

Measuring Gray and White Matter on Frontal Lobes

1. Open frontal lobe measure file-ie. Front.msr.
2. Check to see if "Reverse Slices" has been checked.
3. Verify that "Auto-Contrast" has been noted-if it has not been noted, auto-contrast the brain.
4. Open the images.
5. Determine your K value by clicking on 5 points on the right caudate and 5 points on the left caudate and noting the sigma value in the lower right hand corner of the screen. Take those values and average them. This is your K value which will be used later when filtering.
6. Go to Edit and erase the marking point.
7. Save
8. If "Reverse Slices" had been checked, under Edit, click on Reverse Slices in Measure Only.
9. Go to File and click Mask Volume Data.
10. Write in Front.msk under File Name.
11. Save.
12. Fil Value:0
13. Go to File, Open, and type in Front.msk,
14. Do not save changes in Front.msr
15. Go to File and click on New Measure.
16. Say "Yes" to New Template and choose Front.msr.
17. OK.
18. Scroll through and make sure that the frontal lobe looks OK-that there is not cerebellum-and then click out.

19. Close out of Measure.
20. Open 3Dfilter.exe.
21. Click "Add", look for the right folder.
22. Type in as file name "front.msk."
23. Check that file names are consistent with yours-the program is set to call the files "front" ie. Front.msk, front.msr. You may not have named your files that way. If not, simply click on "Change measure" and select those files that you want to input.
24. By the same token, if you want your output to change, click on "Change output."
25. Set your parameters to-K:5; Iterations-3
26. Click OK
27. Now your brain will be filtered which will take a few minutes. When it is done, a window will pop up indicating that the filtering process is complete-click OK.

28. Open your output front.fil
29. Click on "New Measure".
30. Select "Yes" to New Template.
31. Click on "Front.msr" as your template.
32. Click OK and then Done.
33. Go to File, then New Measure.
34. Say "No" to New Template.
35. Select Volumes by Cavalieri.
36. Click OK, then Done.
37. Go to Edit and choose "Change Grid Settings."
38. Under Column, Row, and Slice, designate them 7,7, and 4, respectively
39. Click OK.
40. Go to Calculate, Combine Measure, and select Front.msr.
41. Click Yes to Continue.
42. And again click Yes to Continue.
43. Click "Saved".

Whatever that was "IN" on Occupancy is designated the chosen secondary color, and all the other grid points that are "OUT" in the primary color.

44. Start at the beginning of the coronal slices.
45. Click on Zoomin.exe-keep outside of the Measure window, or else each time you click on one window, the other will minimize.
46. Go to View and click "Front view".
47. Of the three voxels contained within the grid point, if 2/3 are **NOT** black, then that point is "IN".
48. Save as "totalfront.msr" and save often.

49. When you are finished with the entire frontal lobe, go to "Tiled View" under View.
50. Go back to the beginning of the brain in the coronal view and click on "Front View".
51. Save as "grayfront.msr"
52. Go through each slice. Take **OUT** white matter-push shift and click on those points.
53. On the first coronal slice, there is no white matter.