

Exercise 20 : Surface Render Surface Map Creation and Display

Surface Render provides a semi-automated interface for the conversion of object maps into surface maps using the Adapt/Deform algorithm.

1. Load the **Cubic_CT_Head.avw** data set from the **\$_\BIR\images\TutorialData** directory.
2. Open the **Surface Render** module (**Display > Surface Render**).
3. Choose **File > Load Object Map** and load the **Cubic_CT_Head** object map from the **\$_\BIR\images\TutorialData** directory. The Objects window (**View > Objects**) will automatically be returned.
4. In the **Objects** window, set **Control by** to **Attribute** and set the **Display** attribute to **Off** for the **Rope**, **Left Skin**, and **Skull** objects (figure 1).



5. Choose **File > Create Surface Map**. The Surfaces window (**View > Surfaces**) will automatically be returned.
6. In the **Surfaces** window, click **From Object(s)**. A dialog box will be returned asking if you would like to create the surface map from all currently active objects, click **Yes**. The objects that have their 'Display' attribute set to 'On' (in the Objects window) will be tiled and a surface map generated.



7. Once the surface map is generated, click **Render** to display the results (figure 2).

note | Where possible, the attributes of the surfaces in the surface map and the objects in the object map should have equivalent values.

8. Choose **File > Load Surface Map** and load the **Cubic_CT_Head.smp** surface map from the **\$_\BIR\images\TutorialData** directory.
9. Click **Render** to display the results.
10. Open the **Camera tool (Generate > Camera)** and set **Sort** to **Front-Back** (figure 3). Click **Render** to display the results.
11. In the **Surfaces** window set **Control by** to **Attribute**. Choose **Shading** from the **Attribute** drop-down menu and change the shading of the **Right Skin** surface to **Gouraud**.

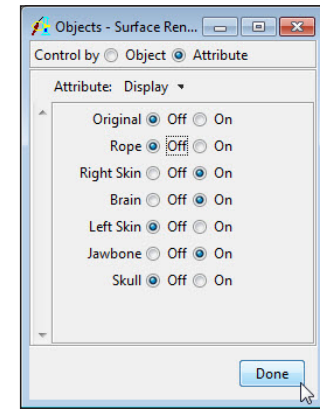


Figure 1

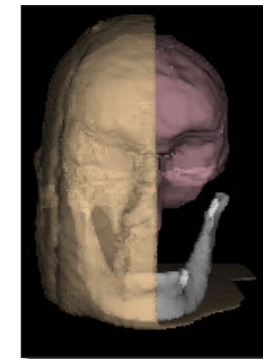


Figure 2

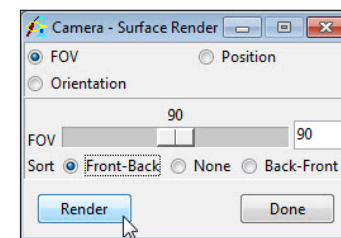


Figure 3

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- Click **Render**, note the changes in the rendering (figure 4). Experiment with the different shading options.
- Choose **File > Save Surface Map** to save changes made to the surface map.
- If you wish to export the surface map out of Analyze for use in another application, choose **File > Export Surface Map**. Surface maps can be exported out of the Surface Render module in the Inventor (.iv) or VRML (.vrm) surface description formats.
- To learn about more surface rendering tools and options, complete the Additional Task.

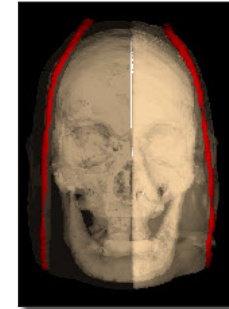


Figure 4

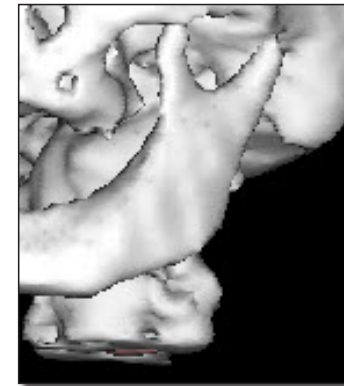


Figure 5

Additional Task

1. Advanced Visualization

- Open the **Preview** window (**Generate > Preview**) to view changes prior to rendering.
- In the **Camera tool** (**Generate > Camera**), set FOV to 60.
- In the **Surfaces** window (**View > Surfaces**) select **Display** from the **Attribute** drop-down menu and set the **Rope**, **Right Skin**, and **Left Skin** surfaces to **Off**.
- Choose **Transparency** from the **Attribute** drop-down menu, and set the **Skull and Jawbone** surfaces to **1.0**. Click **Render**.
- Open the **Rotation** window (**Generate > Rotation**).
- With the **Volume Absolute** option selected, set **X: -64, Y: -3, Z: 37**. Then, click **Render**.
- In the Camera tool select the **Position** option and set the **Z** position to **-300**. Click **Render** and note the changes in the rendering.
- Now, set the **Position** coordinates to **X: 12, Y: 41, Z: -215**. Click **Render** and note the changes in the rendering (figure 5).
- In the Rotation window, select the **Change View** option. Use the arrow buttons or click and drag the rendering to a new view in the image display.
- Notice that each time the view is modified the image is re-rendered in the main module window. To prevent this, right-click on the 'Change View' image display and deselect **Regenerate on Release**.
- Close all windows related to the module before proceeding to the next exercise.