Photo Face Wrapping
& Soft Tissue Simulation

Photo Face Wrapping

3D Analysis allows the user to wrap a common digital photograph over the soft tissue face of a scan volume. This creates a realistic 3D “skin” that takes the texture of the photograph and can be used to great effect in performing soft tissue simulations and patient demonstrations. The steps to creating a face photo wrap are as follows:

1. Take a scan and a digital head shot of the patient. (It is helpful if the patient has a similar expression in the same position with eyes open, when scanned and photographed.)

2. Open the patient scan and select 3D Analysis on the View Tabs bar.

3. Deselect “quality mode” (if selected) in the View Control panel

4. Select Create Face Photo icon on Tool bar and select “generate face from Photo” in dialog window.

5. In the “Create Face Photo Wrapping” dialog panel:
   a. Set the “Threshold Value” by moving the slider control between the range of -600 to -800 - until you see a smooth soft tissue surface.
   b. Select “Optimize for Simulation”.
   c. Select “Create Face Model”. (When finished the message “Decimation has been completed” will appear.) Click OK.
   d. Select “Apply Cutting” to allow for trimming of unnecessary parts of the face.

6. Select the “Right View” icon on the Tool bar.

7. For the first cut, left click on the yellow arrow of the move widget and, while holding it down, move it posteriorly until the blue arrow is just behind the temple (blue arrow point facing up). Right mouse click to make the cut. (The cutting plane is always at the middle of the blue arrow.) If you err in cutting, click undo in the Create Face Photo Wrapping dialog window.

8. The second cut will be along the eyebrow. Left mouse click on the red circle of the widget and, while holding down, move your mouse to rotate the blue arrow (the point of the arrow will be forward of the patient) until it is cutting horizontally just through the eyebrow. Move the yellow arrow for final placement then right mouse click to make the cut.

9. The third cut will be diagonally along the top left of the face model. Move the blue plane cutting arrow into position and make the cut.

10. The last cut will be made along the jaw line. Move the blue arrow point posteriorly and, after diagonally placing it along the inferior border of the mandible, right mouse click to make the cut.
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11. After all cuts are made, select Finish Cutting in the “Create Face Photo Wrapping” dialog window.

12. Load the photo you want to register to the face wrap. (The image can be any picture format – jpeg works just fine). The picture will load in the background.

13. Next, size the face by using the Invivo navigation commands (CTRL + left mouse button + mouse drag and then move it into position over the photo by using SHIFT + left mouse button + mouse drag).

14. Select Make Face Model Transparent in the “Create Face Photo Wrapping” dialog window. (This will turn the mesh transparent to help with positioning for registration.) Use facial landmarks to hone in the registration. The best features to use are the edges of the eyes, the lower eye lids, the sizing of the lips and the nose. Select Show Registration Grid to aid with registration.

15. Once the registration has completed, select Apply Photo Wrapping in the “Create Face Photo Wrapping” dialog window.

3D Model Soft Tissue Simulation

1. Once the photo face wrapping has been completed select Model on the View Tabs bar. (AnatoModel is a 3D digital study model created on a case-by-case basis by Anatomage.)

2. Select the Right View tab from the Toolbar.

3. Deselect Skin in the Models window of the View Control window.

4. Move the “Jaw Opacity” slider to the far right.

5. Select Jaw Articulation in the “Simulation” window.

6. Move the slider control to the far right in the “Simulation” window.

7. Left mouse click on the model to turn on the Aligner Widget.

8. The widget’s yellow arrow will raise or lower the arches and the blue arrow will move the arch(s) anteriorly or posteriorly.

9. Left mouse click outside of the model to remove the widget.

10. Select Soft Tissue Prediction. (Located at the bottom of the View Control window)

11. Select both jaws in the “Soft Tissue Prediction” window that opens and select OK.

12. Select Skin in the “Models” window of the View Control window.

13. To demonstrate soft tissue movement, press play or manually move the slider in the View Control window.

NOTE: You may use the 3D Analysis View Tab to change color presets or or use the View Sequencer to create transitional model movements that can be saved and viewed as a movie file.