

Imeka

MI-Brain primer

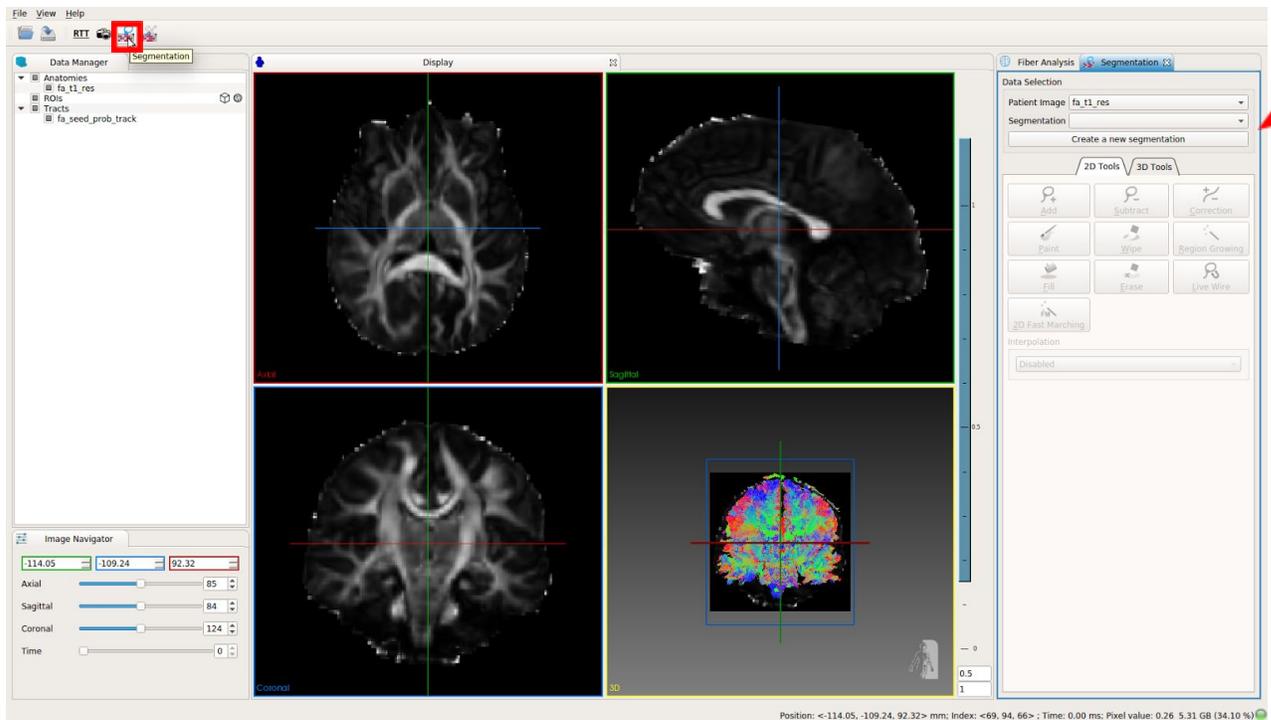
This document provides an introduction to the main features of the MI-Brain software. We recommend the reader to have the MI-Brain cheatsheet nearby to help you perform some of the operations in this tutorial such as how to move/resize a selection object.

At the end of this tutorial, you should be able to perform bundle dissection from a whole brain tractogram and explore your data using real-time tractography.

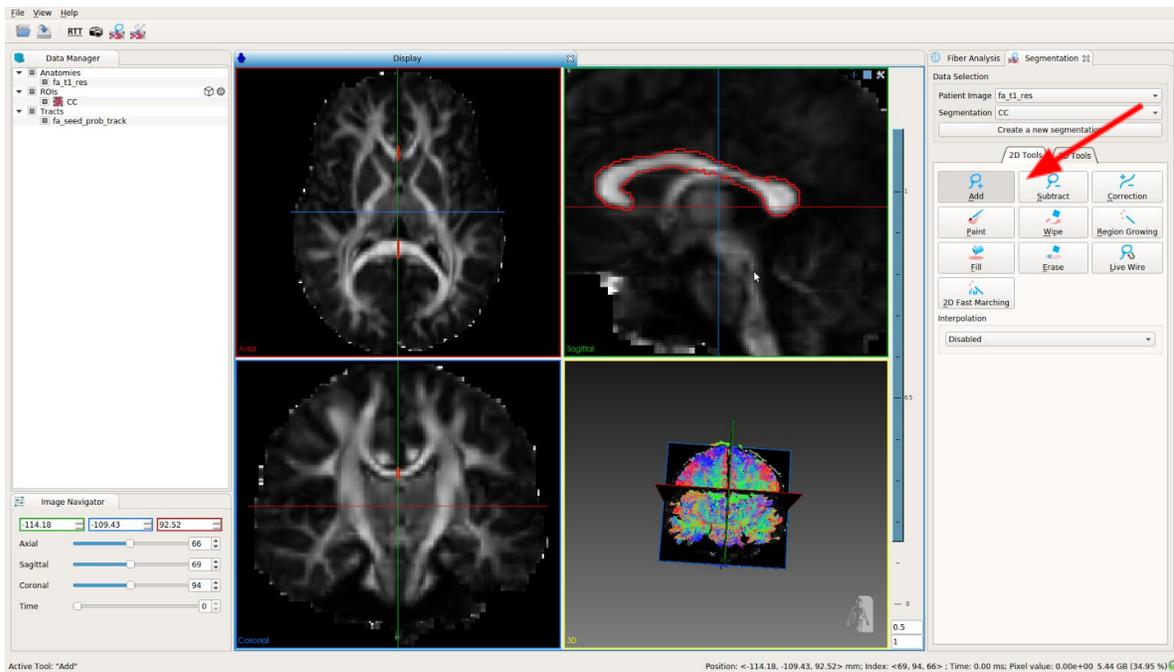
Bundle segmentation from a whole brain tractogram

This section will show the reader how to segment a small subsection of the corpus callosum (CC)

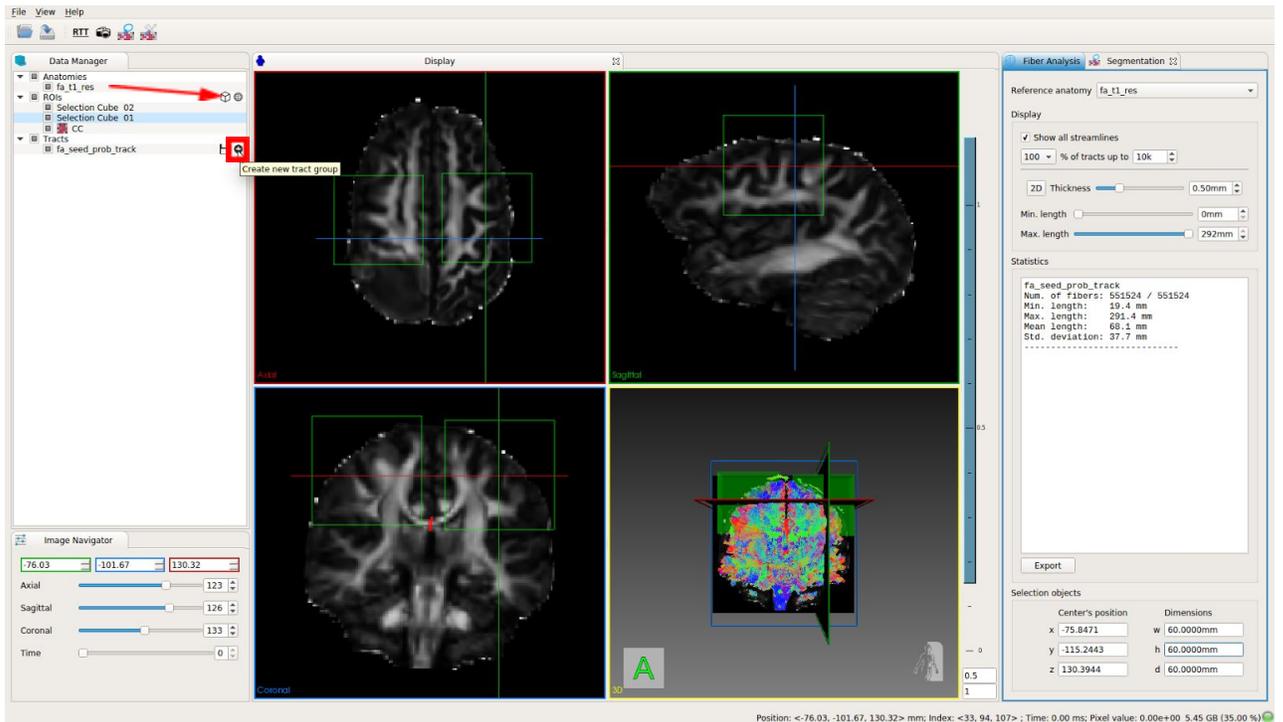
1. Load your files in MI-Brain (FA and tractogram)
2. Open the **Segmentation** plugin and create a new mask



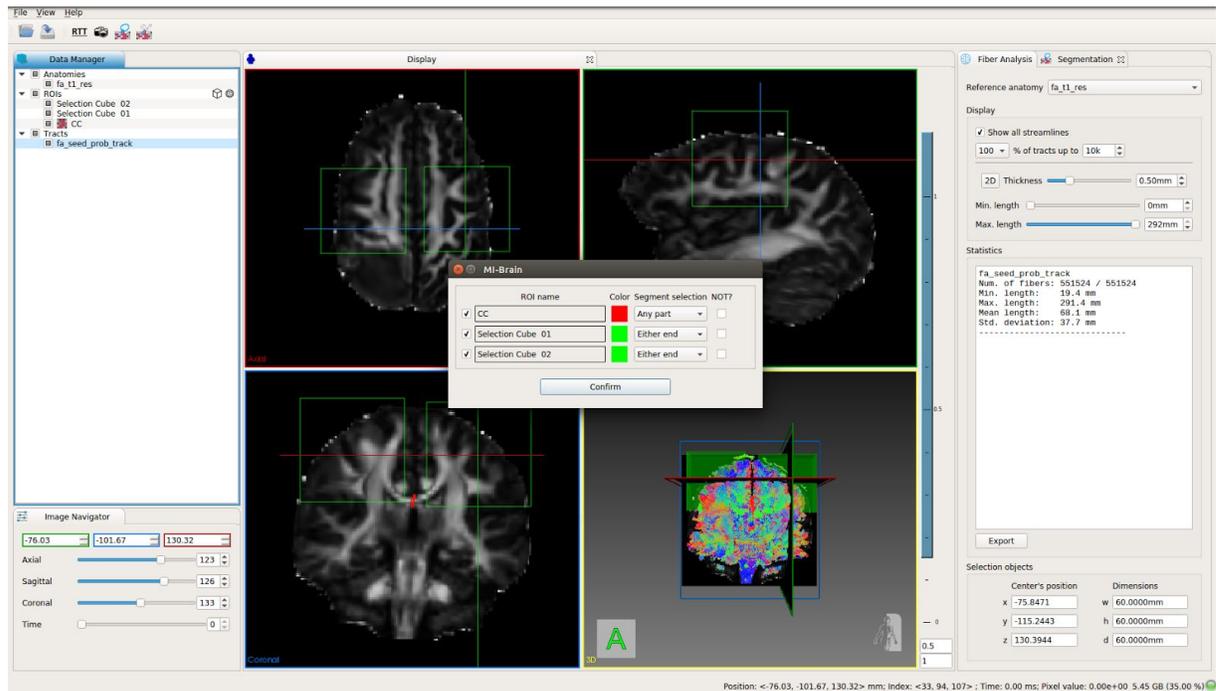
3. Draw a ROI around in CC in the sagittal plane using the **Add** segmentation tool



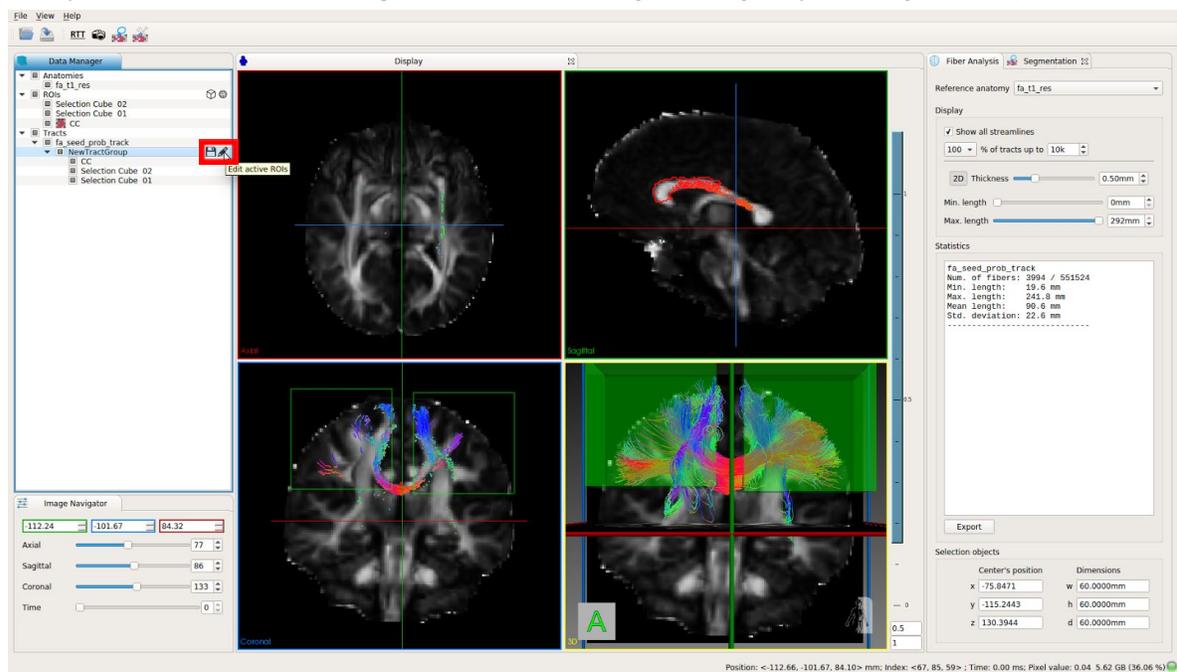
4. Add two big selection object and place them on each side, and then add a tract group by clicking on the plus sign next to the tractogram in the **Data Manager**



- Using the logic system in the pop up window, select only streamlines with **one** end in each selection object and with **any part** going through the CC mask

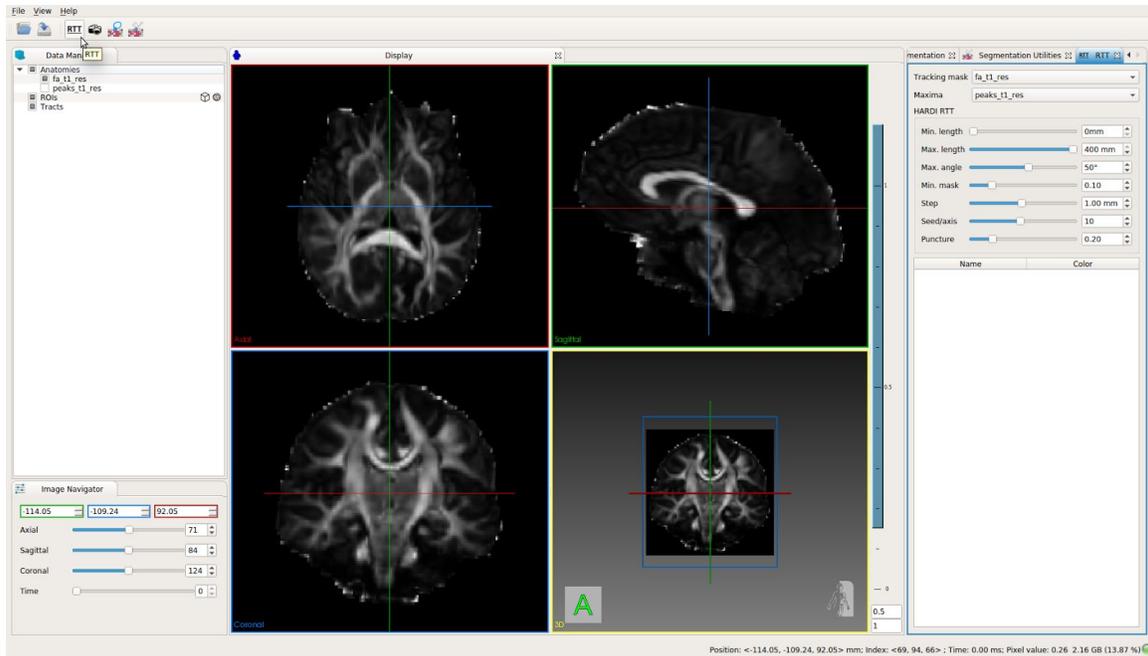


- You can now visualize the result, move around the selection object (or look at the cross section of streamlines with the plane). You can also save the resulting tract group by clicking on the floppy disk in the **Data Manager** or edit the tract group logic by clicking on the pen

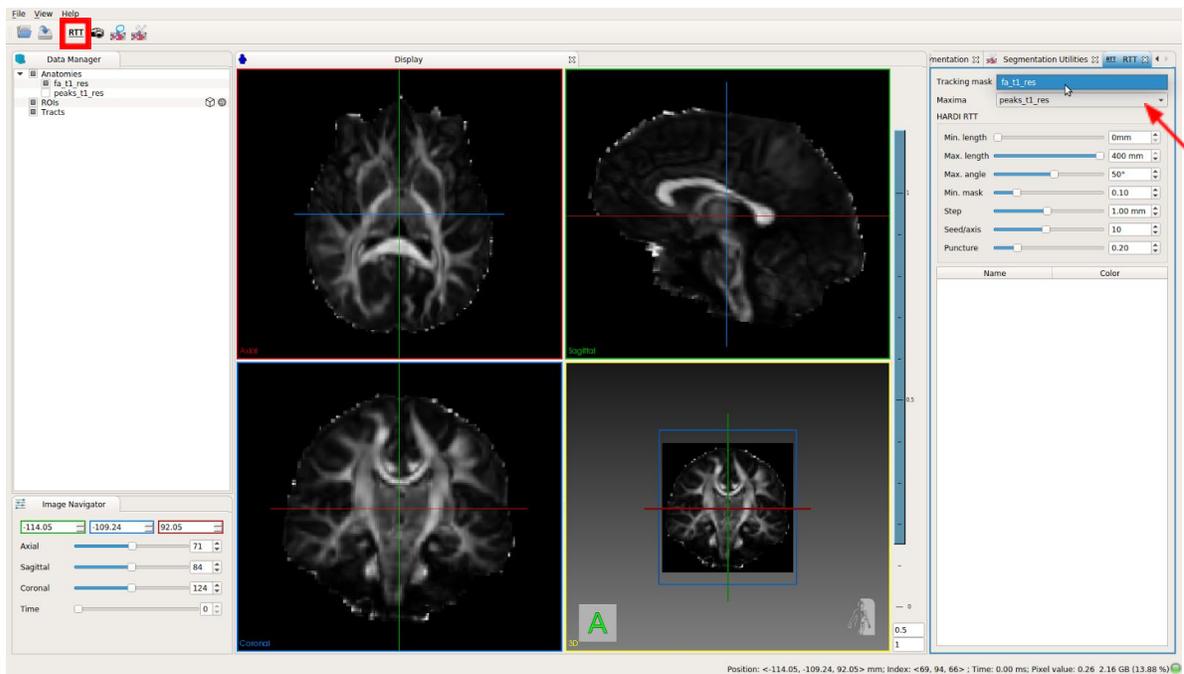


Perform real-time tracking (RTT) using a selection object

1. Load your images in MI-Brain (FA and peaks).

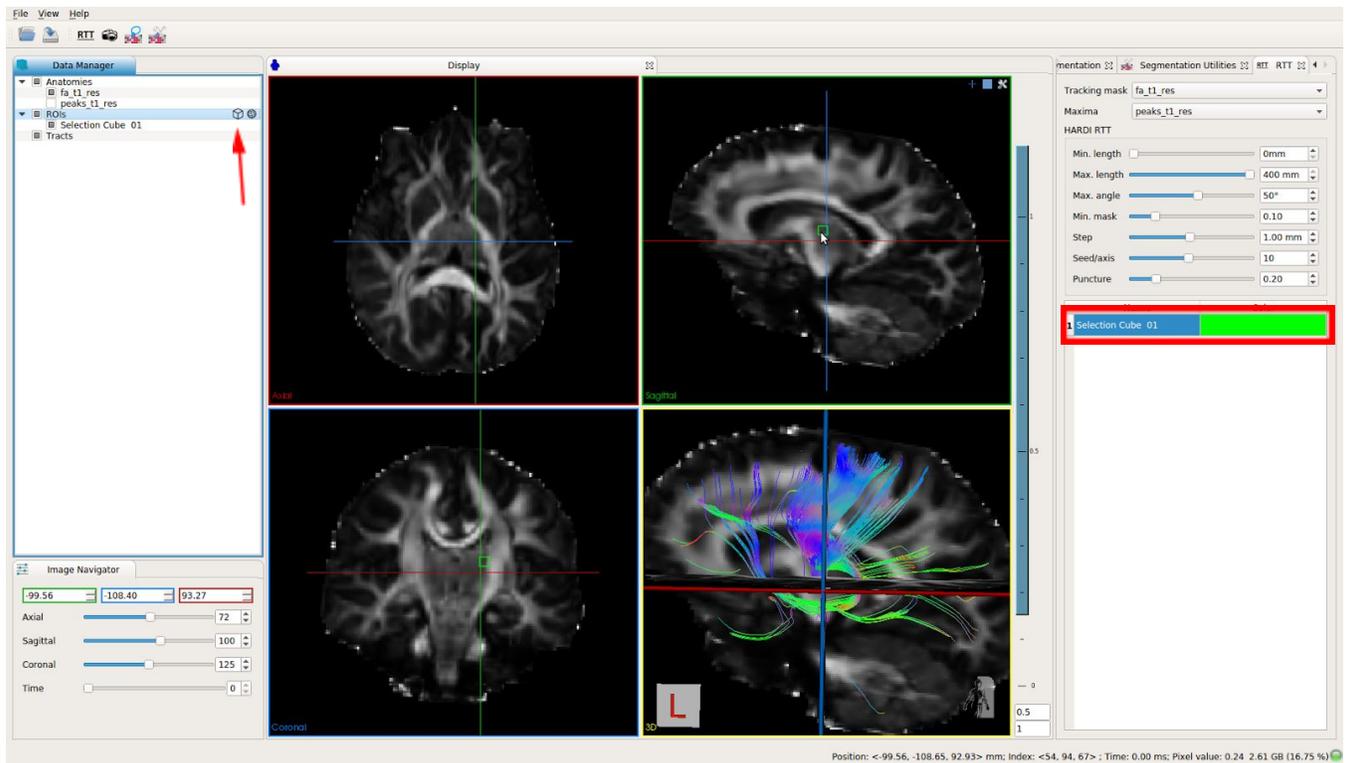


2. Open the **Real-Time Tracking** plugin by clicking on the icon labeled **RTT** in the top left corner of the toolbar.



3. If multiple image are loaded in the Data Manager, make sure that the tracking mask is set to an FA map

4. Add a selection object to the scene and then click on it in the Real-Time Tracking plugin's list



5. You can move the selection object around and see how it affects the tracking. You can also modify the various parameter in real-time.

- *Min. length*: Minimal length of the displayed streamlines
- *Max length*: Maximal length of the displayed streamlines
- *Max angle*: Maximal angle between two consecutive steps
- *Min mask*: Minimal value that allow tracking (stopping criterion)
- *Step*: Distance between two consecutive steps
- *Seed/Axis*: This value³ represent the number of generated streamlines
- *Puncture*: Smoothing value for the computed direction at each voxel