



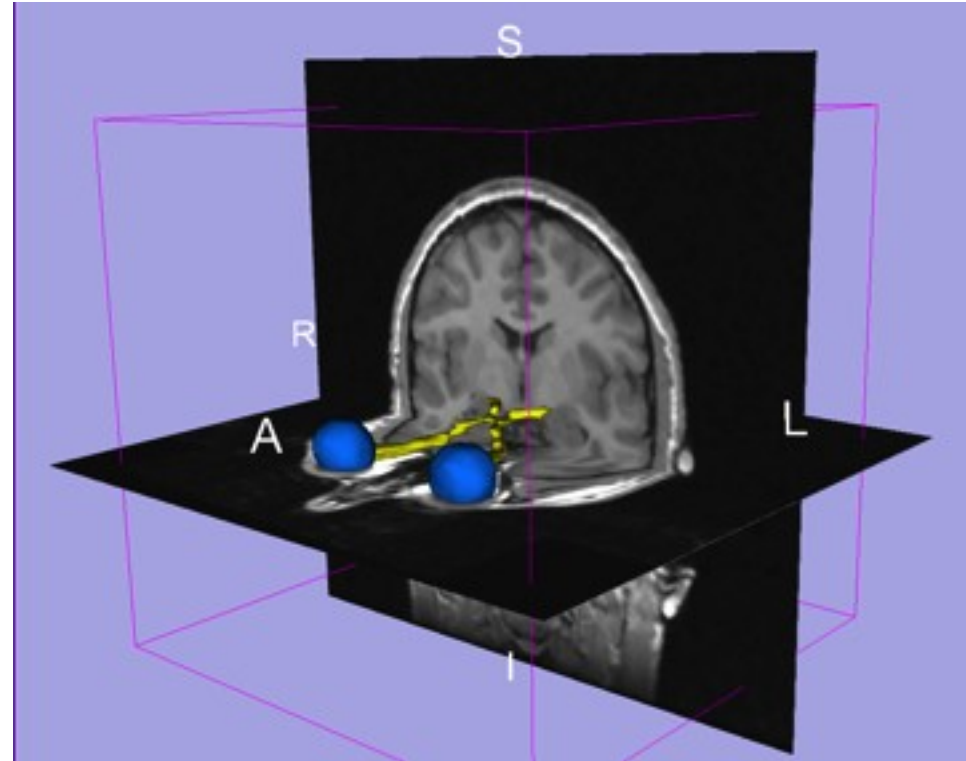
Slicer3 Minute Tutorial

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Surgical Planning Laboratory
Harvard Medical School

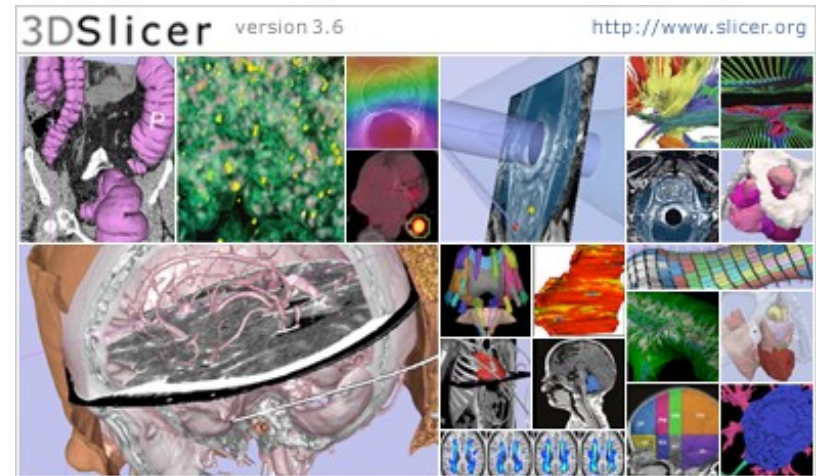
Slicer3 Minute Tutorial

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.**

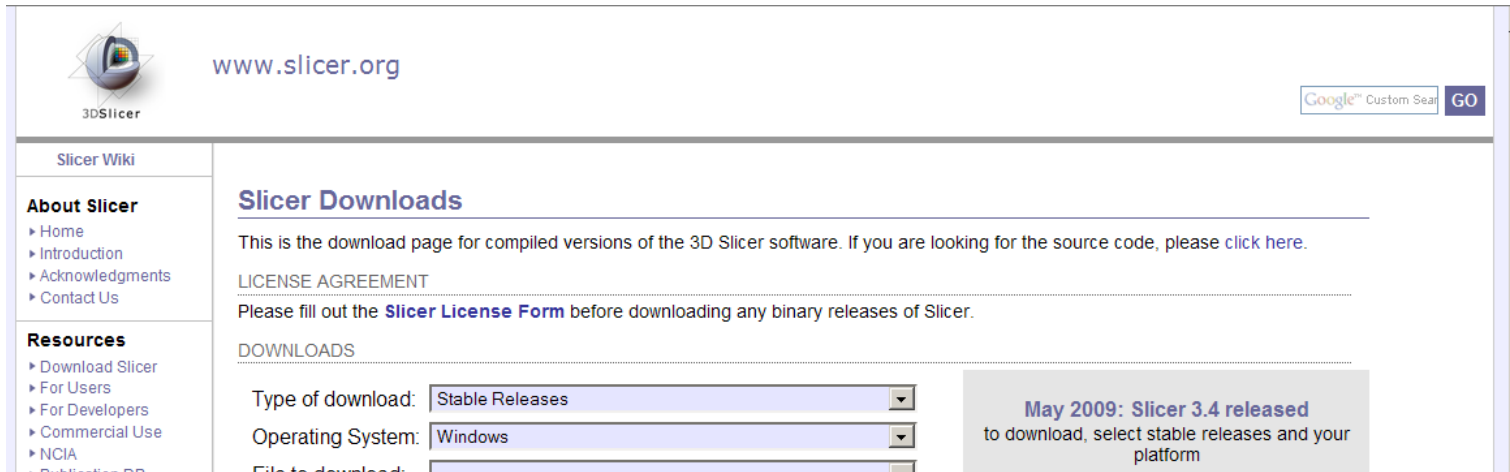
- Download and install the Slicer3.6 software from the Slicer web site

<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 Slicer3.6.1 release version.

Download Slicer3.6



www.slicer.org

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Slicer Wiki

Select Type of download: Nightly Builds

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LICENSE AGREEMENT

Please fill out the [Slicer License Form](#) before downloading any binary releases of Slicer.

DOWNLOADS

Type of download:
 Operating System:
 File to download:

NOTES

- **Stable Releases:** Pre-compiled stable Slicer Releases for Linux, Windows, Mac and Solaris. This is what most people will want to download. See also [the release notes](#).
- **Snapshots:** Custom built Slicer binaries, in various states of completion, i.e. some features might not be stable.
- **Nightly builds:** This contains a week's worth of nightly builds. Nightly builds are experimental and sometimes unstable.
- **x86** means Intel or AMD processors, Darwin is for Mac OS X, PPC means PowerPC processors.
- **Mac:** Darwin is the OpenSource software environment for Apple's Mac OS X
- **Hardware/OS requirement:** Either Windows XP or more recent, Linux (x86 or x86_64), Mac OS X (ppc or Intel), min 2 GB of RAM and a dedicated graphic accelerator with at least 128 MB of on-board graphic memory (512 or more recommended). Shared memory graphics will result in slow render speeds.
- **X11 for Mac:** On Mac OS X you will need to install X11 from the CD. As an alternative, we had good experience with xquartz.

DOCUMENTATION AND TRAINING

- Please visit the [documentation pages](#) for the 'live' reference manual for 3D Slicer.
- Instructions on how to use Slicer can be found on the [training pages](#).

June 2010: Slicer 3.6 released
to download, select stable releases and your platform

3DSlicer version 3.6 <http://www.slicer.org>



Download Slicer3.6

Select the corresponding release:

http://www.na-mic.org/Slicer/Download/Nightly/Slicer3-3.6-2010-08-16-linux-x86_64.tar.gz

<http://www.na-mic.org/Slicer/Download/Nightly/Slicer3-3.6-2010-08-16-linux-x86.tar.gz>

<http://www.na-mic.org/Slicer/Download/Nightly/Slicer3-3.6-2010-08-16-win32.exe>

<http://www.na-mic.org/Slicer/Download/Nightly/Slicer3-3.6-2010-08-16-darwin-x86.tar.gz>

[Licensing](#)
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[Web Archive](#)

NOTES


- **Stable Releases:** what most people use
- **Snapshots:** Custom builds
- **Nightly builds:** This is the latest development version. It is experimental and sometimes unstable.
- **x86 means Intel or AMD processors.**
- **Mac:** Darwin is the OS name for Mac OS X (ppc or Intel), min 2 GB of RAM and a dedicated graphics card (recommended). Shareware is available for Mac OS X.
- **X11 for Mac:** On Mac OS X, we had good experience with Xquartz.

[Slicer3-3.7-alpha-2010-07-31-darwin-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-30-linux-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-30-darwin-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-29-linux-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-29-darwin-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-28-linux-x86_64.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-28-linux-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-27-win32.exe](#)
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[Slicer3-3.7-alpha-2010-07-27-linux-x86.tar.gz](#)
[Slicer3-3.7-alpha-2010-07-27-darwin-x86.tar.gz](#)
[Slicer3-3.6-2010-08-04-darwin-x86.tar.gz](#)
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[Slicer3-3.6-2010-08-03-linux-x86.tar.gz](#)
[Slicer3-3.6-2010-08-02-linux-x86_64.tar.gz](#)
[Slicer3-3.6-2010-07-28-darwin-x86.tar.gz](#)
[Slicer3-3.6-2010-07-27-darwin-x86.tar.gz](#)

DOCUMENTATION AND TRAINING

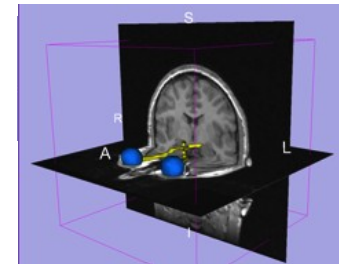
- Please visit the [documentation pages](#) for the 'live' reference manual for 3D Slicer.
- Instructions on how to use Slicer can be found on the [training pages](#).

3DSlicer version 3.6 <http://www.slicer.org>



Download the Material

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

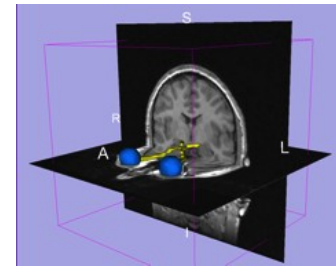


- Download the training dataset:
Slicer3minuteDataset.zip

<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 Slicer3executable located in the Slicer3.6 directory

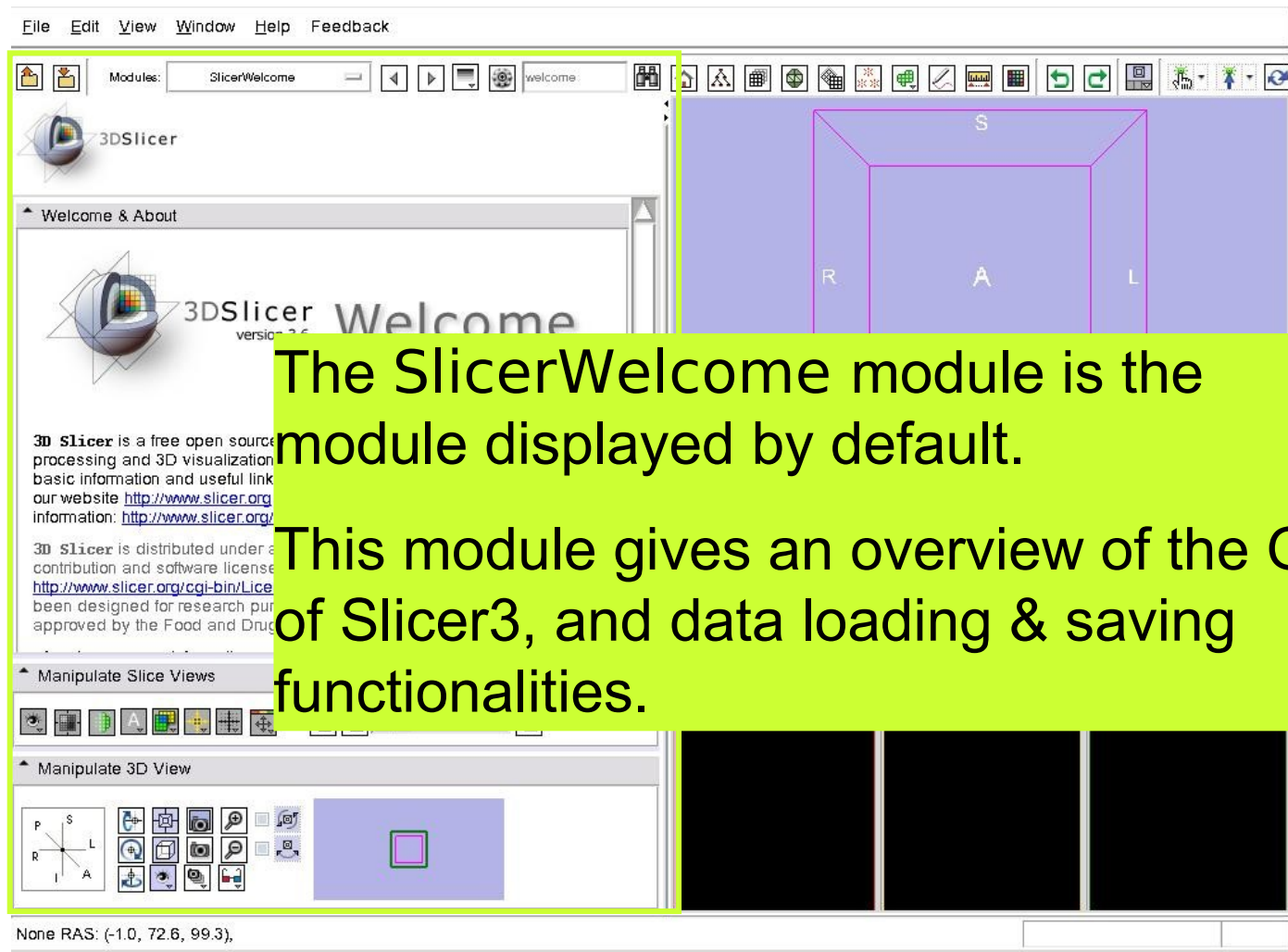
Windows users

Select

Start → All Programs → Slicer3-3.6-2010-08 16 → Slicer3



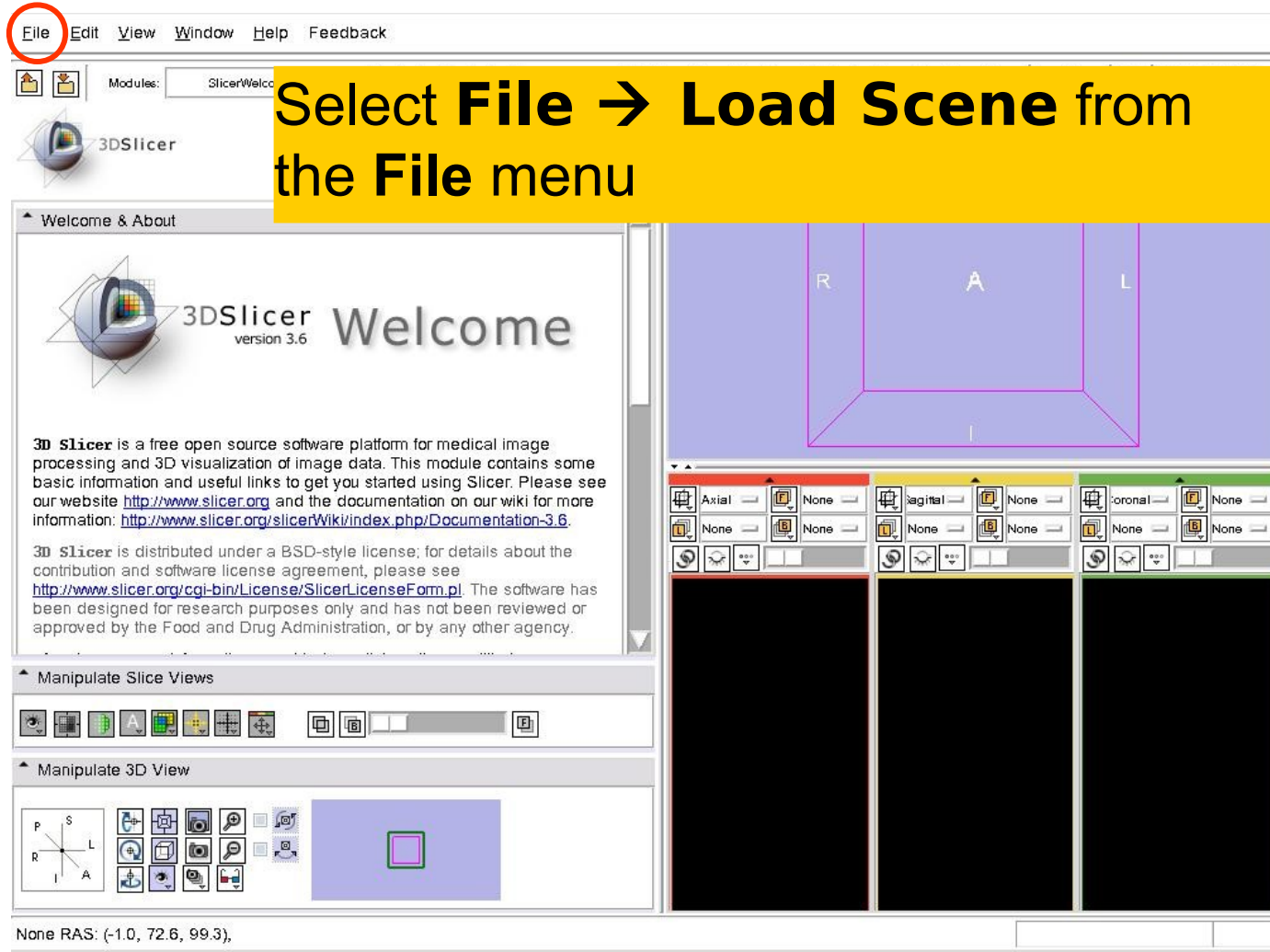
Slicer Welcome



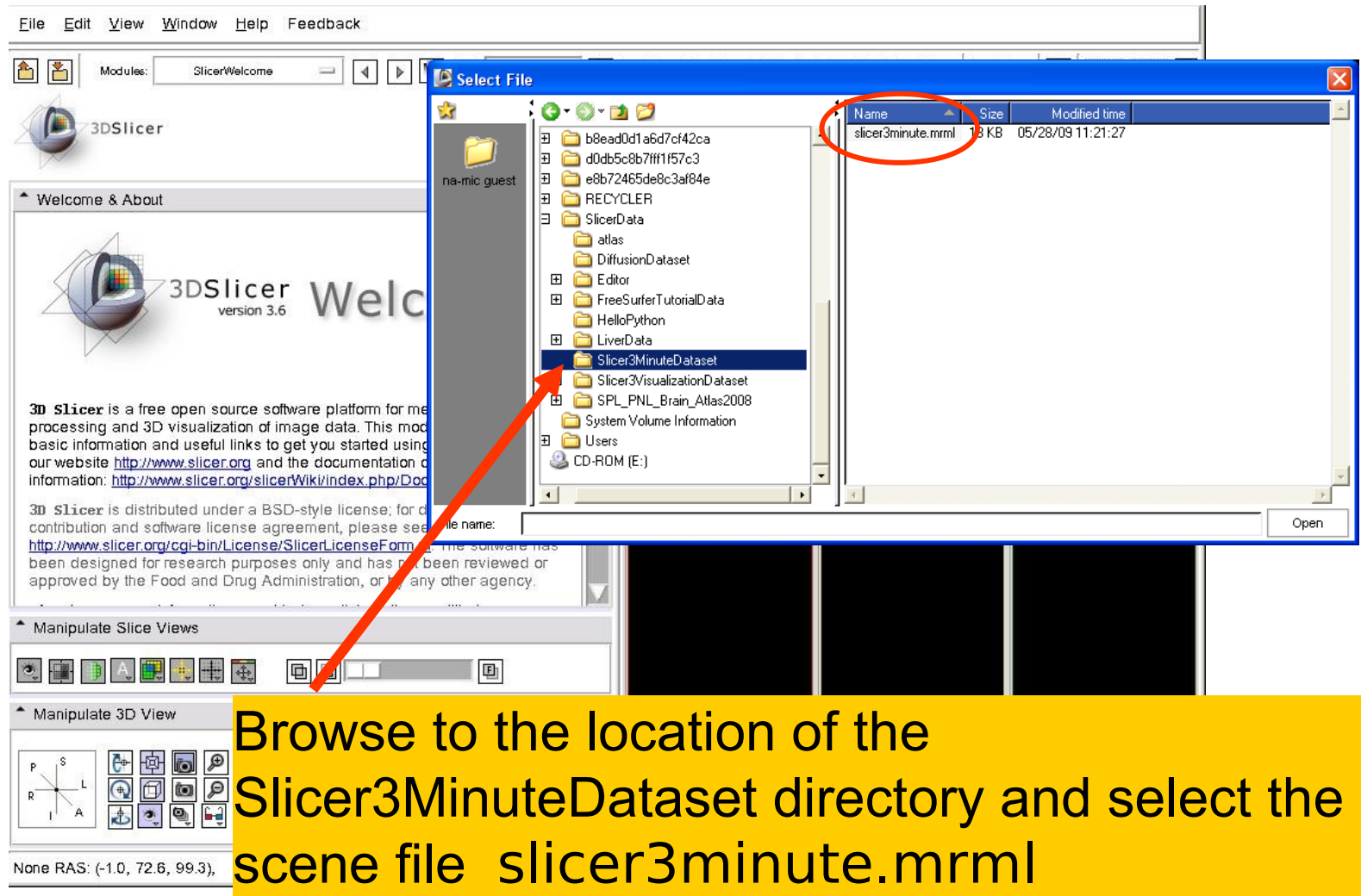
The SlicerWelcome module is the module displayed by default.

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

Loading a 3D Scene



Loading a 3D Scene

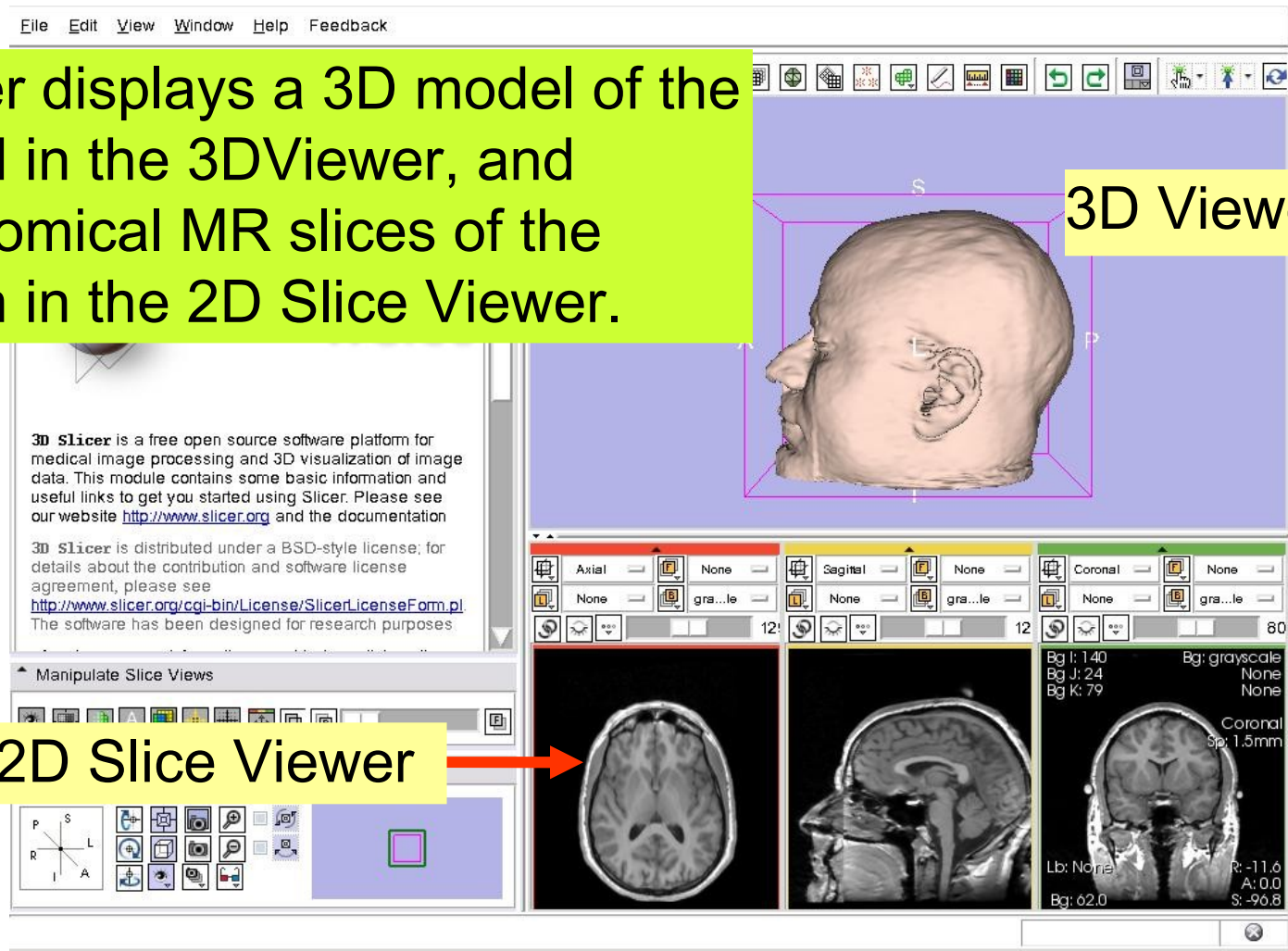


Browse to the location of the
Slicer3MinuteDataset directory and select the
scene file slicer3minute.mrml

Click on Open to load the scene

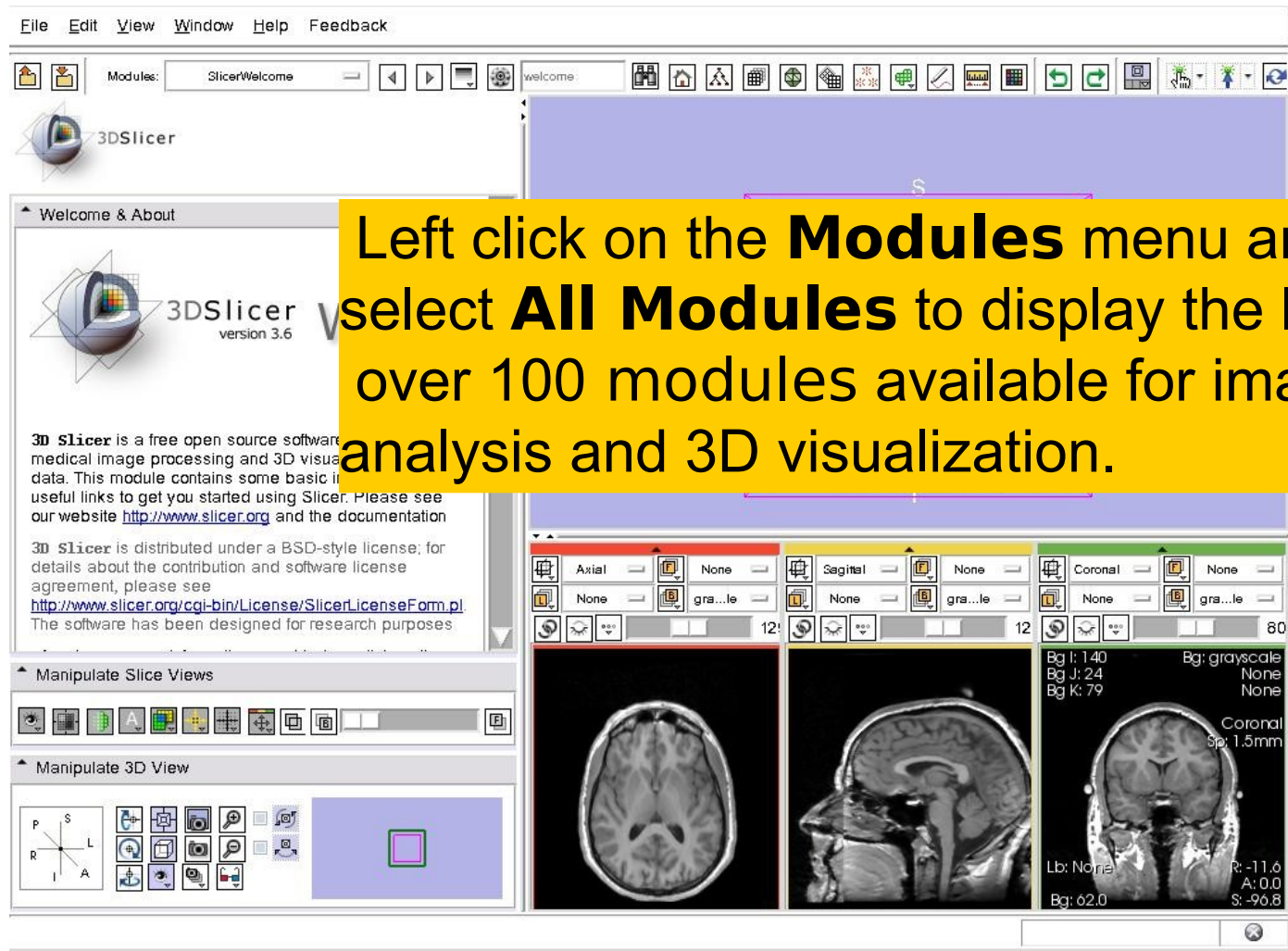
Loading a 3D Scene

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

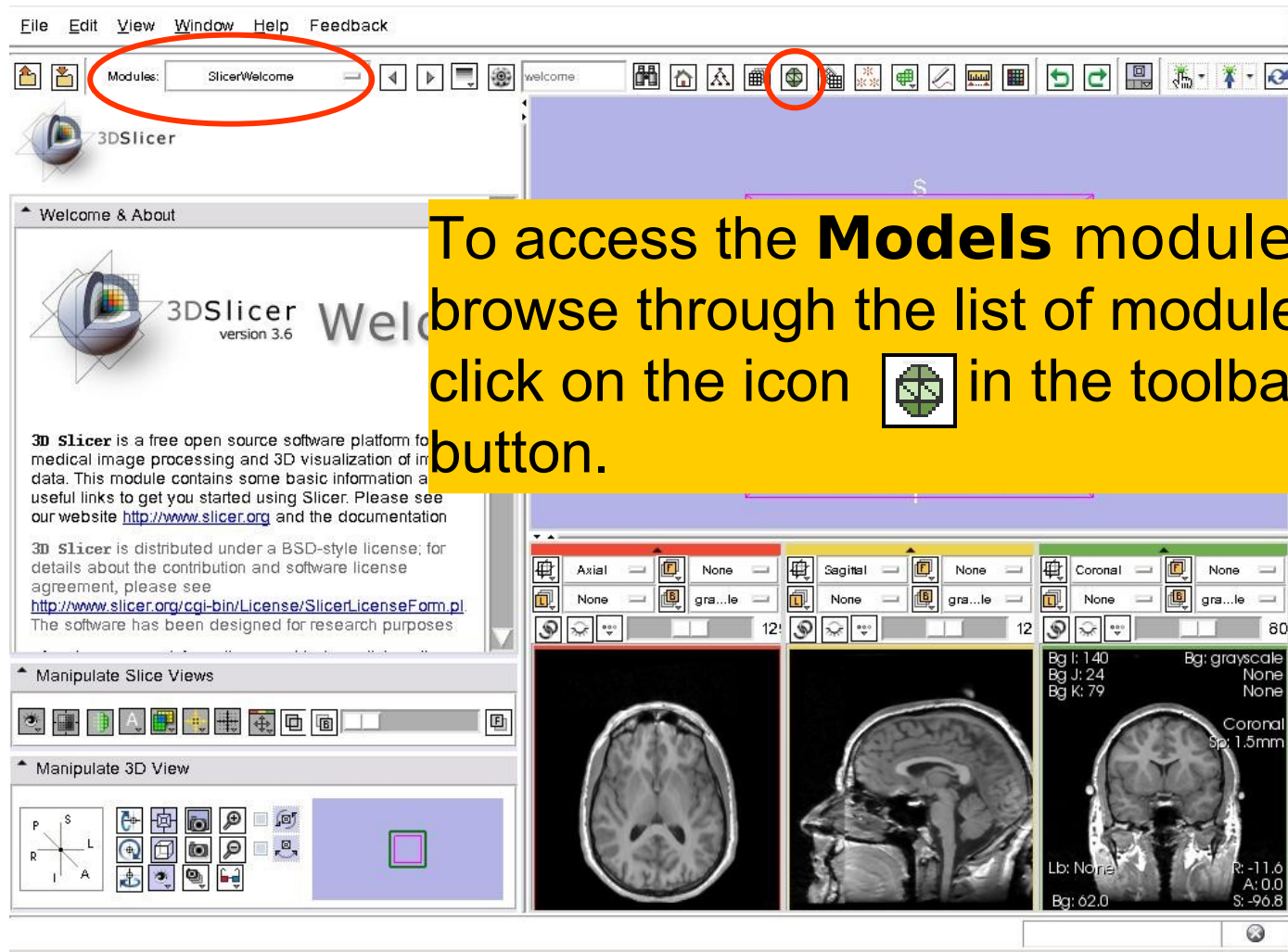




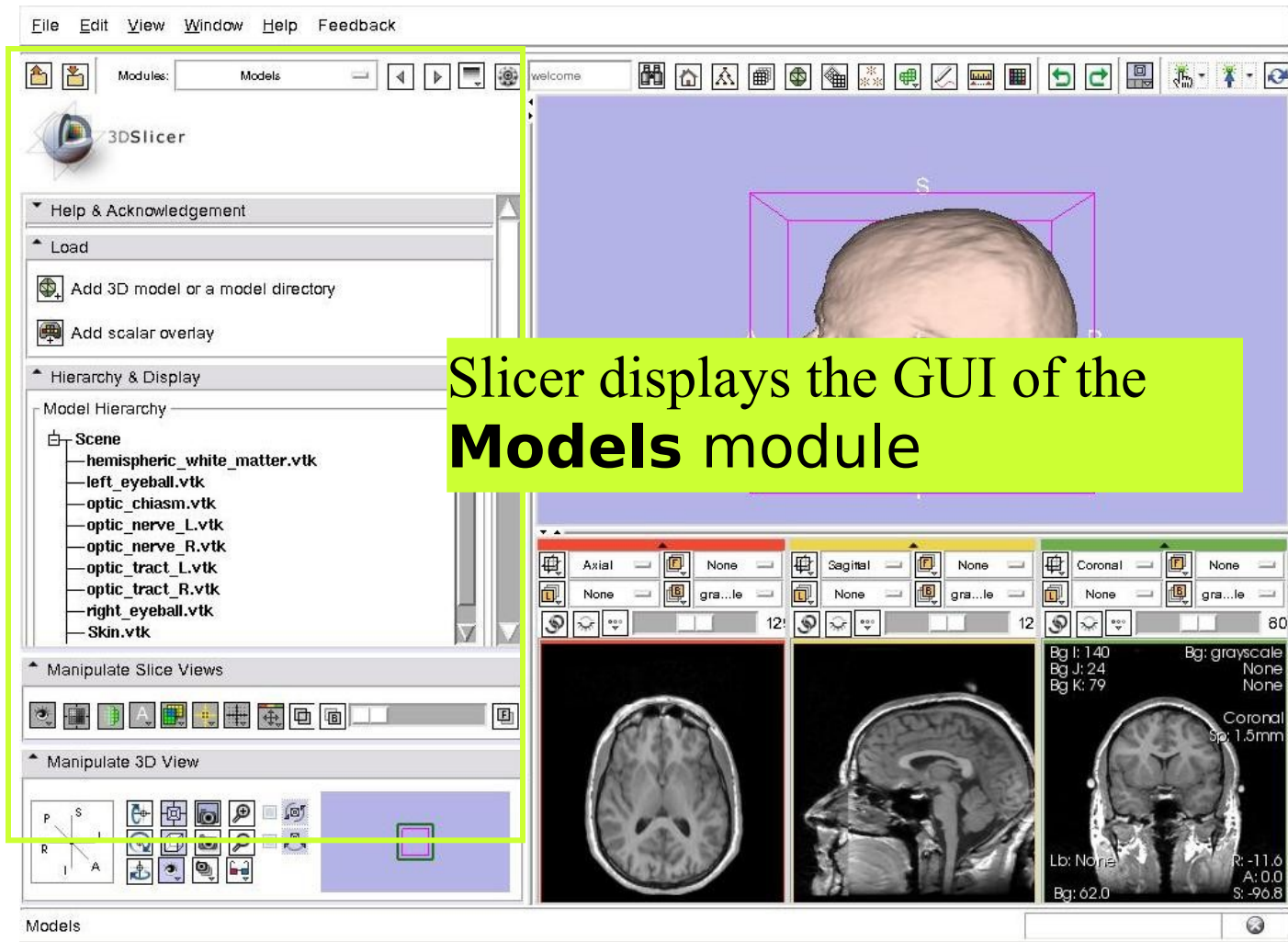
Loading a 3D Scene



Loading a 3D Scene

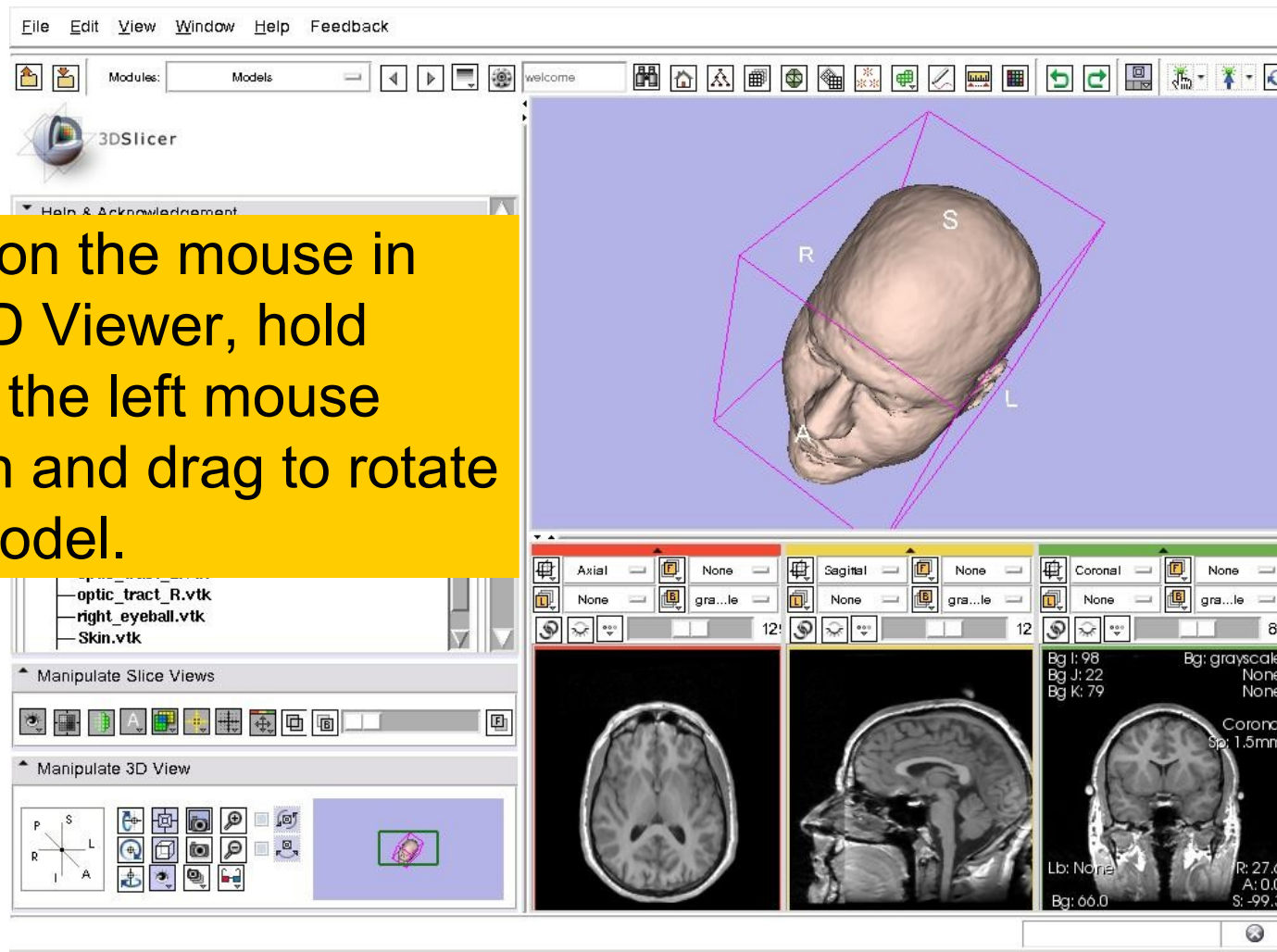


Loading a 3D Scene




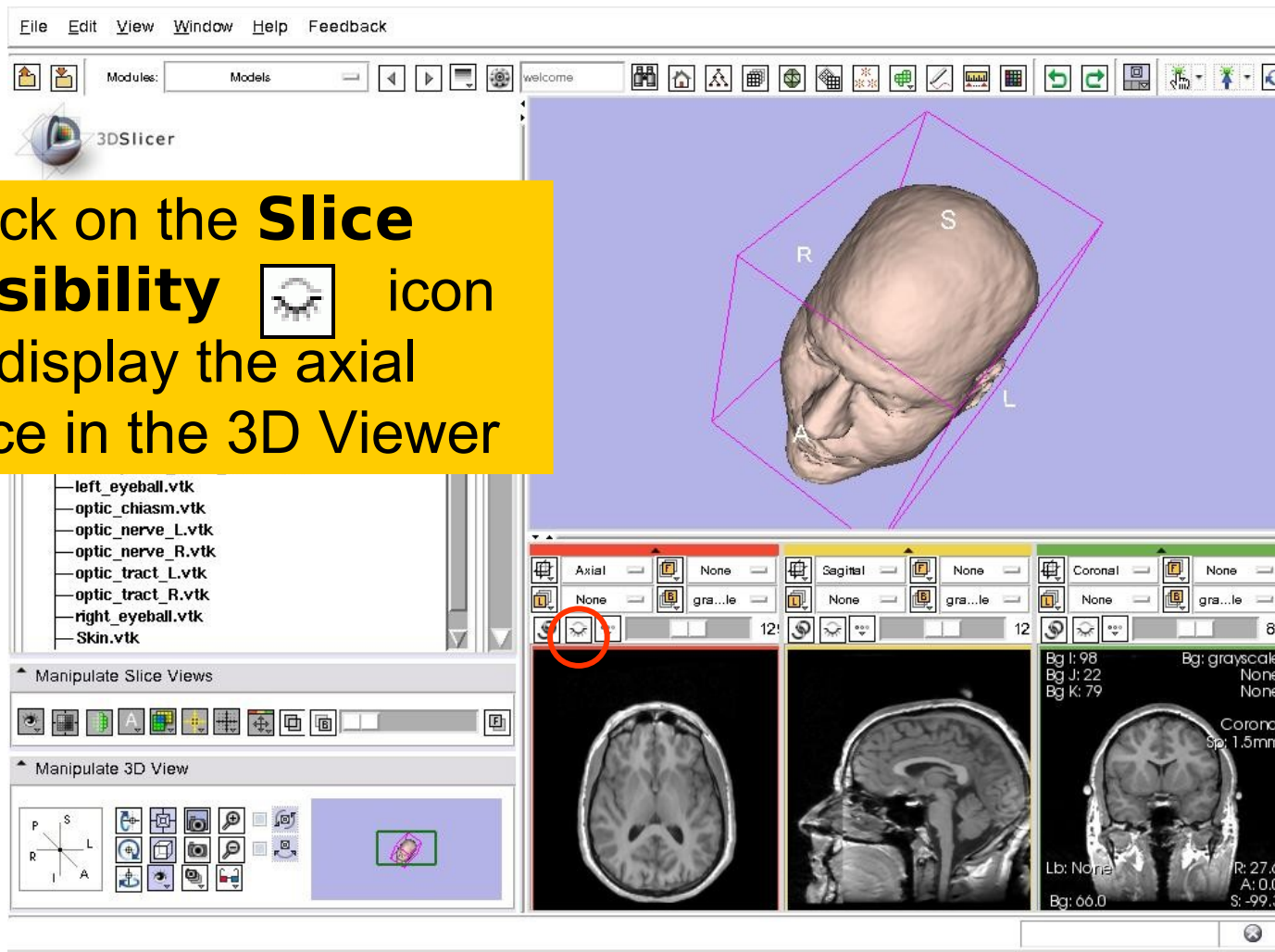
3D Visualization

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

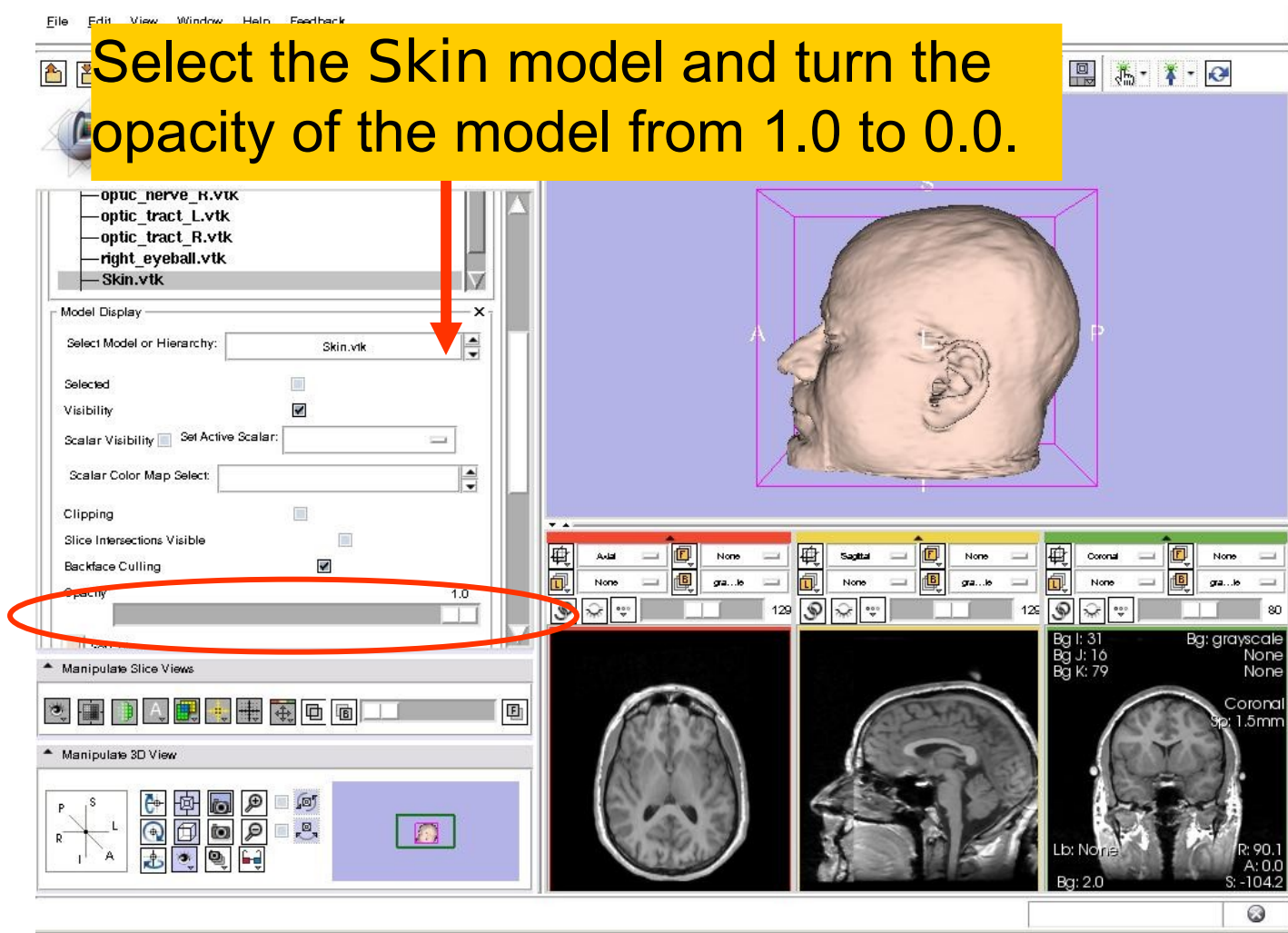


3D Visualization

Click on the **Slice Visibility**  icon to display the axial slice in the 3D Viewer

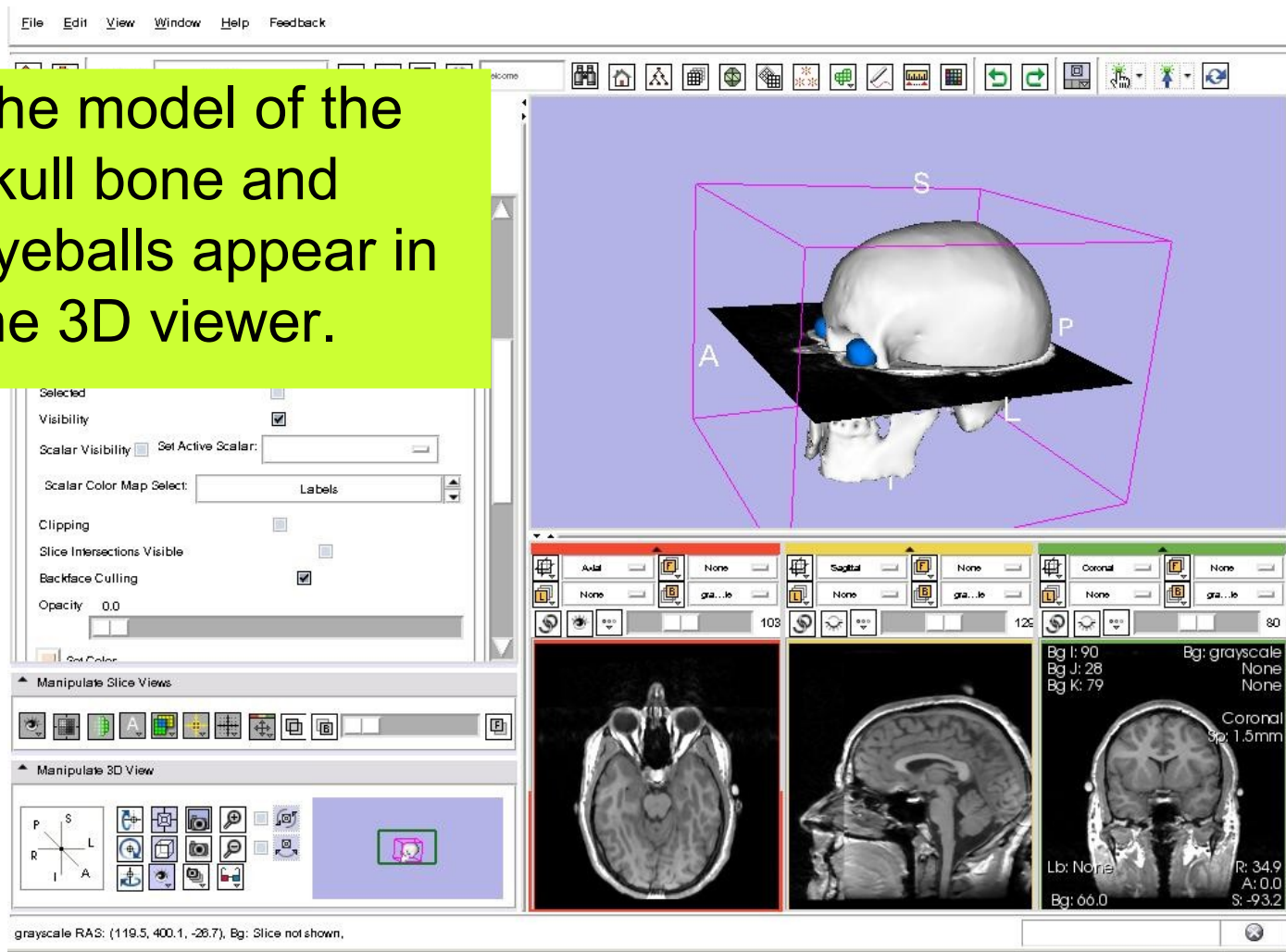


3D Visualization

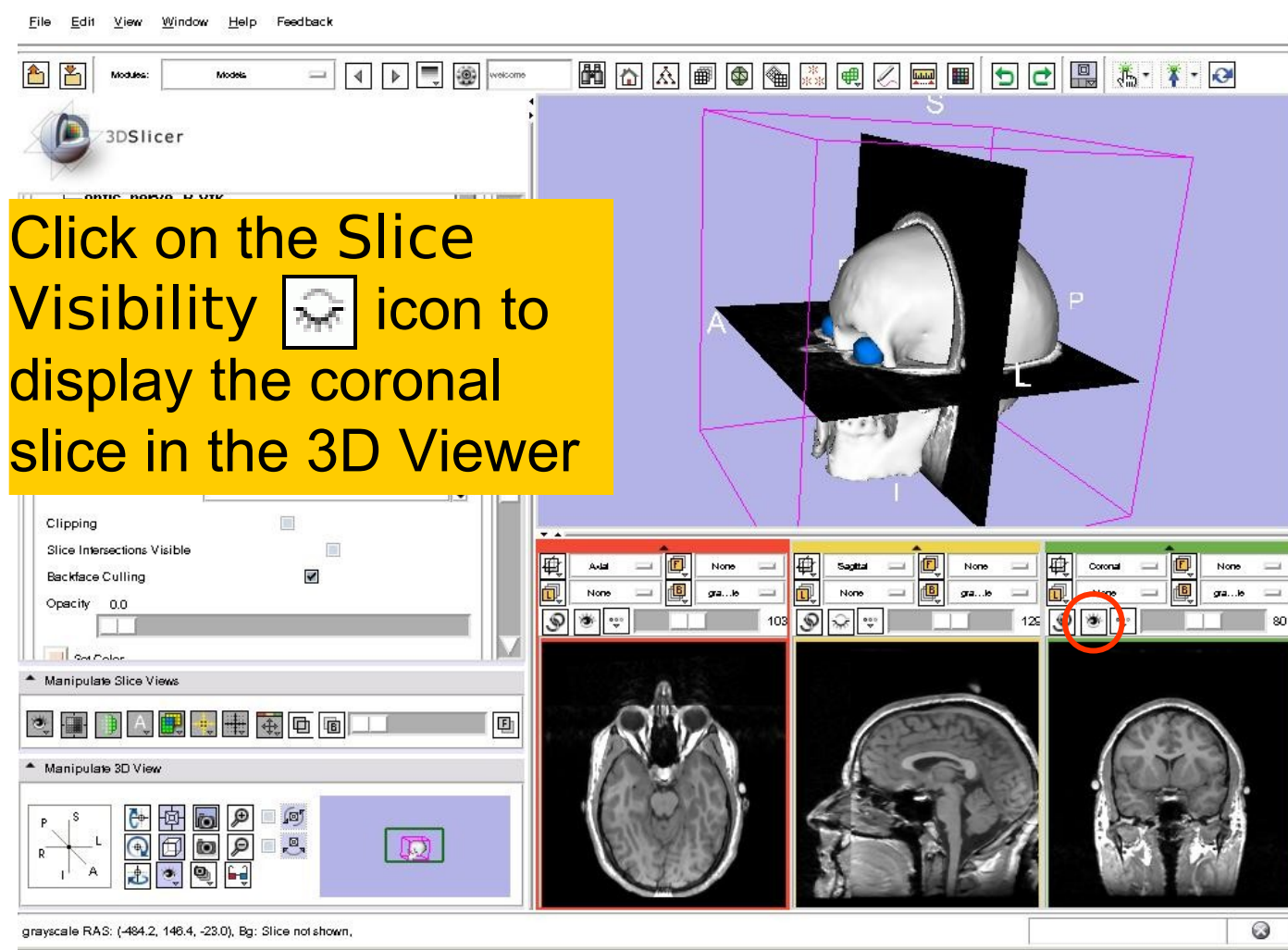


3D Visualization

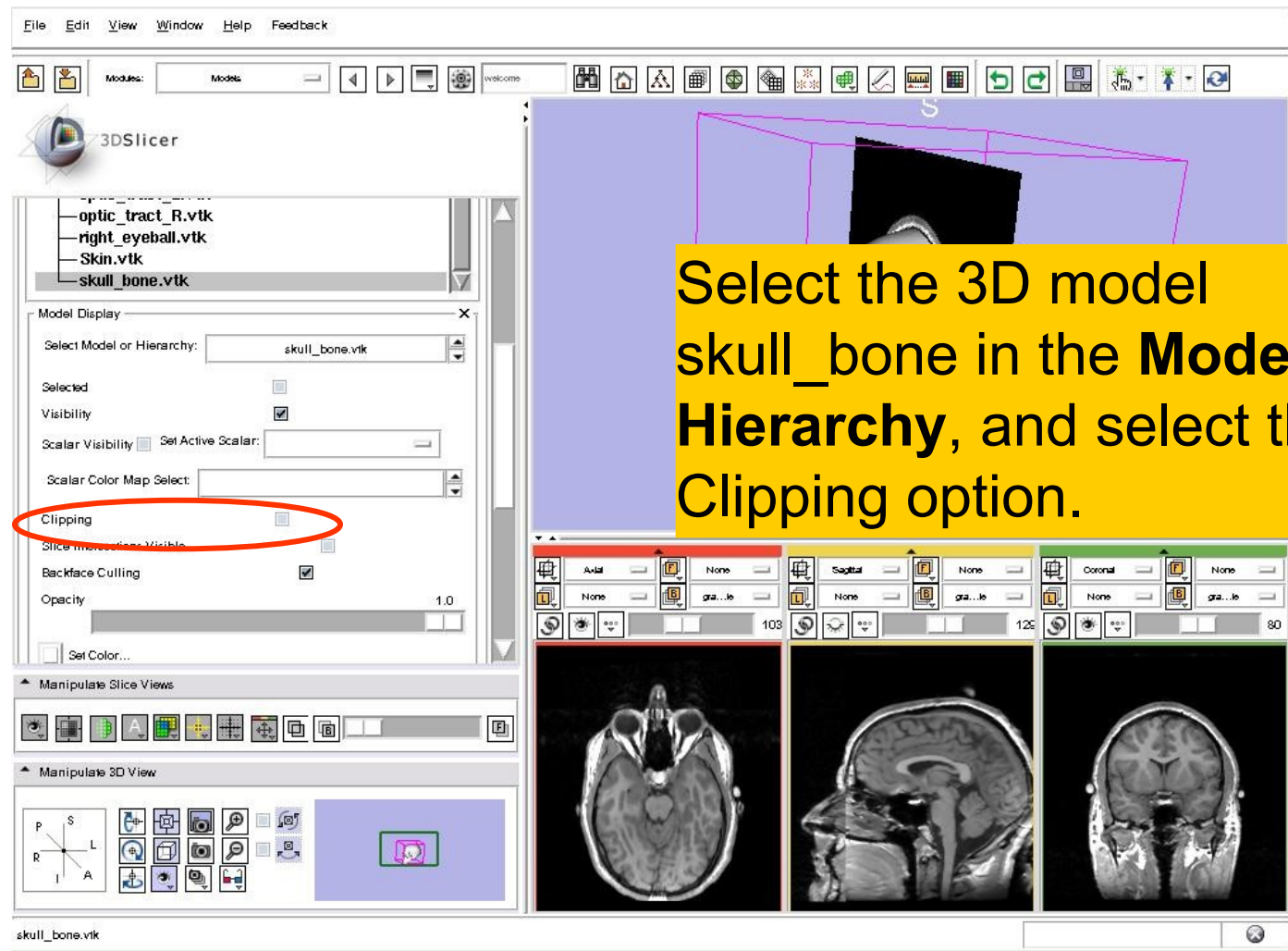
The model of the skull bone and eyeballs appear in the 3D viewer.



3D Visualization

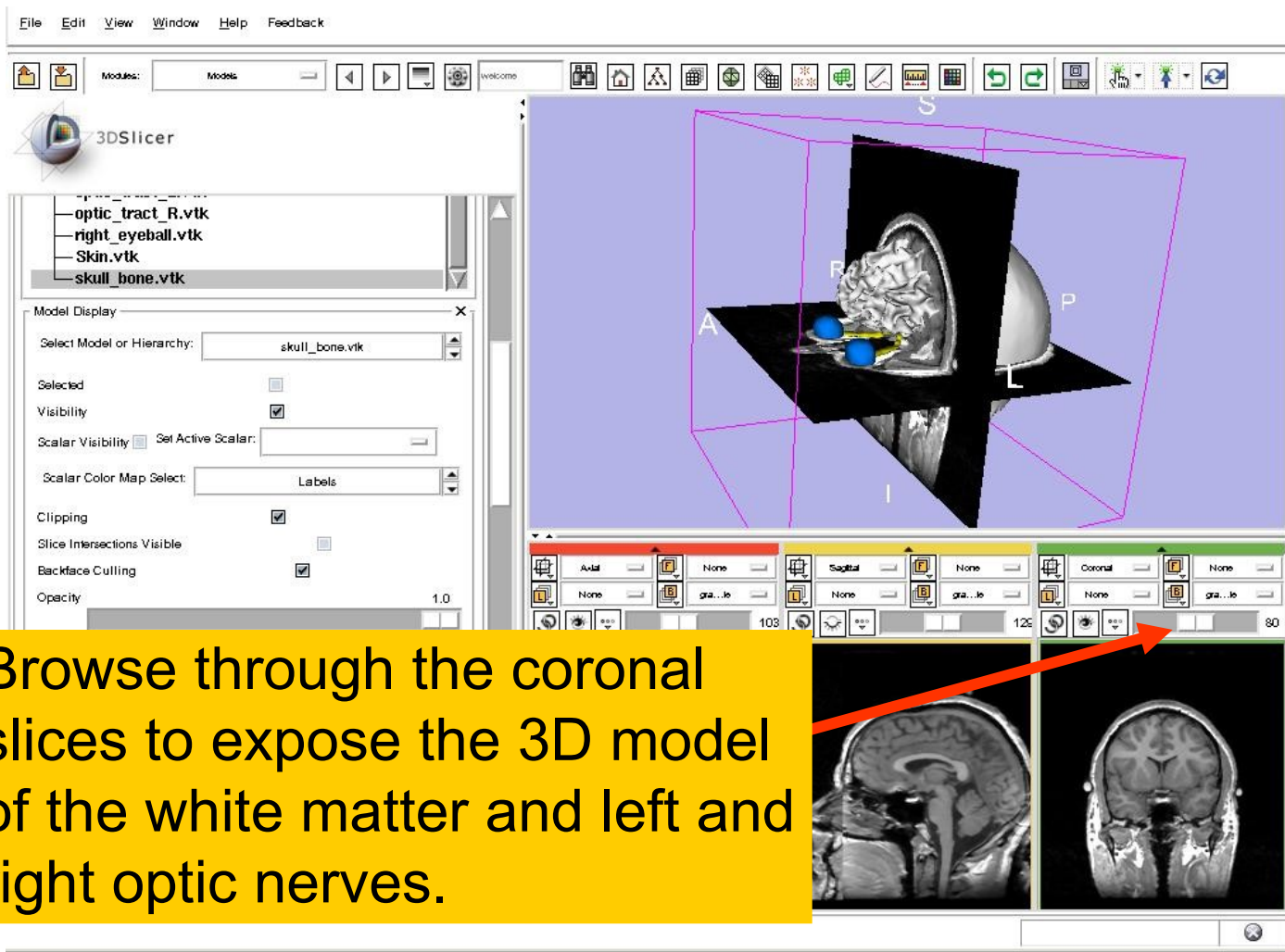


3D Visualization



Select the 3D model
skull_bone in the **Model
Hierarchy**, and select the
Clipping option.

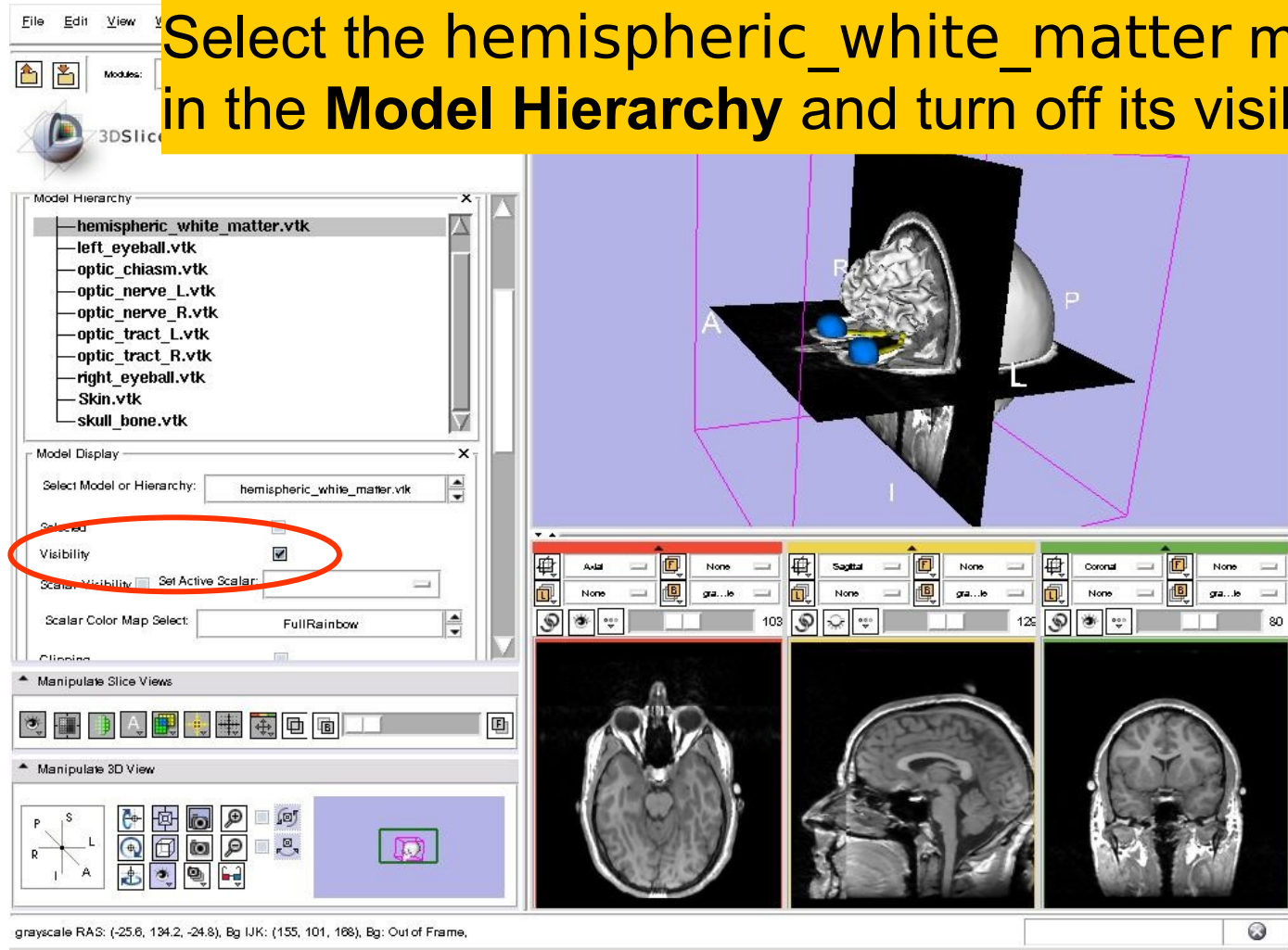
3D Visualization



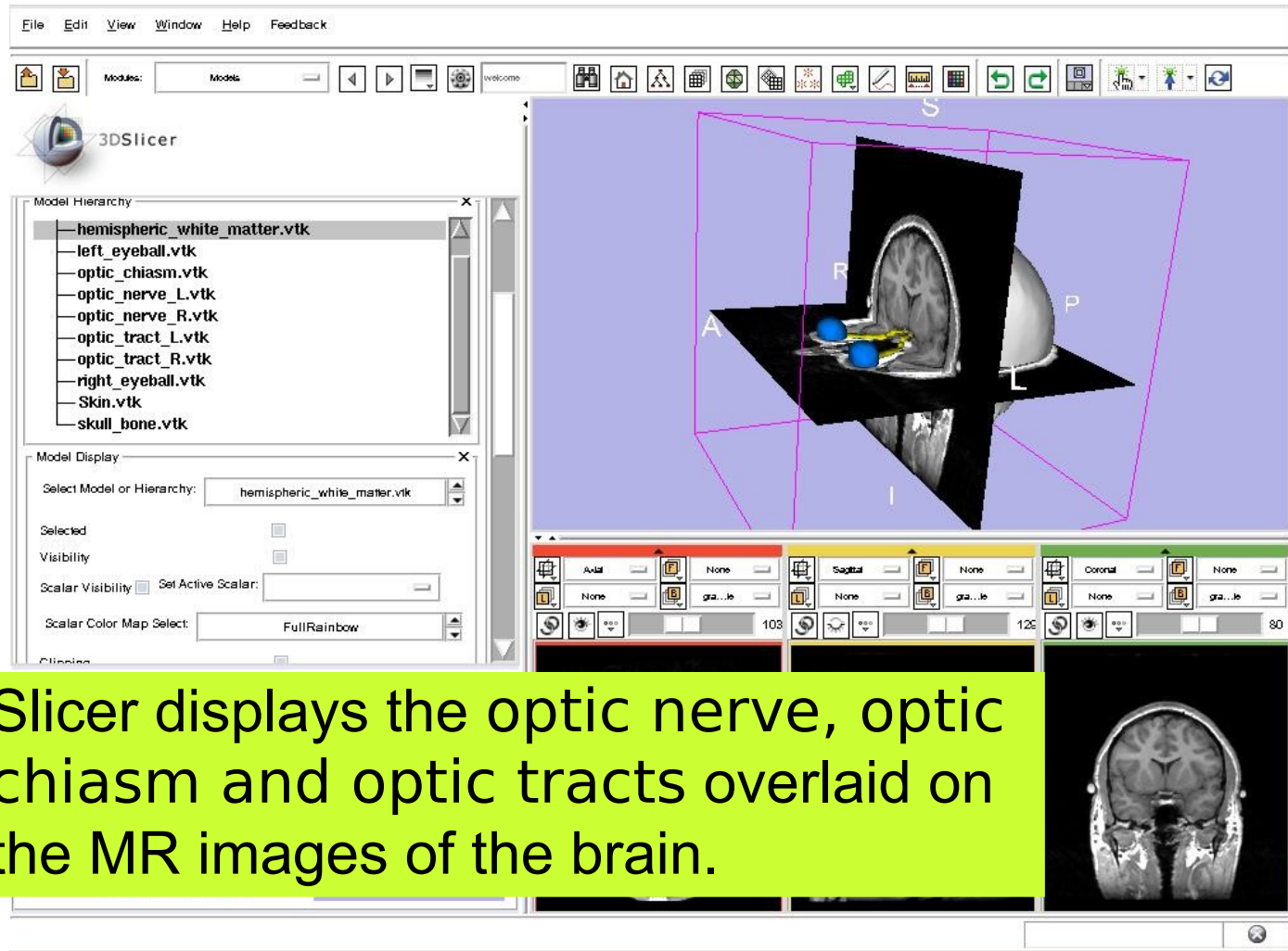
Browse through the coronal slices to expose the 3D model of the white matter and left and right optic nerves.

3D Visualization

Select the hemispheric_white_matter model in the **Model Hierarchy** and turn off its visibility.



3D Visualization

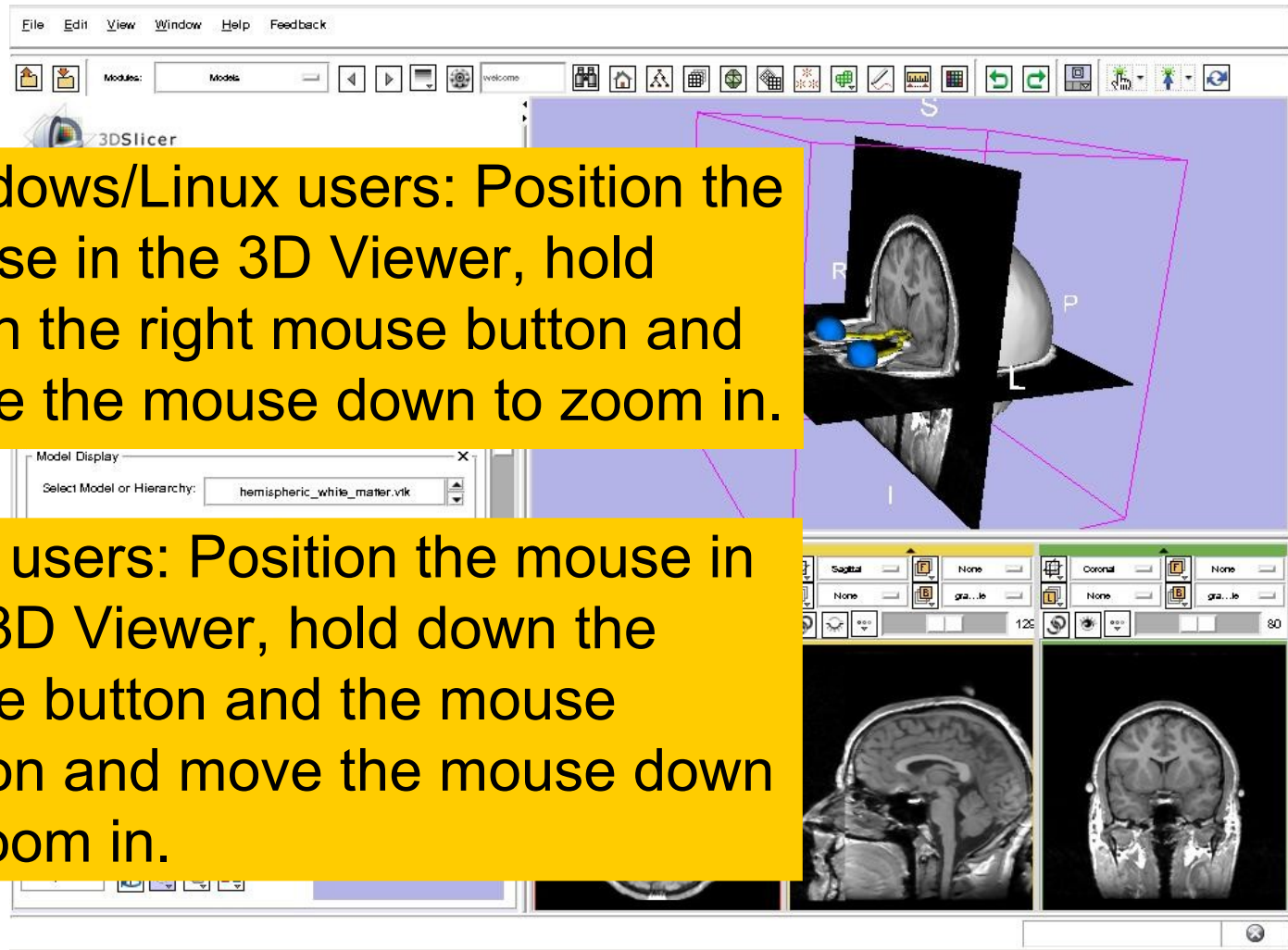


Slicer displays the optic nerve, optic chiasm and optic tracts overlaid on the MR images of the brain.

3D Visualization

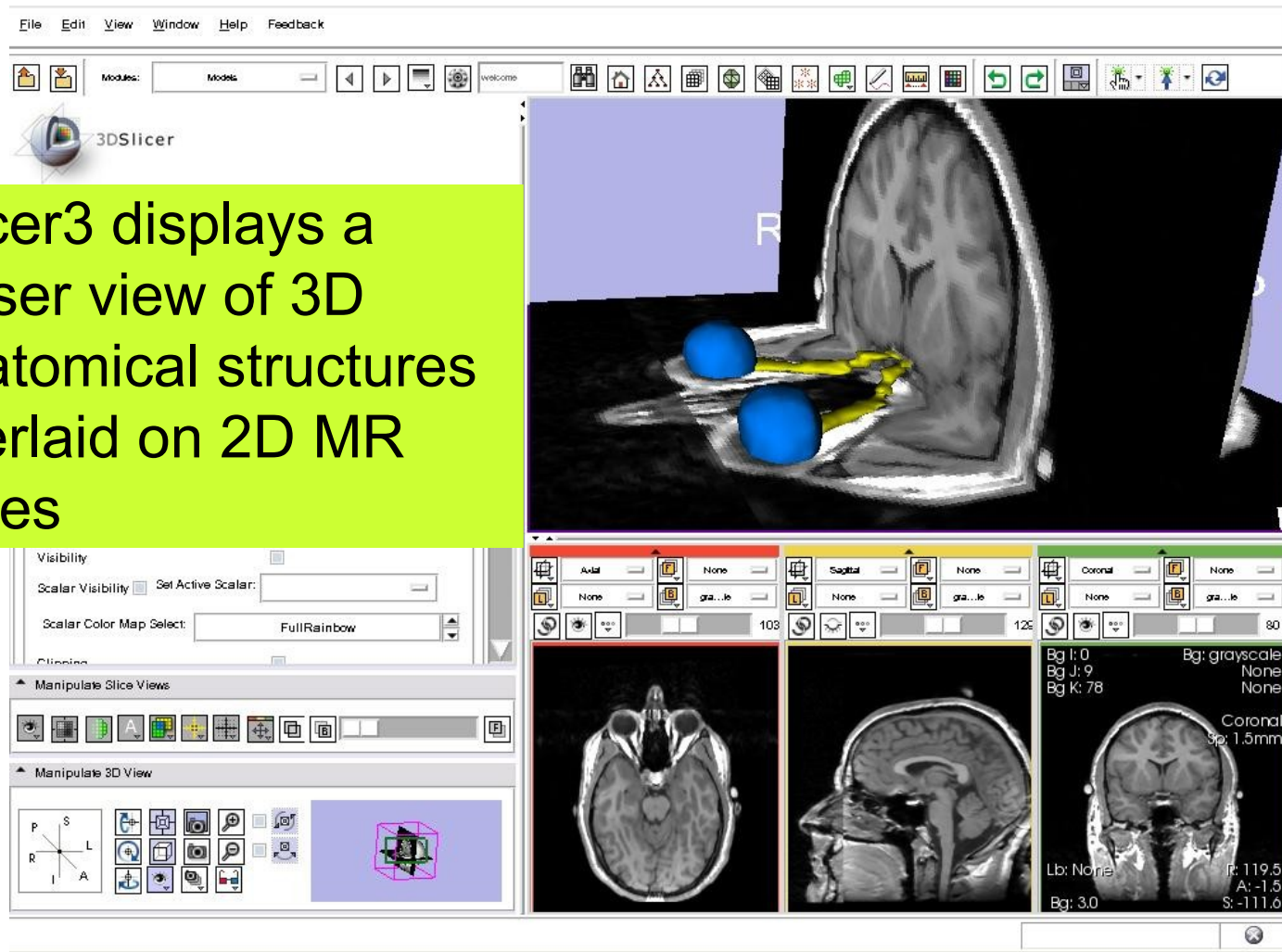
Windows/Linux users: Position the mouse in the 3D Viewer, hold down the right mouse button and move the mouse down to zoom in.

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.



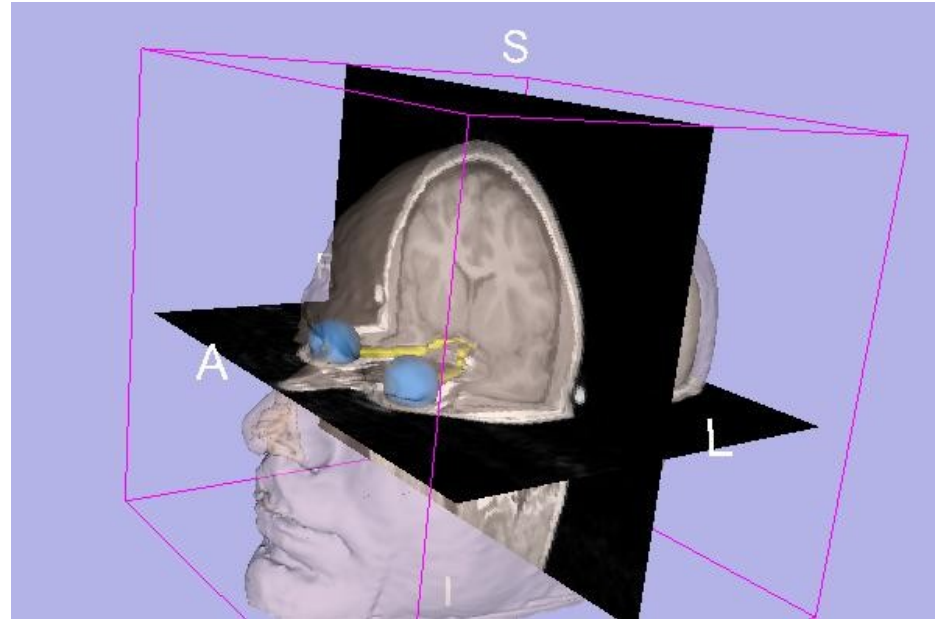
3D Visualization

Slicer3 displays a closer view of 3D anatomical structures overlaid on 2D MR slices



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 at bwh.harvard.edu

Acknowledgments



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Image Computing**

NIH U54EB005149



Neuroimage Analysis Center

NIH P41RR013218