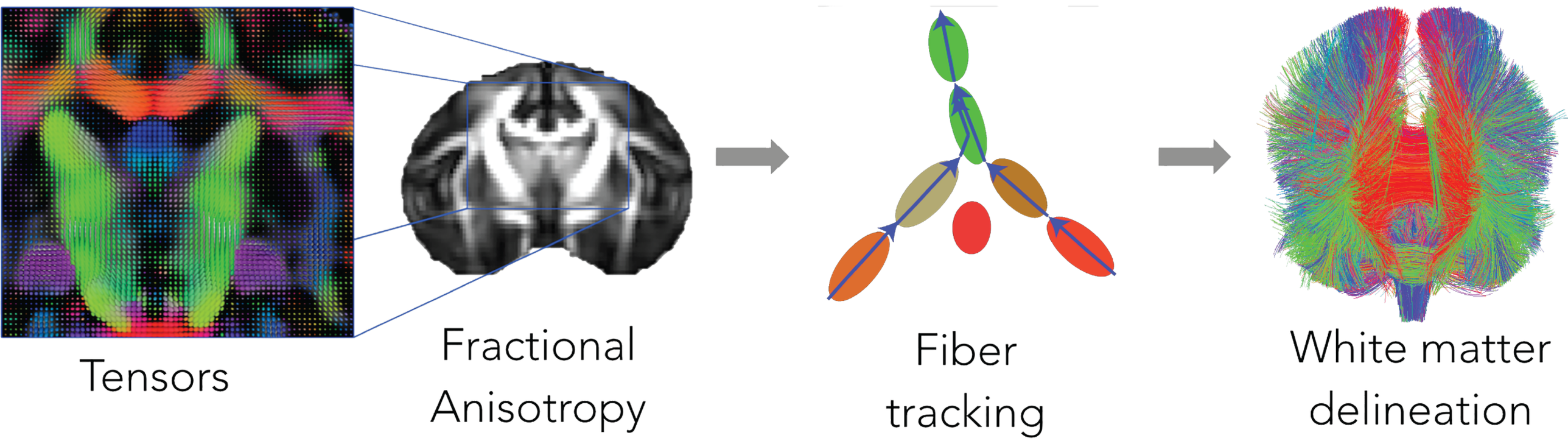
ANALYSIS OF DTI DATA

Part 3

DO TROMP - 2015

Delineating fiber pathways using tractography



DTI ANALYSIS STEPS (Tutorial 1):

1. From scanner format to a usable format
2. Correct distortions common to diffusion images (EPI and eddy currents)
3. Remove any non-brain tissues
4. Make the gradient direction file
5. Fit the tensors
6. Check the fit of the tensors

DTI ANALYSIS STEPS (Tutorial 2):

1. Standardize tensor images for normalization
2. Make population template by normalizing images
3. Register population template to MNI space
4. Produce scalar images (FA, MD, AD, RD) and check quality
5. Run whole brain voxel-wise statistics

DTI ANALYSIS STEPS (Tutorial 3):

1. Load tracts in TrackVis
2. Delineate specific fiber tracts, e.g. uncinate fasciculus (UNC)
3. Improve the aesthetics

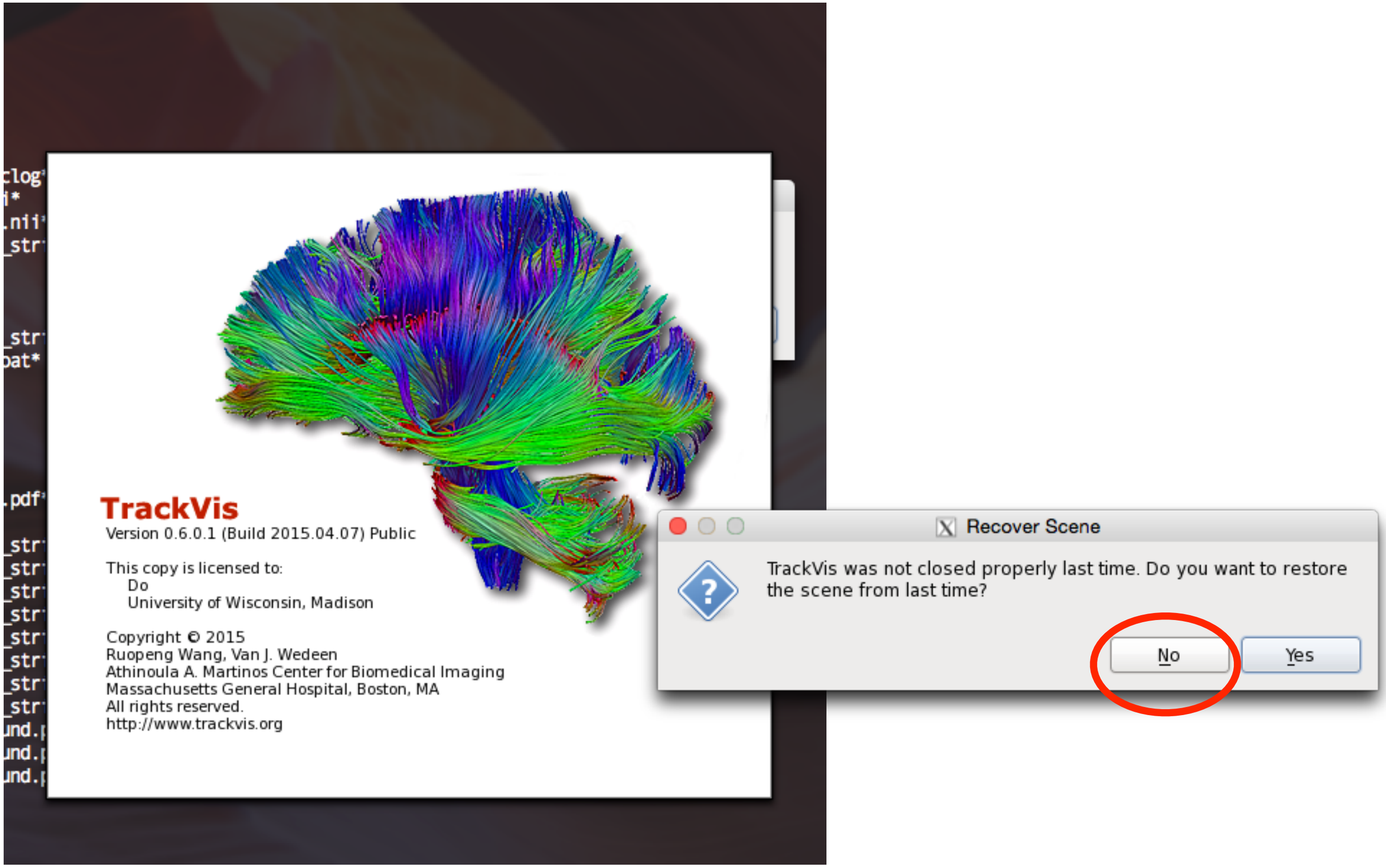
1. Load tracts in TrackVis

- http://www.diffusion-imaging.com/2012/11/fiber-tracking-tutorial-step-by-step.html

- http://brainimaging.waisman.wisc.edu/~tromp/example_data/
  - DTI_Lab3_tracts.trk
  - DTI_Lab3_FA.nii.gz

- Run from linux servers (eg guero, poblano):
  - trackvis &

- Or install TrackVis on your own laptop


TrackVis
Version 0.6.0.1 (Build 2015.04.07) Public
This copy is licensed to:
Do
University of Wisconsin, Madison
Copyright © 2015
Ruopeng Wang, Van J. Wedeen
Athinoula A. Martinos Center for Biomedical Imaging
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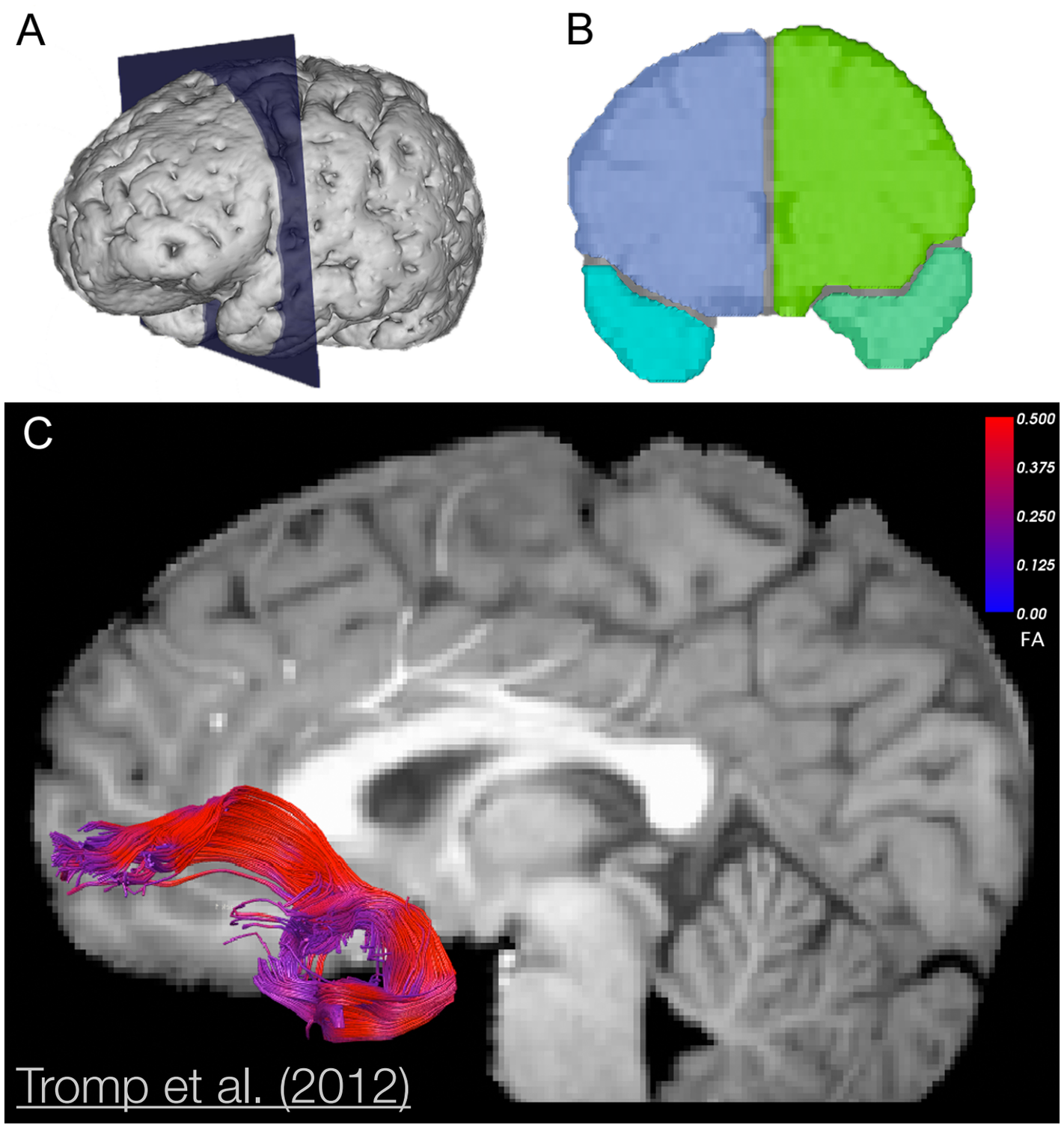
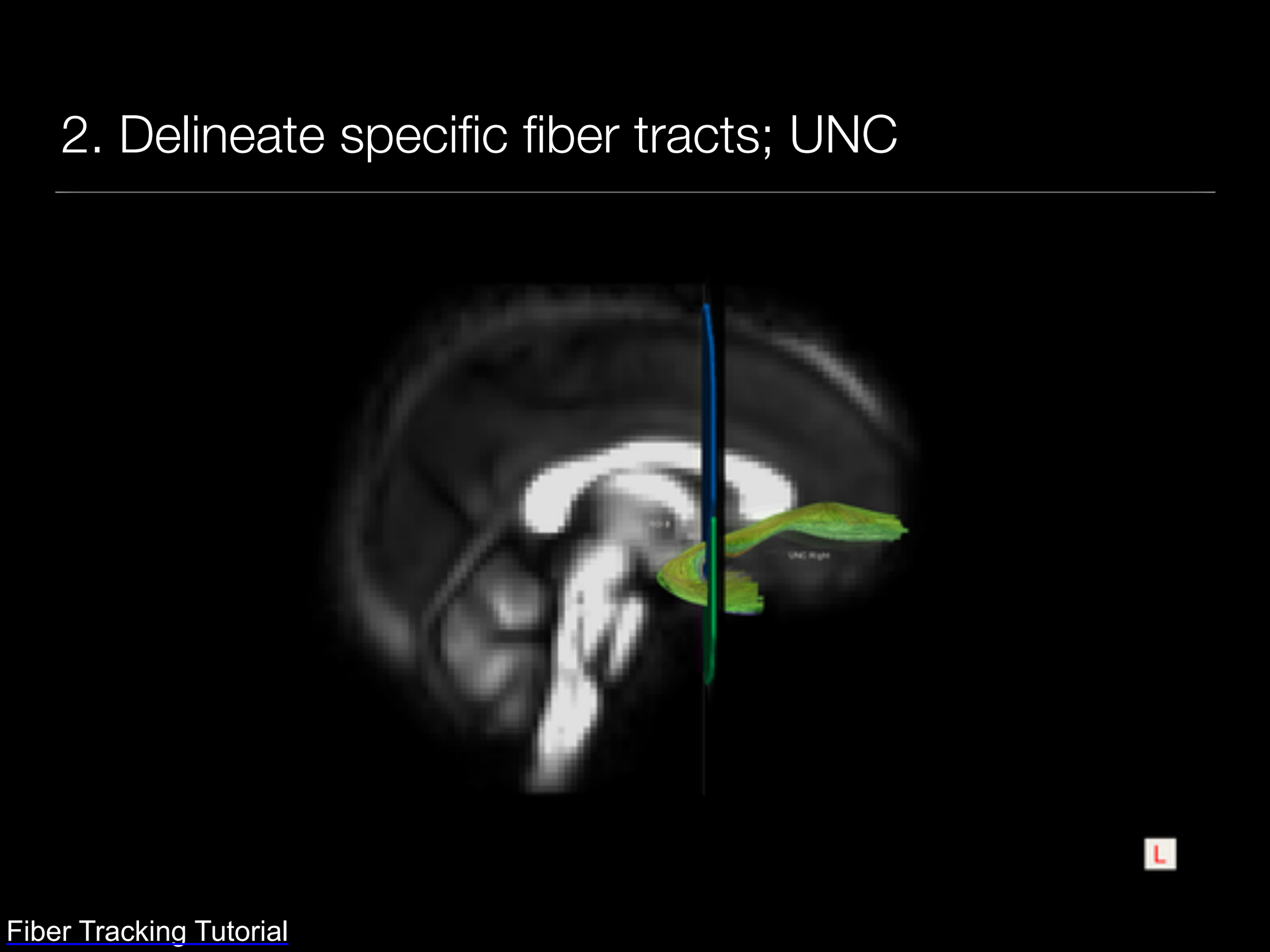
http://www.trackvis.org
Recover Scene
TrackVis was not closed properly last time. Do you want to restore the scene from last time?
No
Yes

2. Delineate specific fiber tracts, e.g. uncinate fasciculus (UNC)

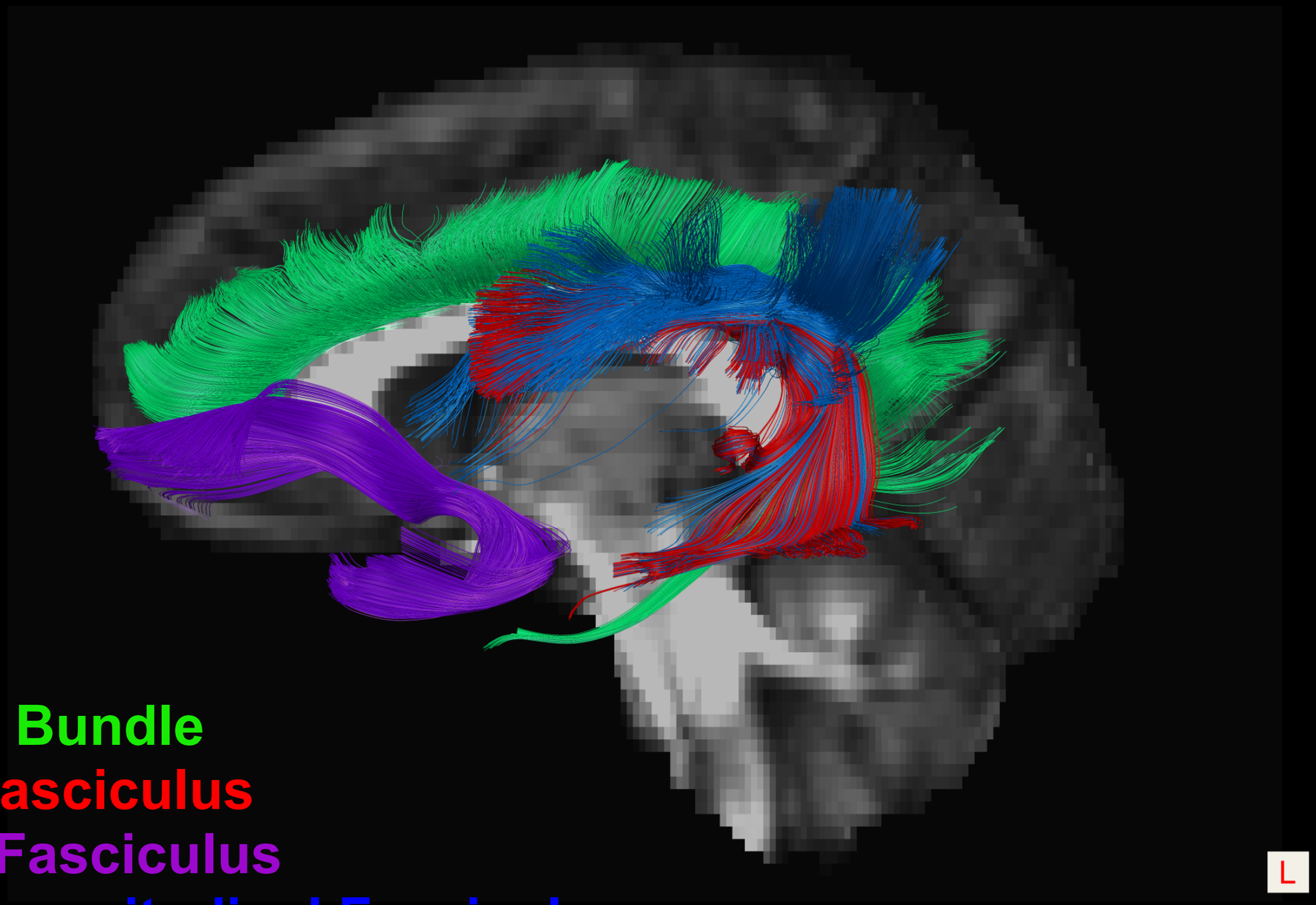


2. Delineate specific fiber tracts; UNC



Fiber Tracking Tutorial

2. Delineate specific fiber tracts



Cingulum Bundle
Arcuate Fasciculus
Uncinate Fasciculus
Superior Longitudinal Fasciculus

Upload screenshot of your UNC in TrackVis to learn@UW dropbox on 11/12/2015

Questions?