A Manual for Segmentation and Isocontouring Using VolRover

This short manual explains how to segment an imaging data and extract an isosurface using "Volume Grid Rover".

1. Image Segmentation

1) In the menu "File", choose "Open File" to load a file.
2) Switch to "Volume Grid Rover" for the left window.
3) Choose "Grey Scale Density Map".
4) Now we want to segment the dog brain from the data.

* Under "Grid Cell Marking Options":
First click "Add Class", then you can see you created "Class 0". However "Class 0" doesn't work for some reasons. Please click "Add Class" again to create "Class 1", one more time to create "Class 2".

Choose "Class 1", then pick some points inside the region of dog brain.

Choose "Class 2", change to be a different color, then pick some points outside the dog brain.

You can save your seed points by clicking "Save Point Classes". Next time, you can load those seed points for segmentation.

* Under "Segmentation":
Click "Run" to segment the data, finally you get two datasets: mri_dcm.rawiv_subunit_00.rawiv, and mri_dcm.rawiv_subunit_01.rawiv.

5) Load mri_dcm.rawiv_subunit_00.rawiv into VolRover, you can check the segmented dog brain.

6) Write a small code to read mri_dcm.rawiv_subunit_00.rawiv, and calculate the volume of the dog brain.

2. Extracting an Isosurface

1) Load the file 2BG9_acc97120.rawiv
2) In the color map, move all the alpha nodes (small blue squares) to the bottom
3) Put your mouse anywhere in the color map, right click to show a small menu, go to "Add" and then "Isocontour Node", you will see a new bar created
4) Drag this new bar to a proper position (close to the left end) to create a nice isosurface
5) Go to the menu on the top, click "Geometry" and then select "Export Thumbnail Isosurface", it will pop out a window.
6) Give a file name *_tri.raw, for example temp_tri.raw. Your triangulated isosurface will be saved in your file
7) You can visualize your saved temp_tri.raw in MeshViewer by loading it, you can choose "Smooth Shade"