

Volume Render: Creating and Modifying Objects

Exercise 18

Volume Render is a powerful display module. In the Volume Render module, you can use many different tools to create many different outcomes. This exercise will demonstrate an amalgamation of Volume Render tools, to create a desired display.

Creating the Object Map



1. Load the **Coronary_CT.awv** data set from the **\$_\BIR\images\TutorialData** directory.
2. Select the data set and open the **Volume Render** module (**Display > Volume Render**).
3. Open the **Toggle Preview** window (**Generate > Preview**).
4. Open the **Threshold** tool (**Tools > Manipulate > Threshold**). Use the slider bar to increase the minimum threshold, note that the preview in the Preview window updates interactively. Increase the threshold until you have thresholded the heart - **63** is a good minimum value for this data set.
5. In the **Threshold** tool, set **Change** to **Object Map**. Set **Define Object** to *****New*****.
6. Now select the **Threshold Volume** button. Your object map now contains one object; the heart.
7. In the **Threshold** tool, increase the **Threshold Minimum** until you see only the vascular system surrounding the heart, a minimum value of **133** is good. Set **Define Object** to *****New*****.
8. Select the **Threshold Volume** button again, **Object_3** is created and contains only the vascular system (figure 2).
9. Set the **Threshold Minimum** to **1** and then close the **Threshold** tool.

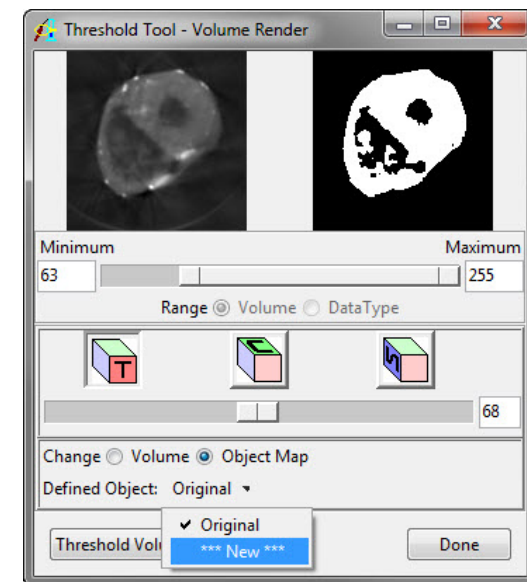


Figure 1

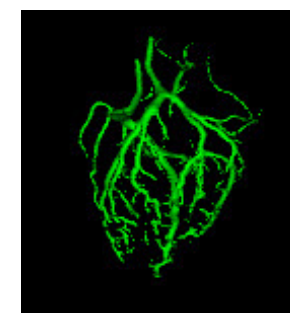


Figure 2

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Modifying the Object Display Options

10. Open the **Objects** window (**View > Objects**), at the top of the window set **Control By** to **Attribute**. Set the display of the **Original** to **Off**, then select **Render**.
11. In the main Volume Render module, select **Generate > Render Type**. In the **Render Type** window returned, select **Object Compositing** and then hit **Render** (figure 3). The render will show both the heart and the vessels.
12. In the Objects window, select **Name** from the **Attribute** drop down menu and change the name of **Object_2** to **Heart**, and the name of **Object_3** to **Vessels**.
13. Now select **Color** from the **Attribute** drop down menu and change the color of the **Heart** to **Pink** and the color of the **Vessels** to **Red**. Note that you can just type the name and hit enter to change the color of the object.
14. Now select **Opacity** from the **Attribute** drop down menu and change the opacity of the **Heart** to **.02**. Change the thickness of the **Vessels** to **2** (figure 4). You will see the Preview window update (figure 4). To view the results in the main Volume Render module, hit **Render**.
15. Experiment with other settings and tools within the Volume Render module.
16. To save your object map, select **File > Save Object Map**.
17. Close the Volume Render module before proceeding to the next exercise.

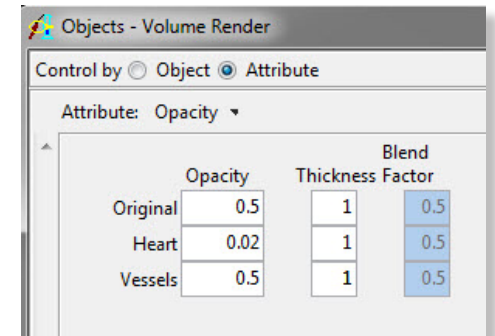


Figure 4

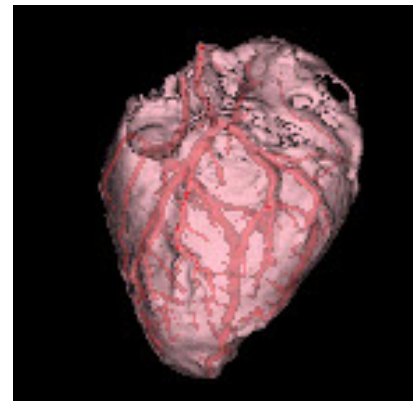


Figure 3



Figure 5