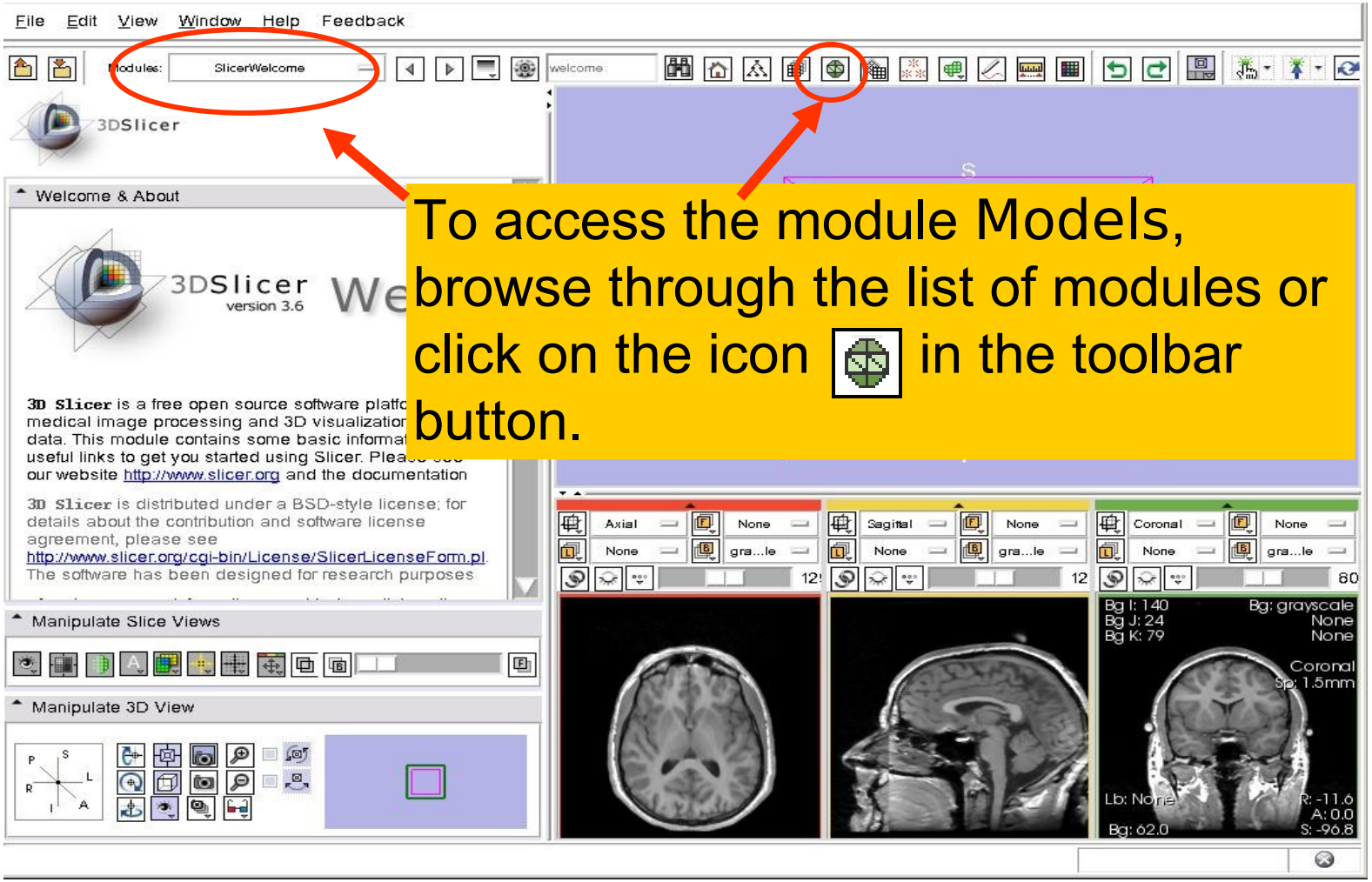
Slicer displays a 3D model of the head in the 3DViewer, and anatomical MR slices of the brain in the 2D Slice Viewer.



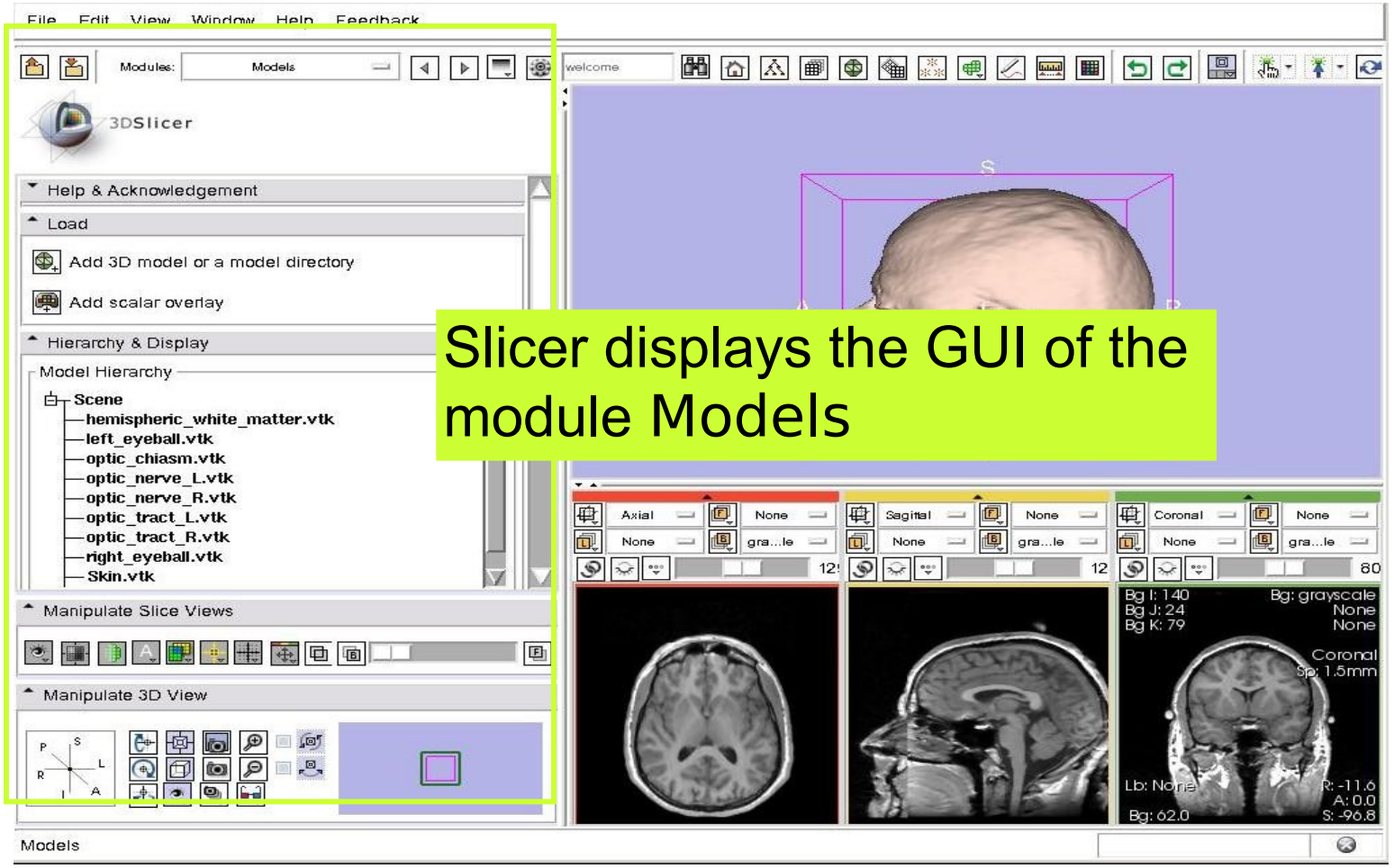
Loading a 3D Scene



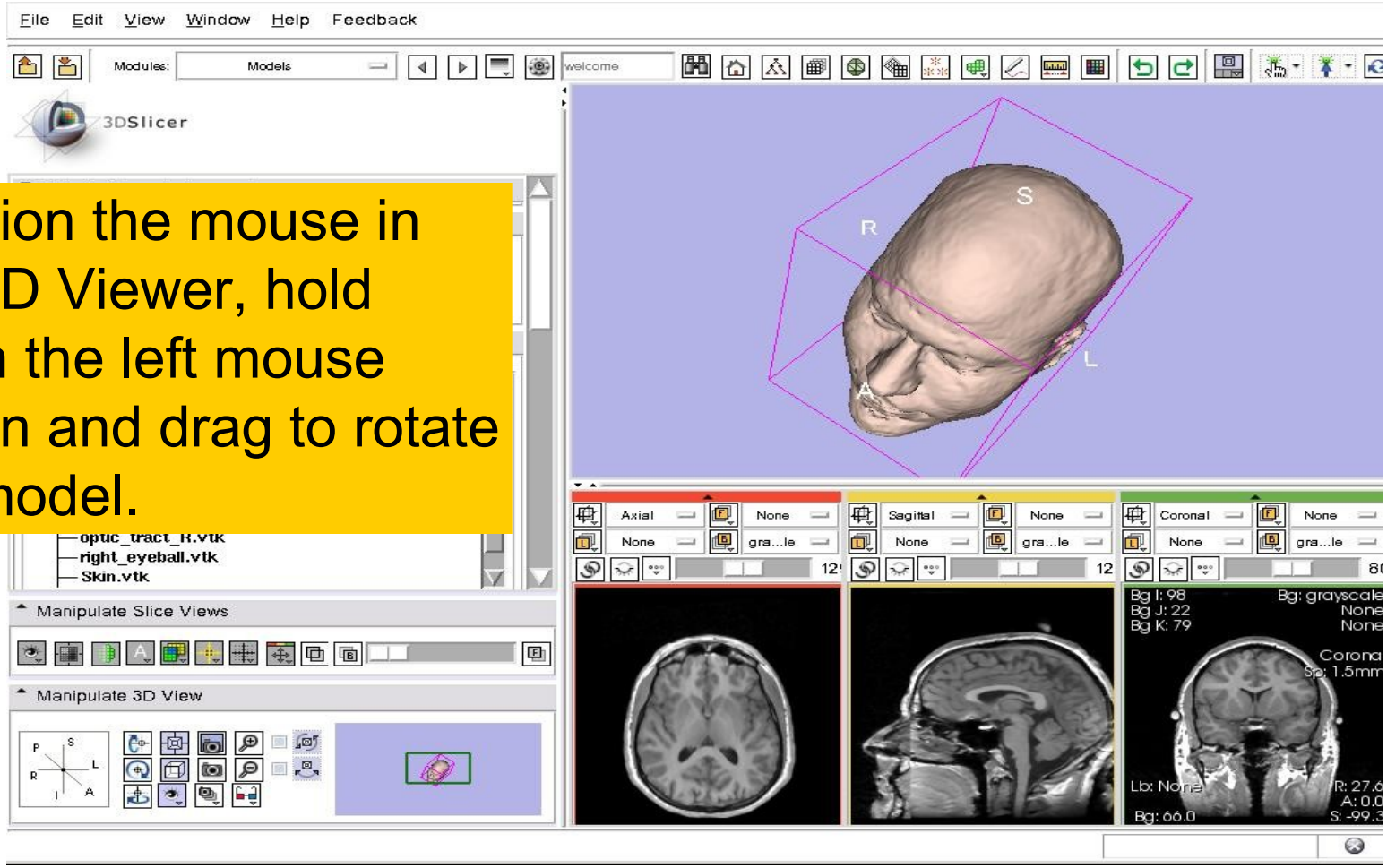
Loading a 3D Scene



Loading a 3D Scene

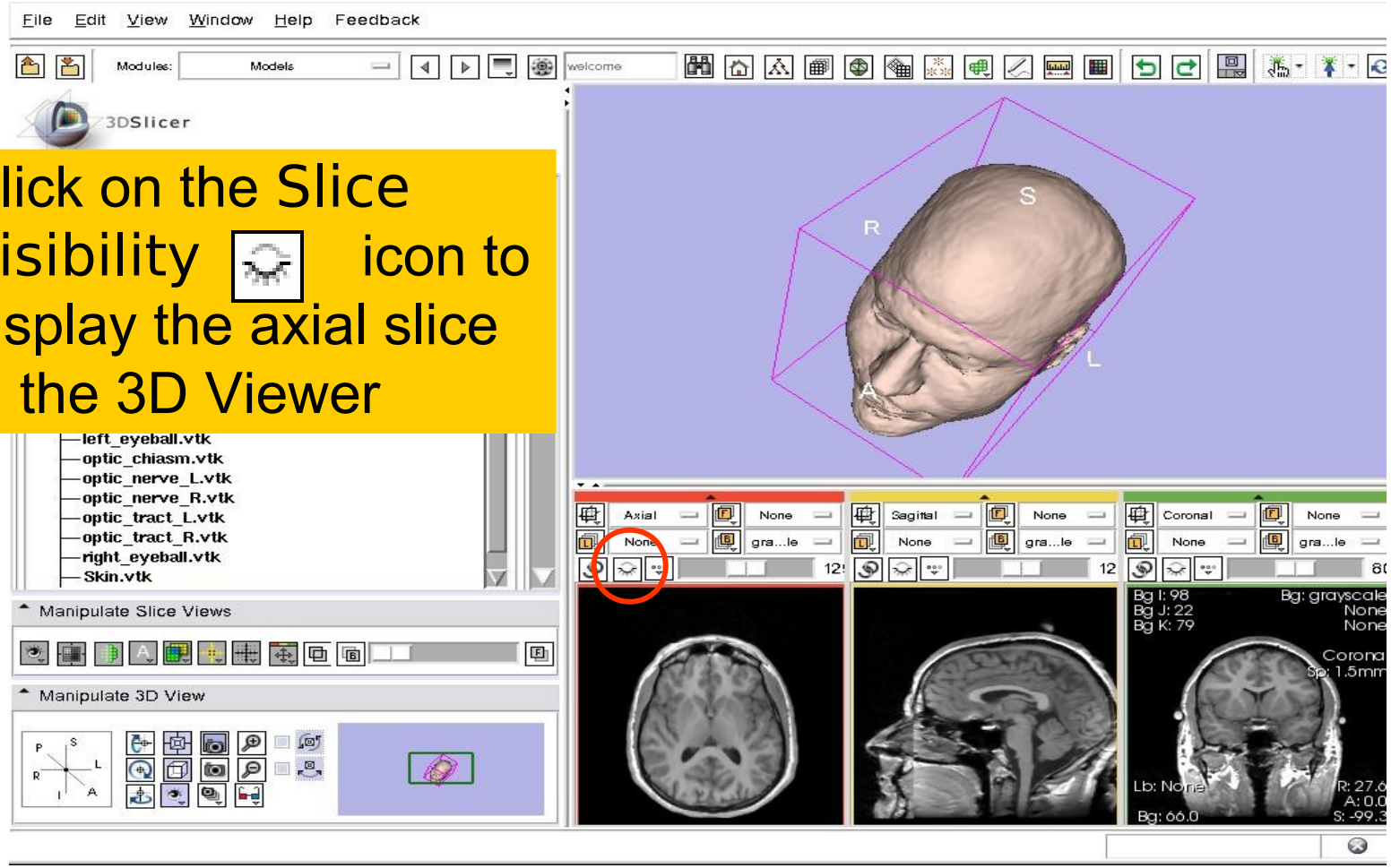


3D Visualization

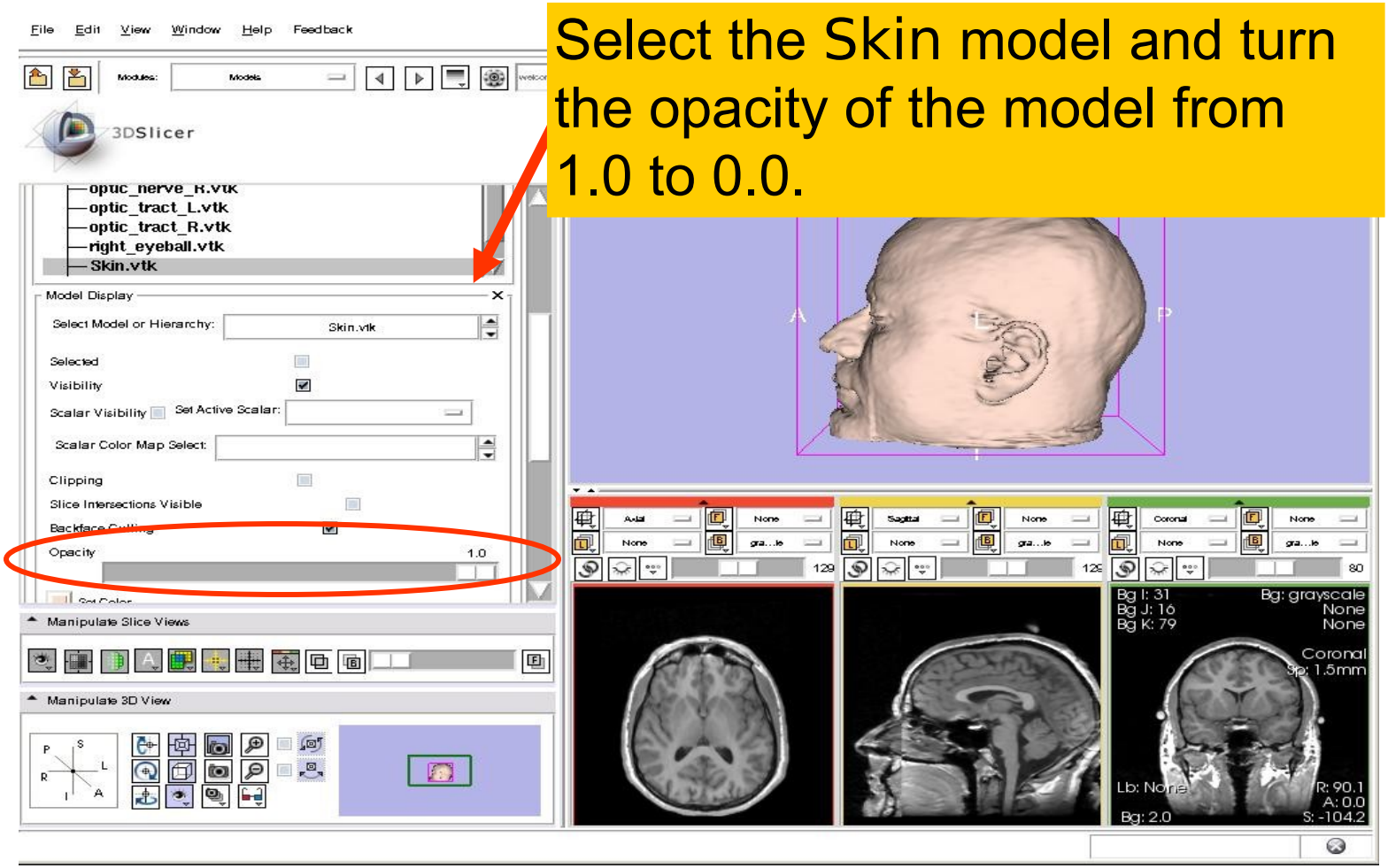


Position the mouse in the 3D Viewer, hold down the left mouse button and drag to rotate the model.

3D Visualization

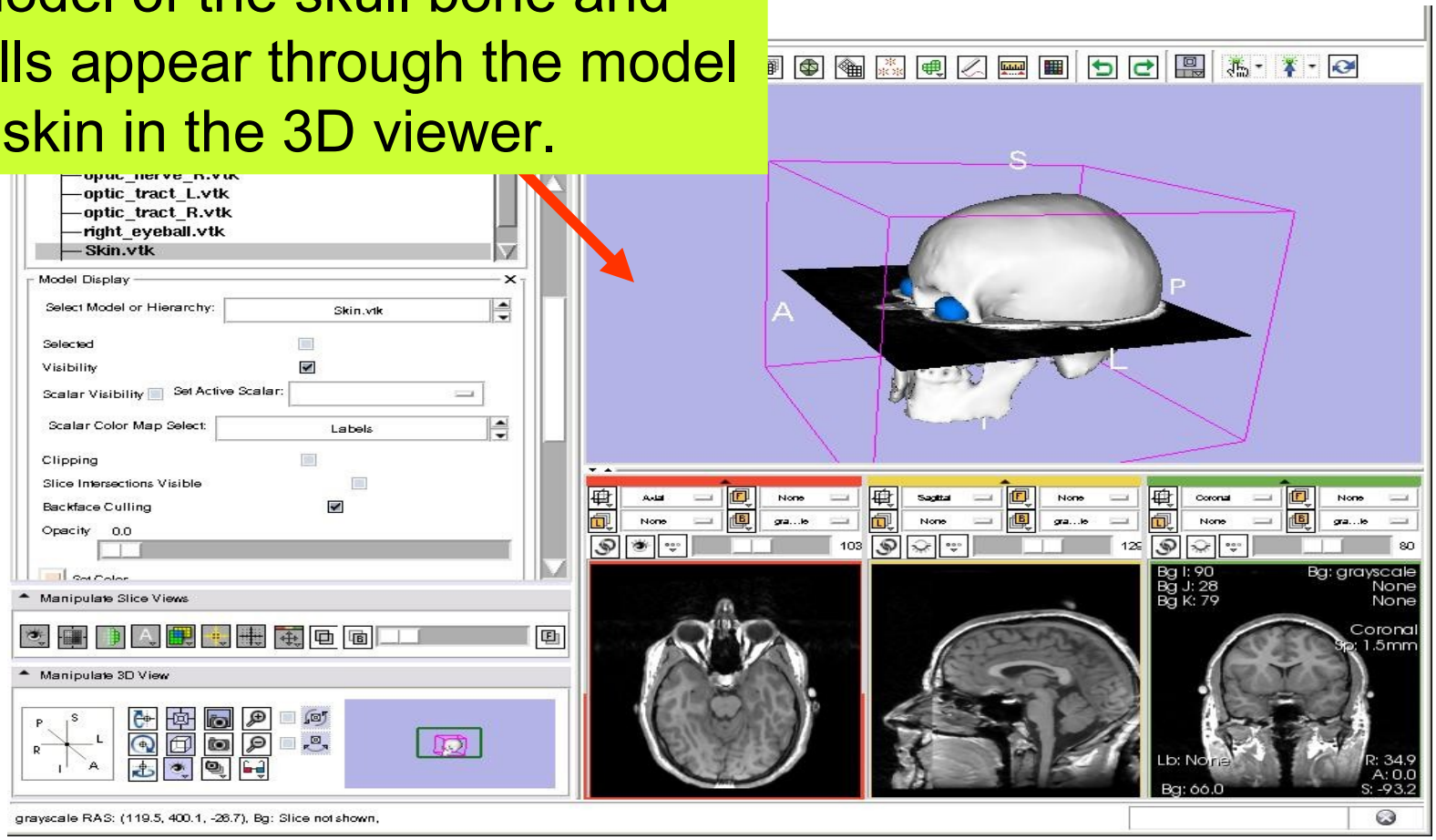


3D Visualization

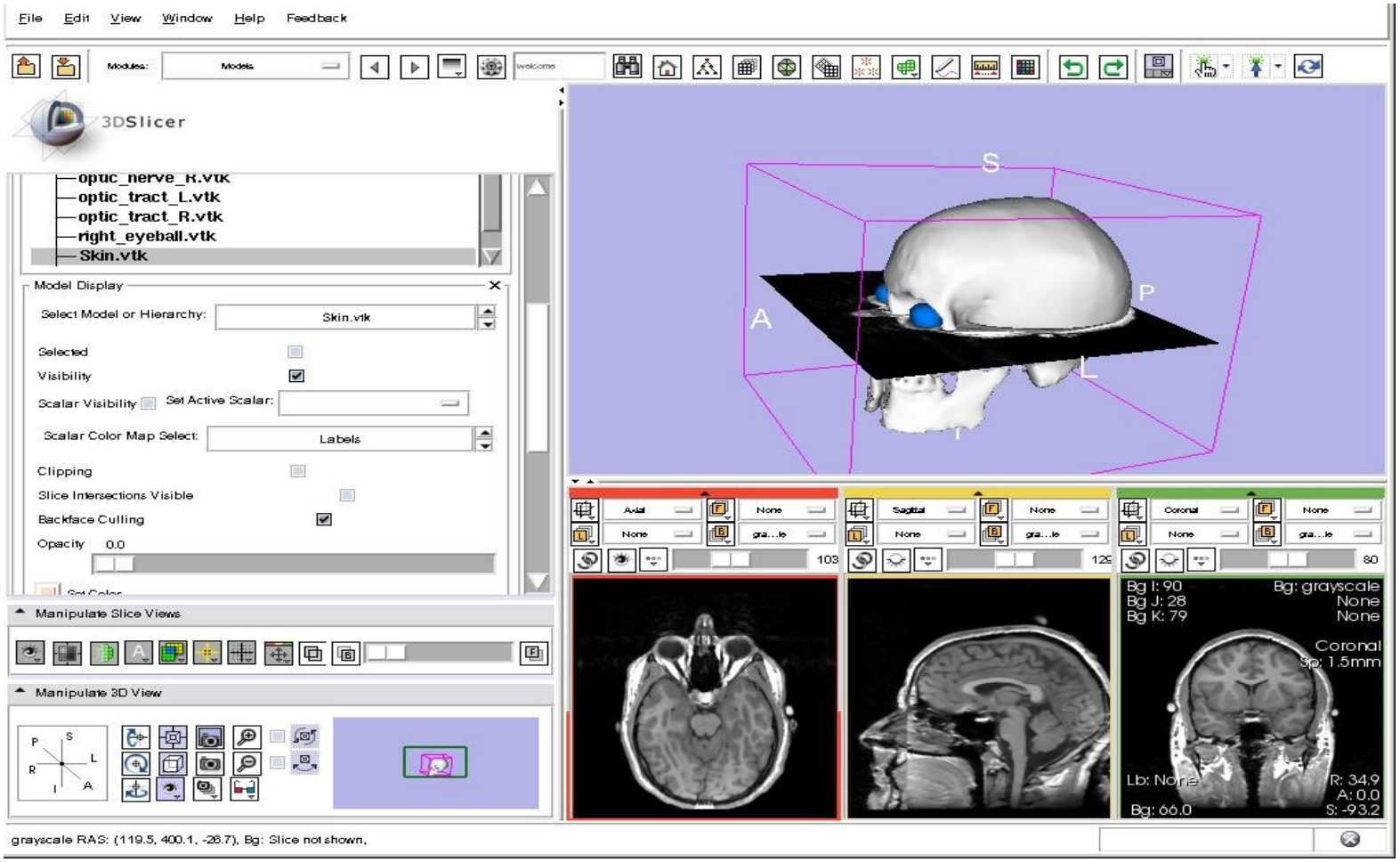


3D Visualization

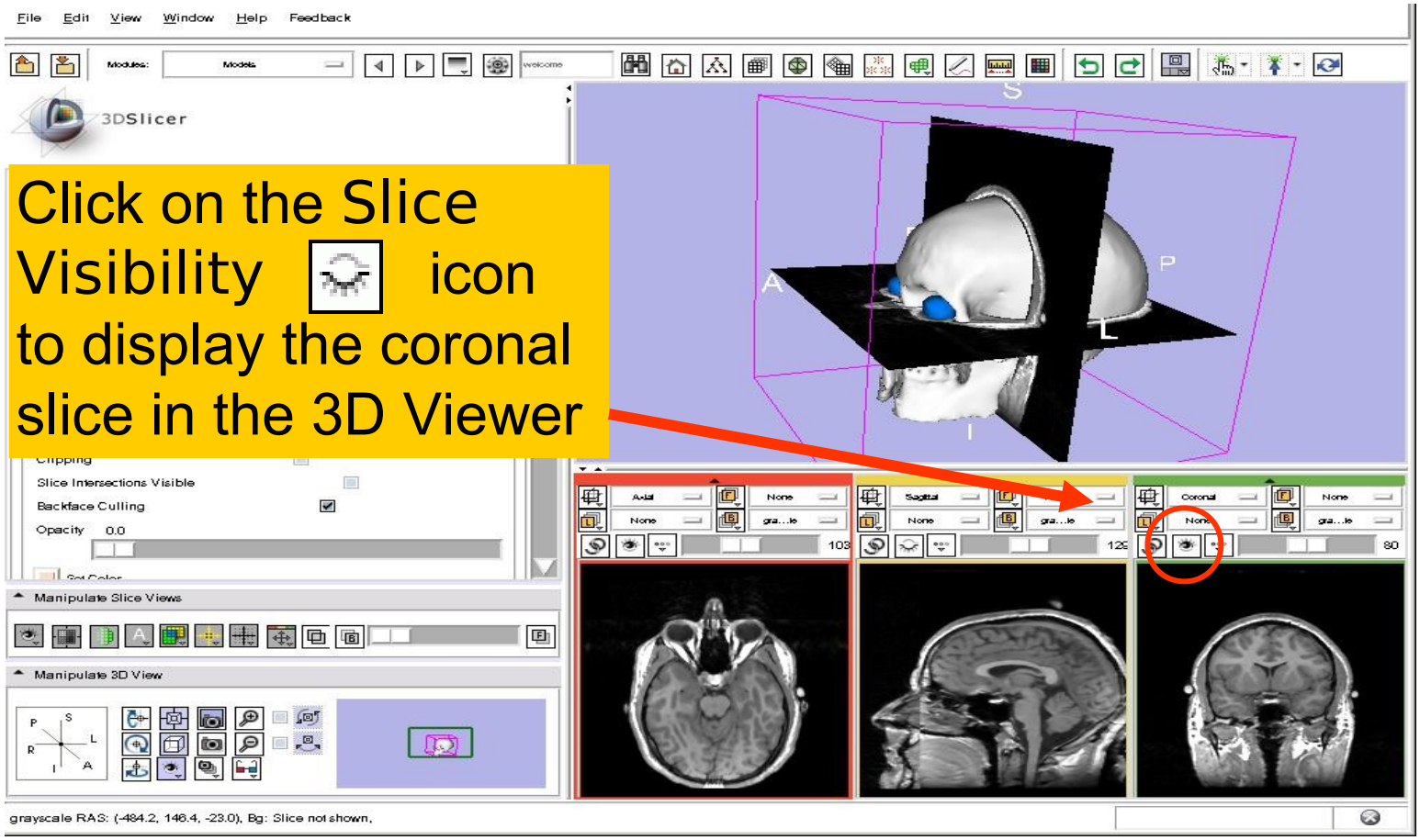
The model of the skull bone and eyeballs appear through the model of the skin in the 3D viewer.



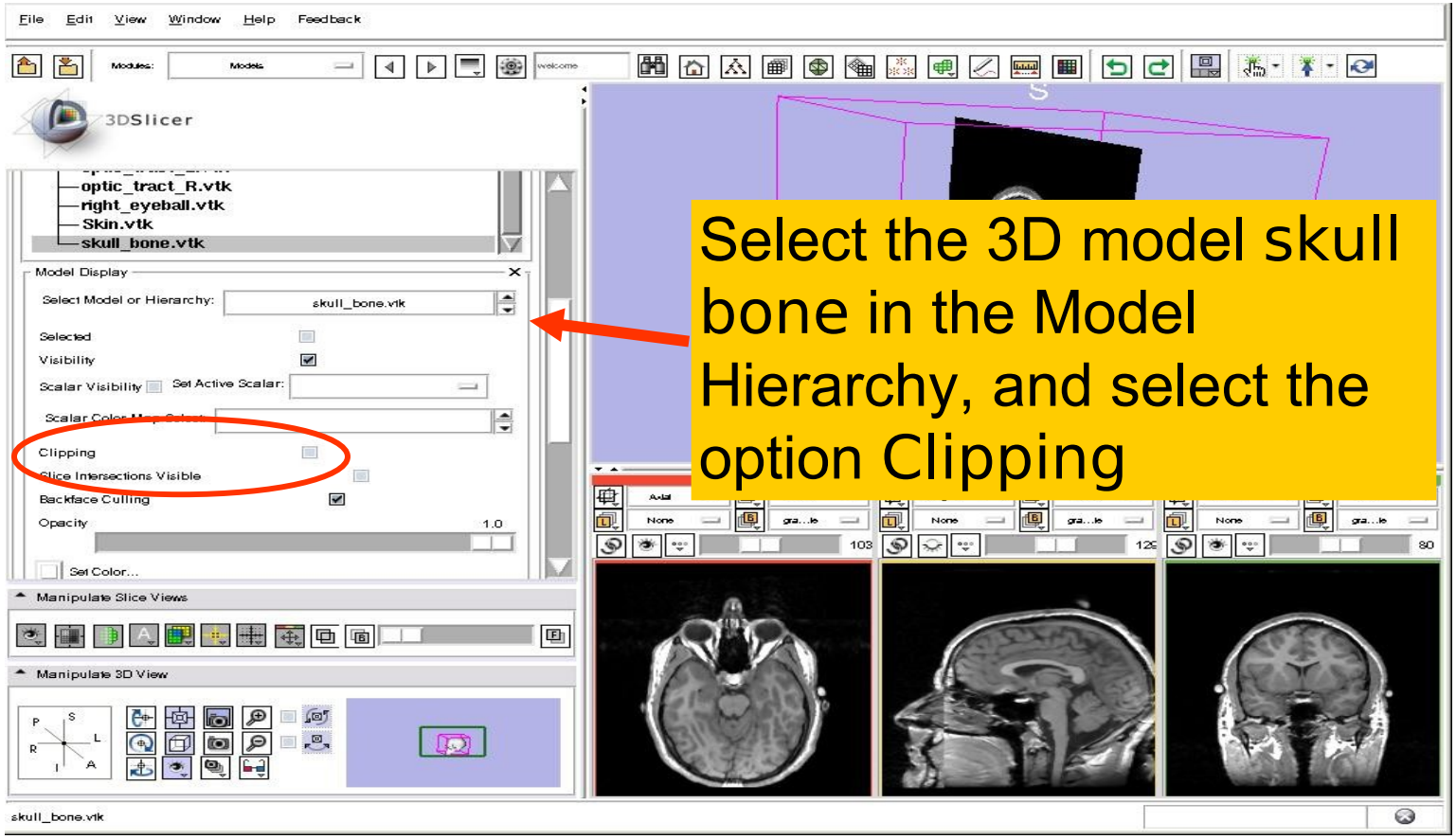
3D Visualization



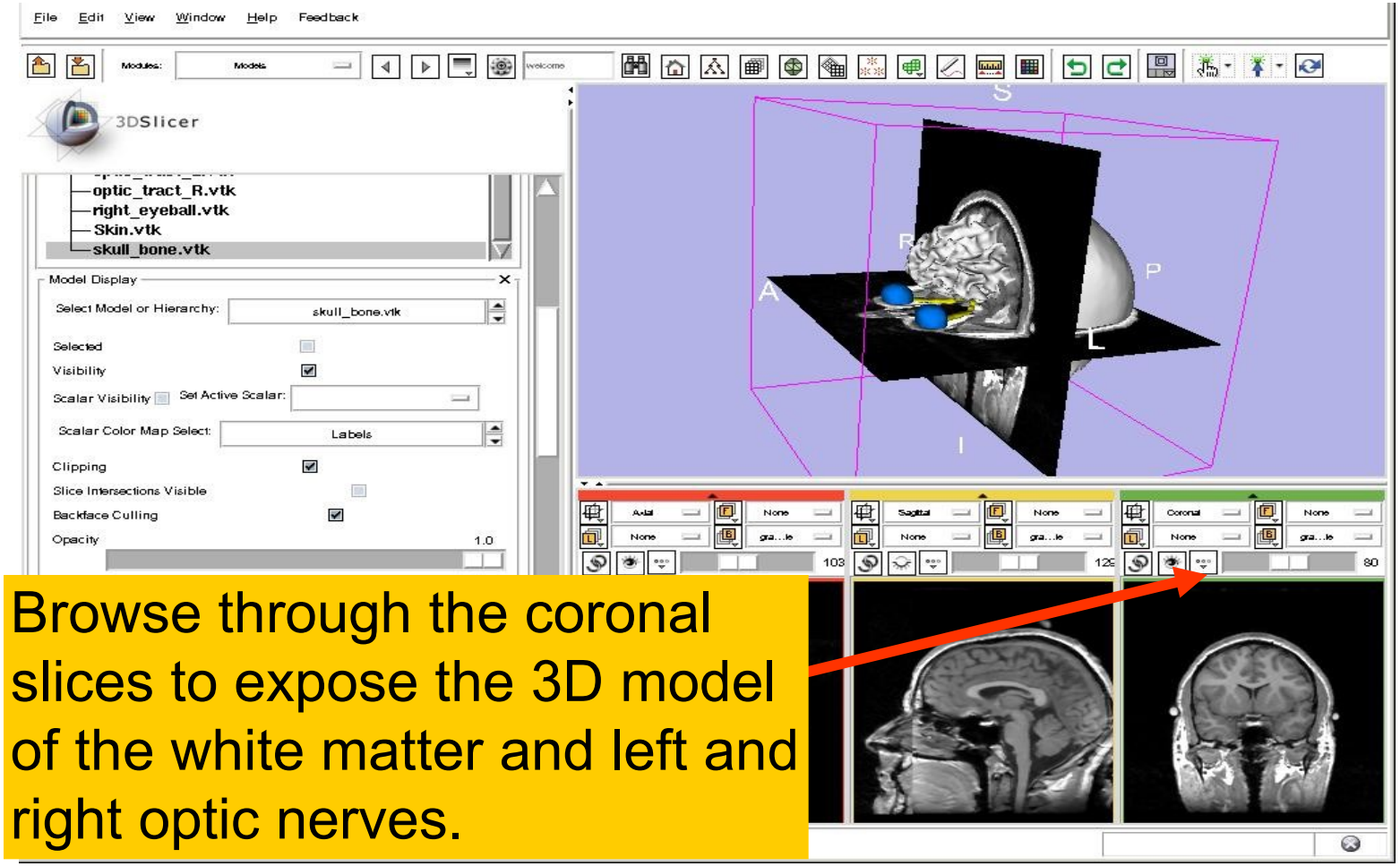
3D Visualization



3D Visualization



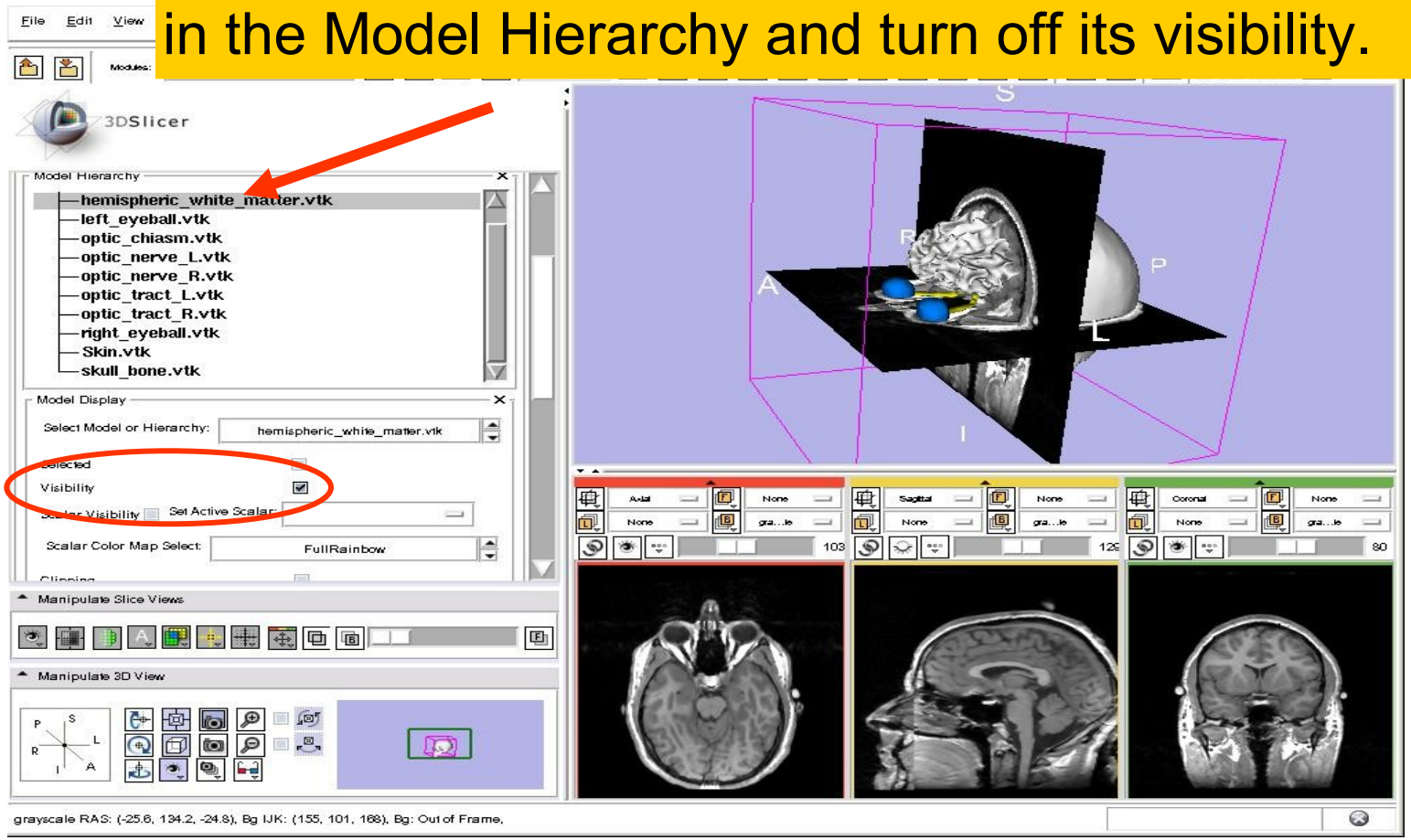
3D Visualization



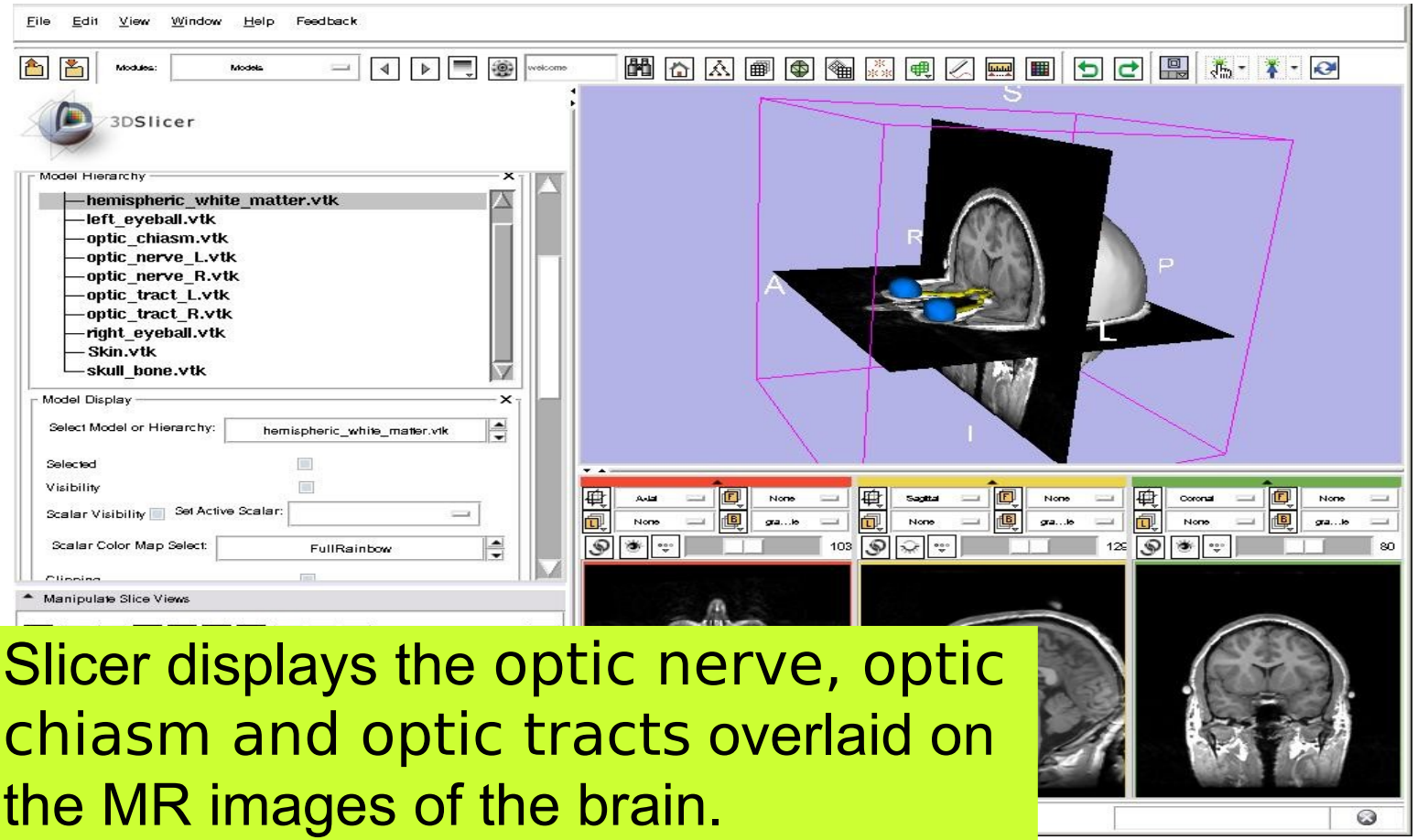
Browse through the coronal slices to expose the 3D model of the white matter and left and right optic nerves.

3D Visualization

Select the hemispheric white matter model in the Model Hierarchy and turn off its visibility.

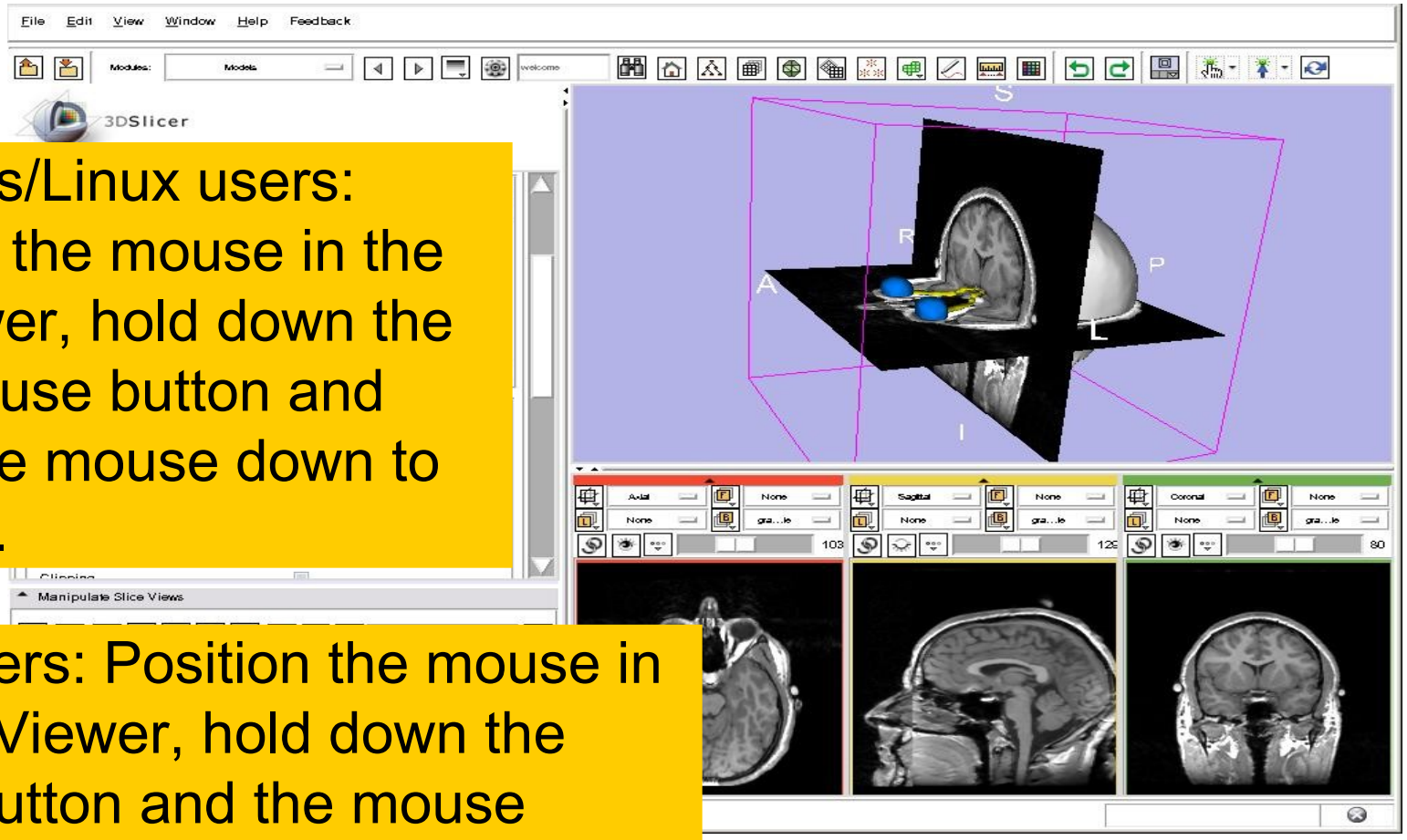


3D Visualization



Slicer displays the optic nerve, optic chiasm and optic tracts overlaid on the MR images of the brain.

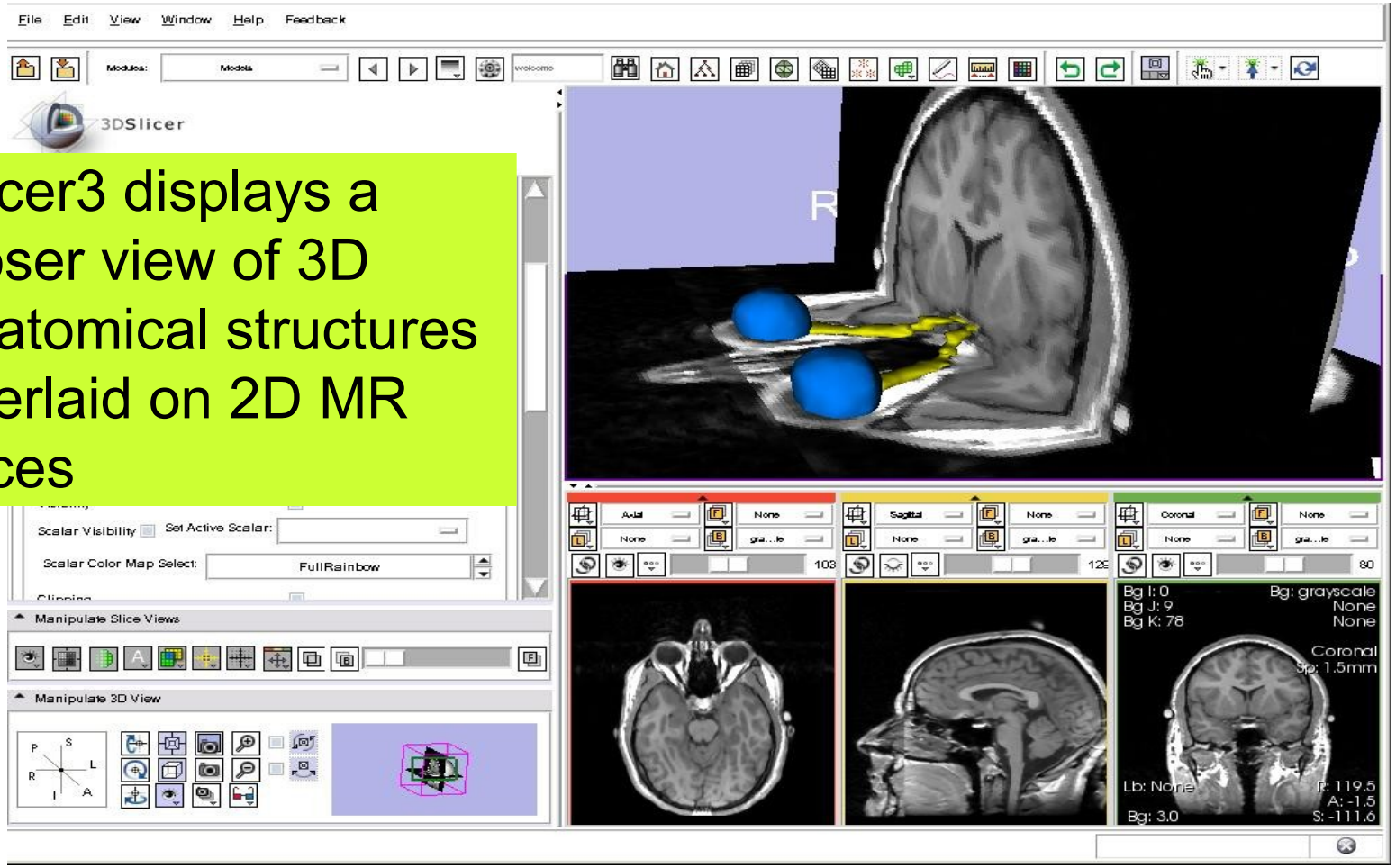
3D Visualization



Windows/Linux users: Position the mouse in the 3D Viewer, hold down the right mouse button and move the mouse down to zoom in.

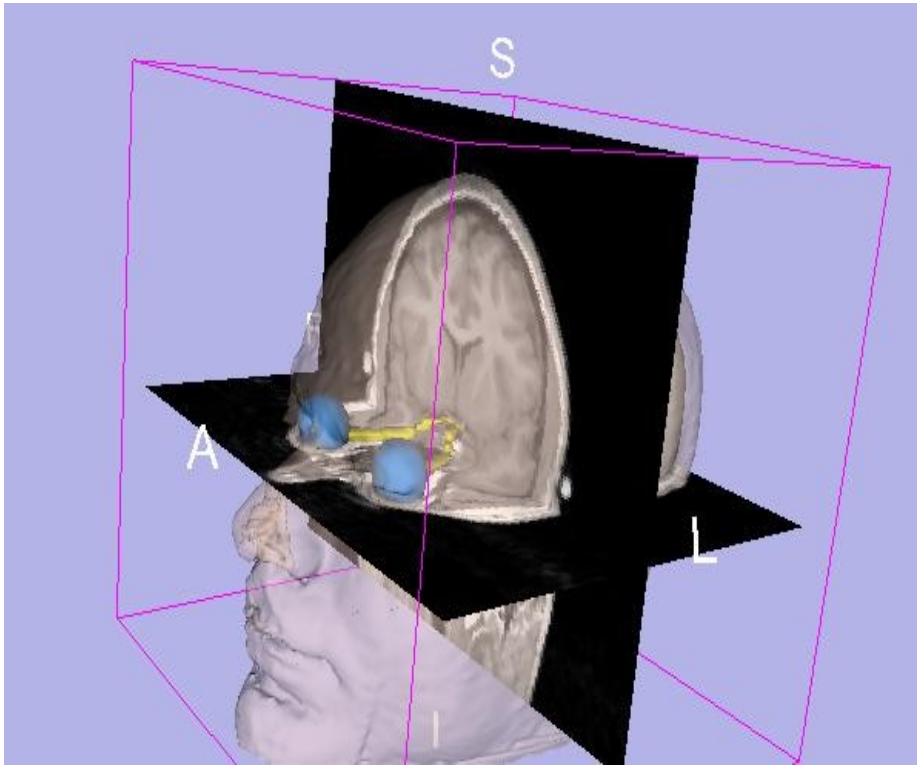
Mac users: Position the mouse in the 3D Viewer, hold down the apple button and the mouse button and move the mouse down to zoom in.

3D Visualization



Slicer3 minute tutorial

- Slicer3 is an open-source software for image analysis and 3D visualization
- Slicer3 core functionalities, 95 available modules and built-in libraries represent more than 2.8 million lines of code
- Slicer3 is a multi-institution effort to share the latest advances in image analysis with the scientific and clinical community.



spujol@bwh.harvard.edu

Acknowledgments

National Alliance for Medical Image Computing

NIH U54EB005149

Neuroimage Analysis Center

NIH P41RR013218