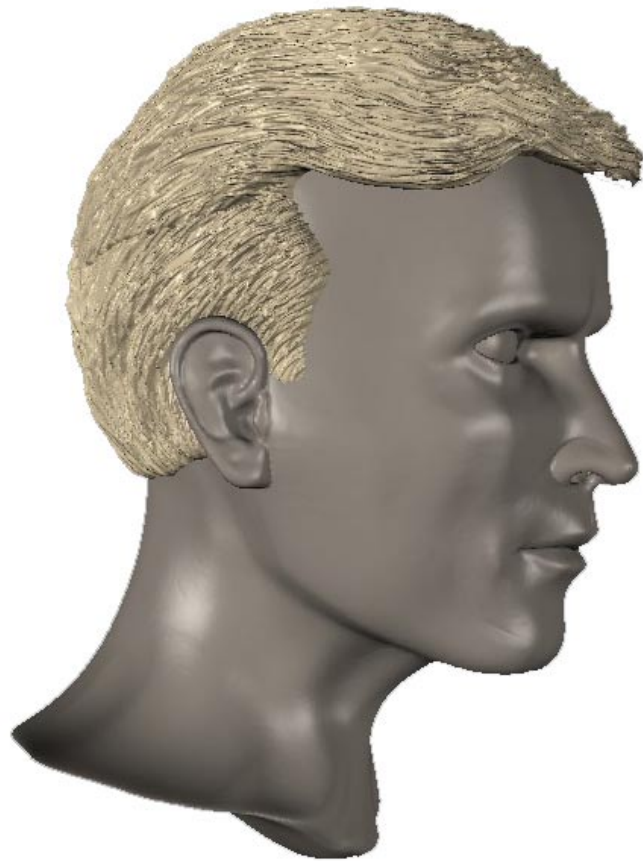




FREEFORM™  
FEEL THE DIFFERENCE

## FreeForm Workflow Study “Creating Realistic Hair Detail”



**Modeler:** Jay Kushwara

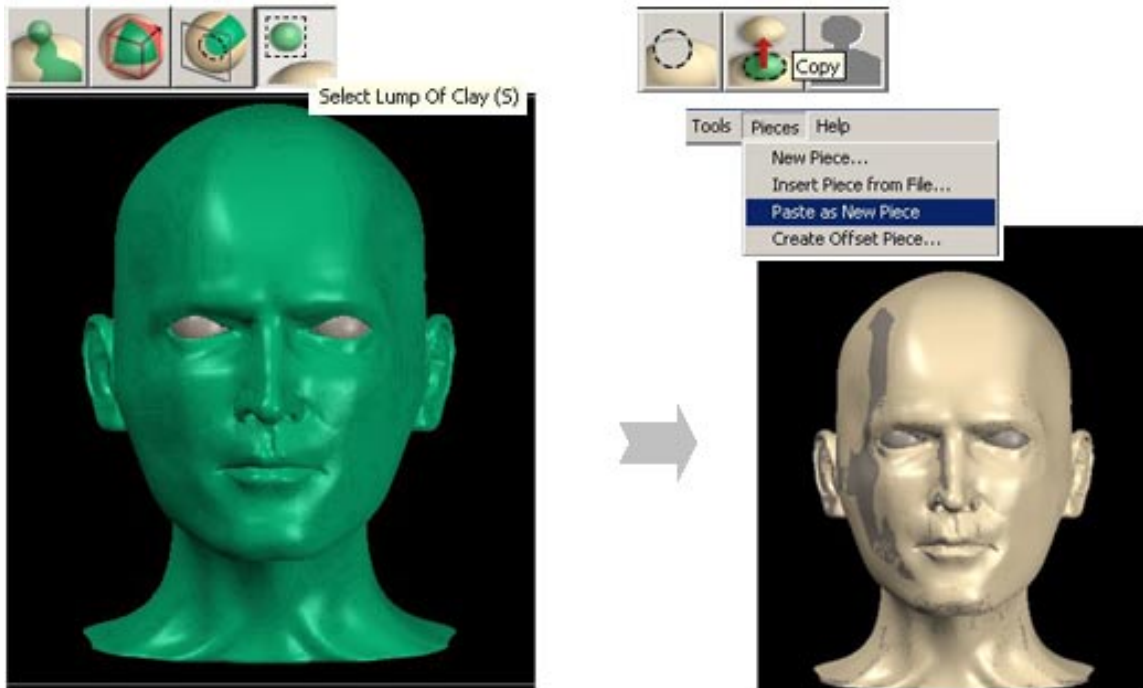
**Description:** This workflow study shows how to use the Emboss feature to create finely detailed hair texture.

**Software Version:** FreeForm™ modeling system, Version 4.

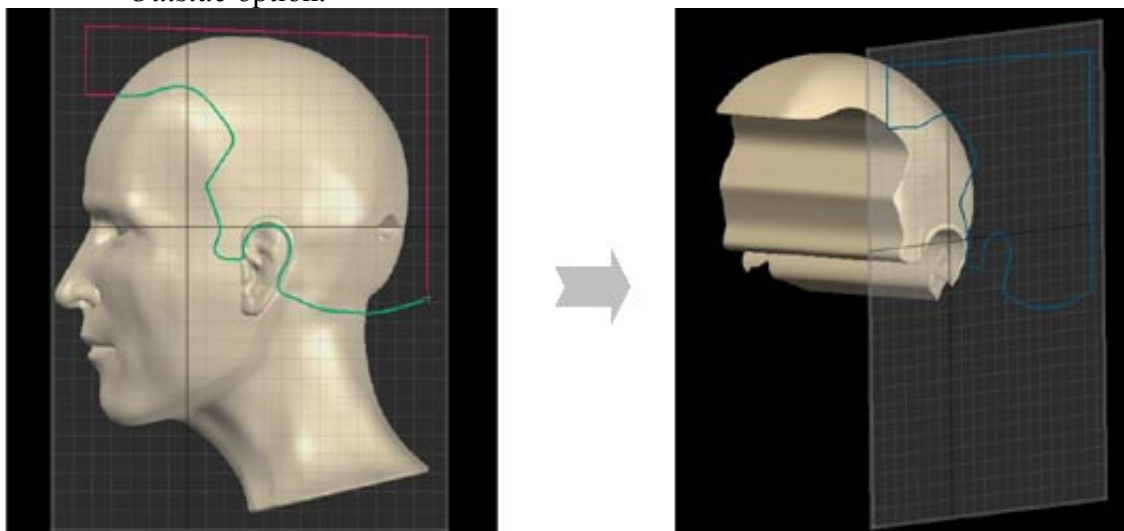
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## Step1) Creating the “Hair Form” Piece

1. Select the piece that you wish to add detailing to (here named “Head”) using **Select Lump of Clay**, *Copy* the selection, and then **Paste as New Piece**. Open the **Object List**, right-click on the new piece, and *Rename* the piece “Hair Form”. Again in the Object List, right-click on “Head,” and *Hide* the piece.



2. Create a new plane on the model’s side (using **F3** or **View→Standard Views→Right**). Enter **Sketch** and use the **Freehand Curve** tool to draw the character’s hairline. End the curve to enclose the hair area and exit Sketch. Use **Wire Cut**, select the just drawn curve, and cut the clay with the *Cut Outside* option.

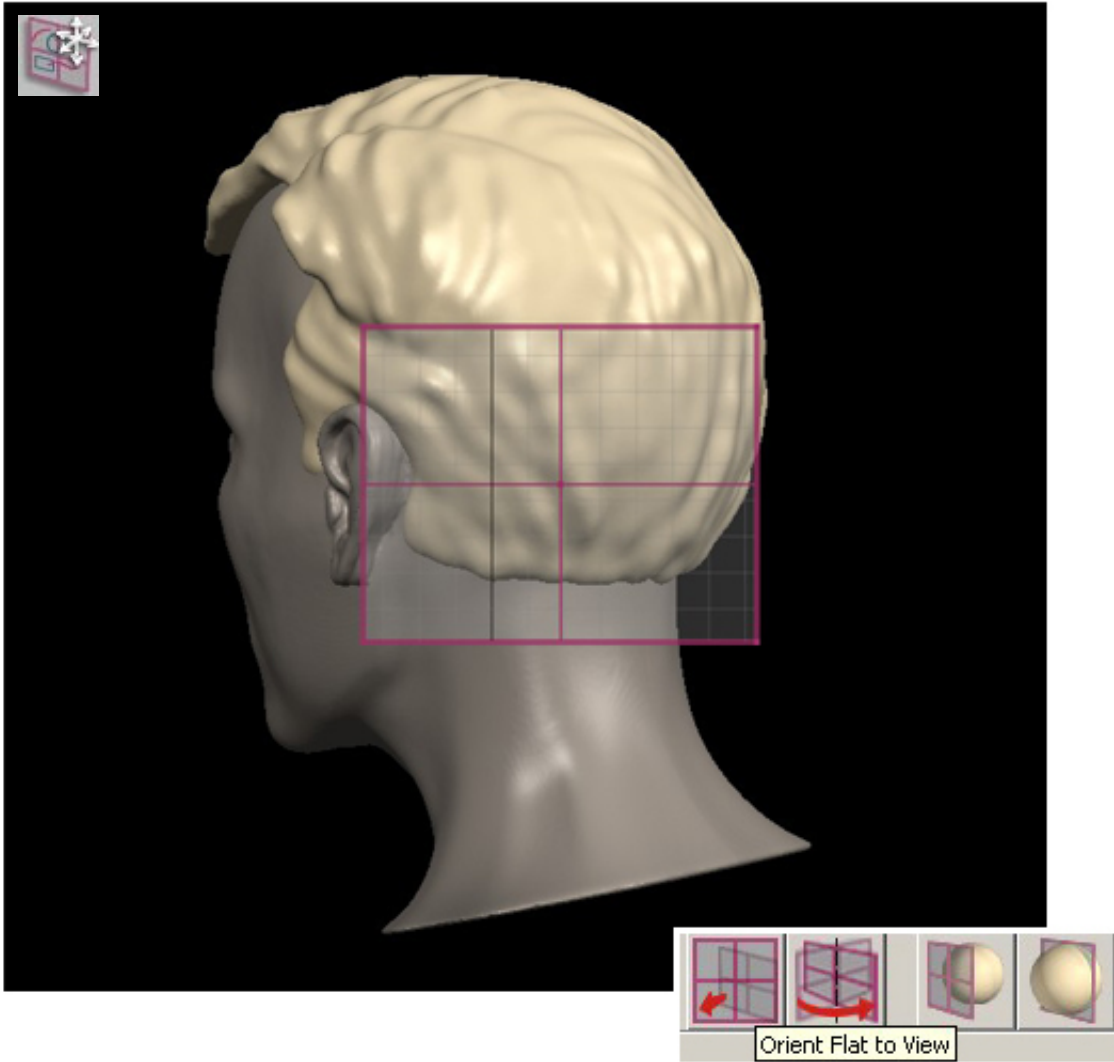


3. Activate the “Head” piece via the **Object List**, so that it is visible. Using the Object List, choose to work on the “Hair Form” piece. Decrease the **Clay Coarseness** to a coarseness that will allow quick work. Use the **Carve** tool from inside and **Tug** to create the larger forms that hair clumping will take. The finer hair strands will be created later using the an emboss, but the larger more sculptural forms need to be created first to get the best results. Take a look at classical sculpture examples for reference to the forms that hair groups take.



## Step 2) Creating the Planes for the Hair

1. Enter the **Change Clay Coarseness** dialog (**Tools**→**Clay Properties**→**Clay Coarseness**) and change the clay coarseness to *Add Fine Detail* with the *Smooth* option checked.
2. Create a new plane and reposition it so that it is just above the area where the first hair will be embossed. Position the view so that you are looking perpendicular to the plane then use the Orient Flat to View button on the Dynabar. This will perfectly align the plane perpendicular to the viewing area.



**NOTE:** Before continuing it is important to understand that hair strands grow in layers that usually overlap one another. In the case of a human head, the layering usually starts at the back of the neck and works its way up and over, to end at the hairline above the forehead. It also grows in patterns that are dictated by the way the hair is parted and whether it grows naturally straight or curly. The success and realism of the model depends on how closely the hair patterns follow nature.

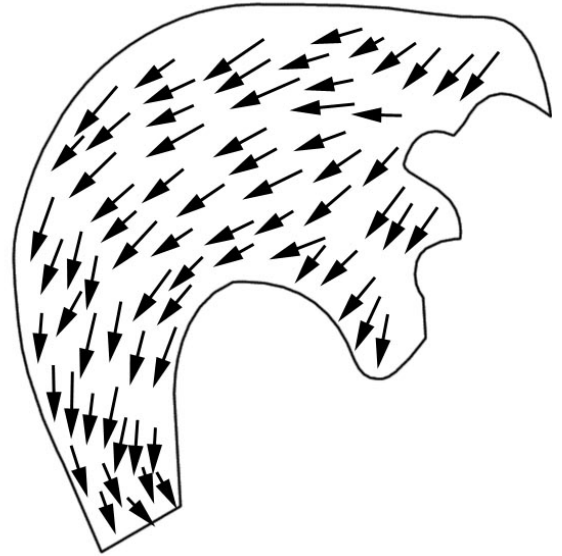
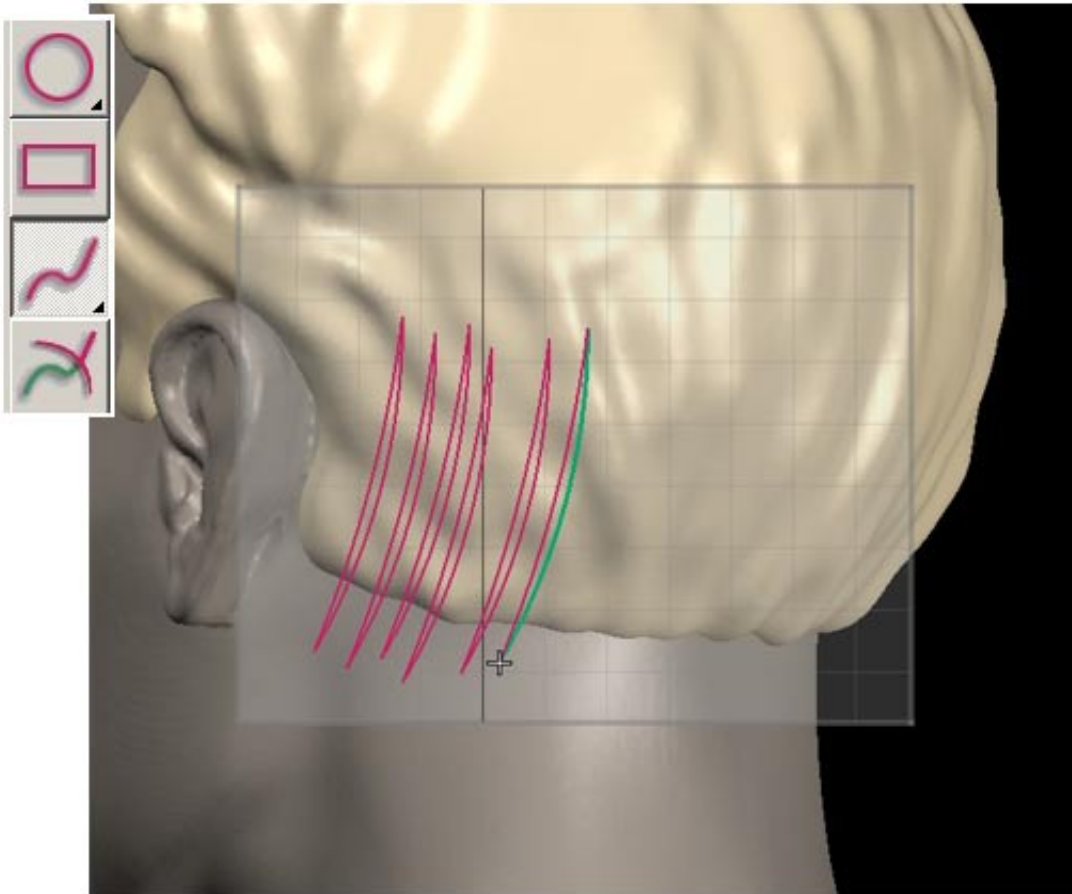
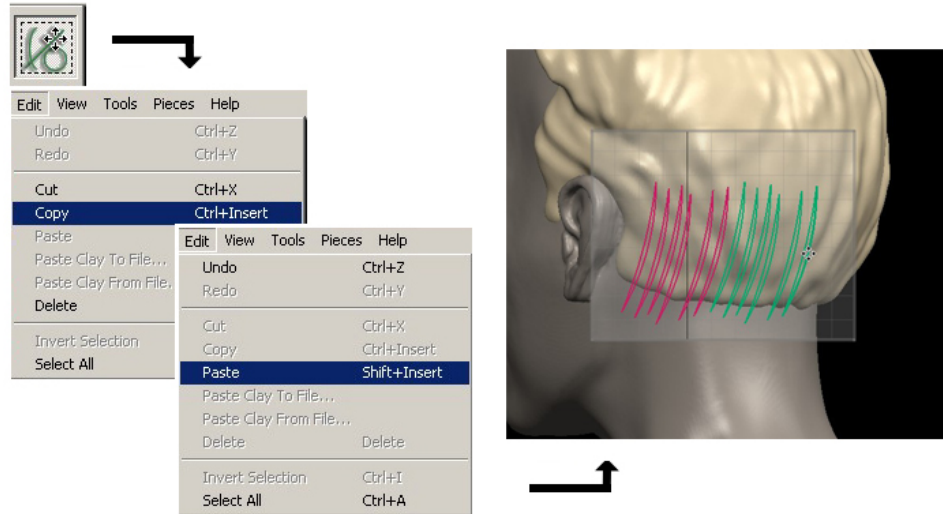


Illustration of hair growth pattern based on photographic reference

3. Enter **Sketch** and use the **Freehand Curve** tool to draw a series of long thin crescent shaped curves. These curves will represent the shape of the hair strands. To speed things up, create one closed crescent, and then copy and paste it several times, repositioning each copy to follow the hair pattern. Create a horizontal row with a gap between each crescent.

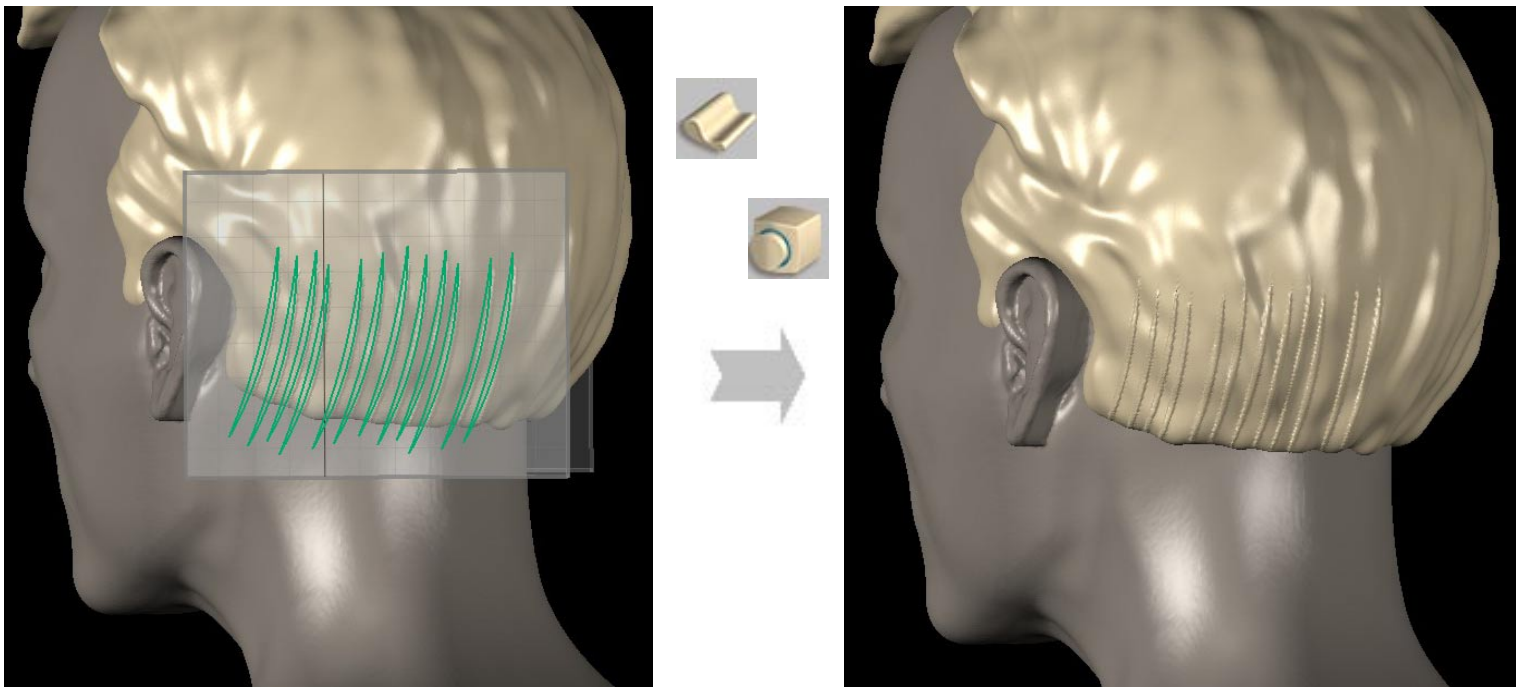


- Once there are several “strand” outlines placed on the plane, select the entire group. Copy and paste the group onto the plane and reposition the strands. The object is to create as many embossing profiles as possible. Make sure the strands are positioned unevenly to achieve a more natural and organic look. Exit Sketch.

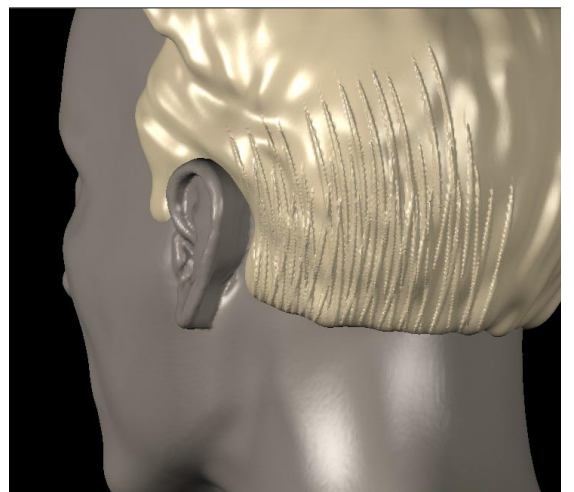
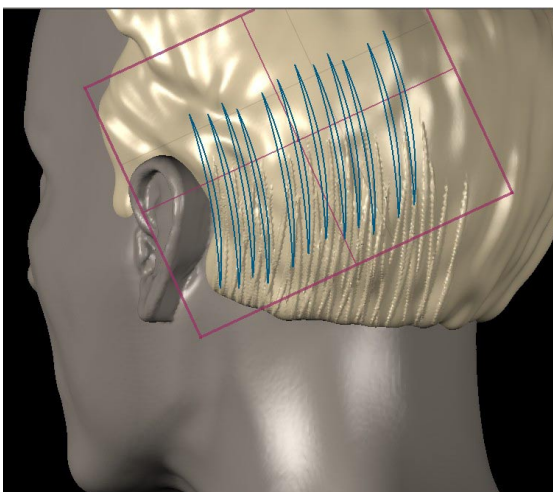
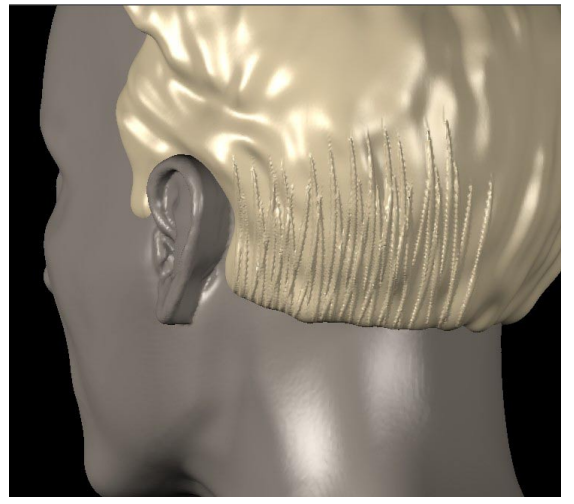
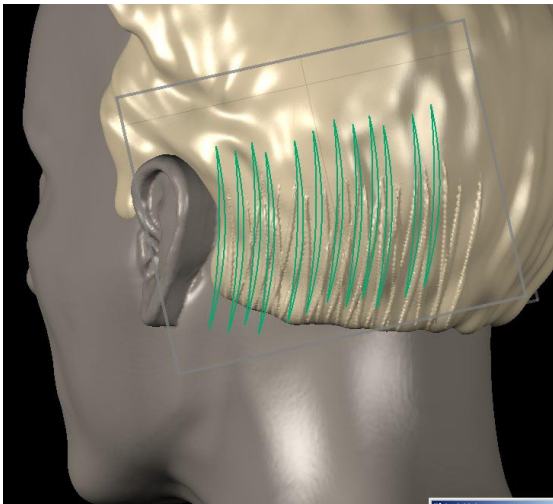
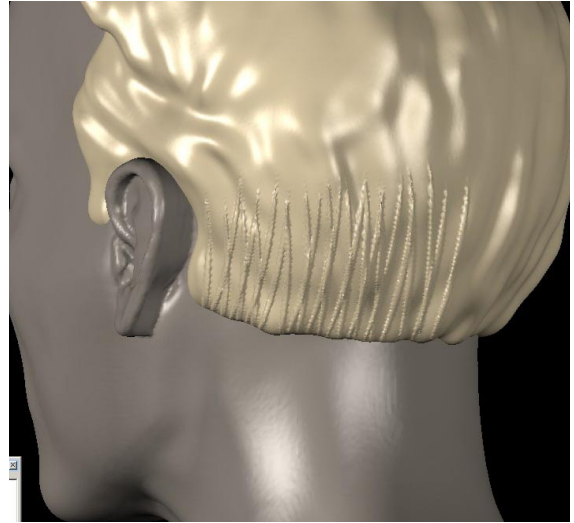
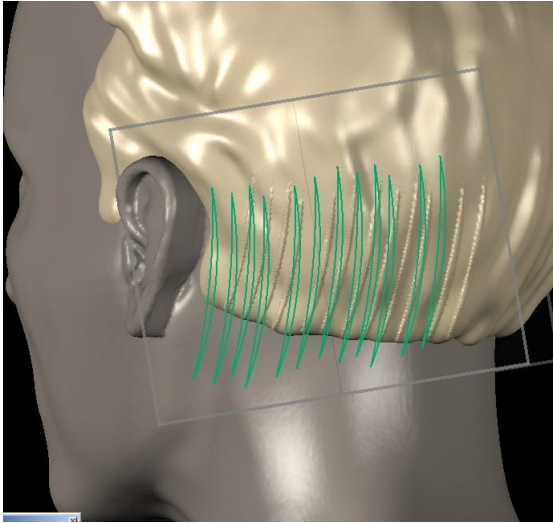


### Step 3) Embossing the Hair Detail

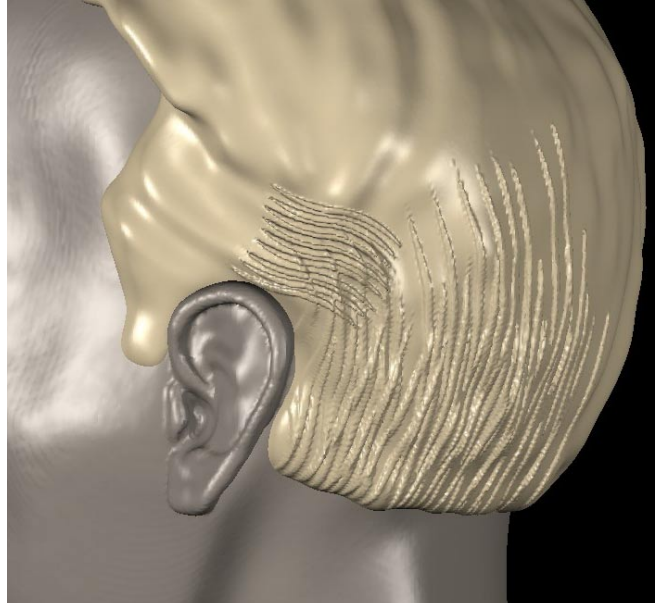
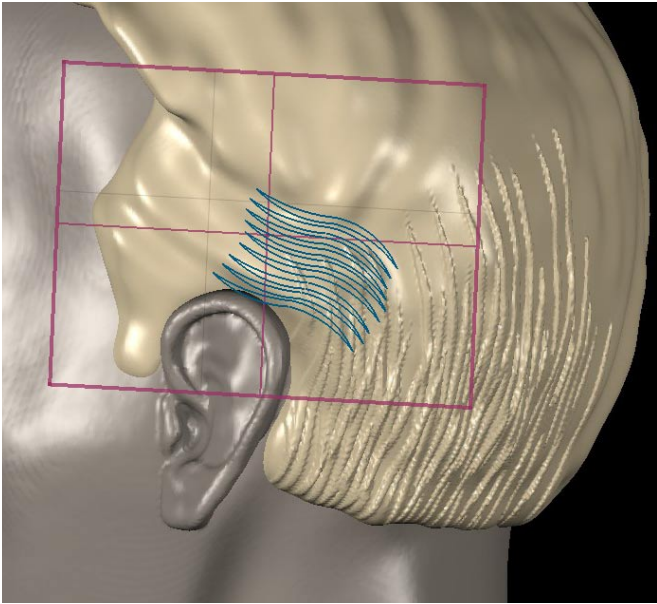
- Choose the **Wirecut** tool and select the sketch plane with the *select all profiles* radial button active.
- Set the **Height/ Depth** to .5mm and choose **Raise**. This gives you a series of raised hair strand details on the hair object.



3. Reposition the sketch plane to a different location and emboss more hair strand detail. Continue the process of repositioning the sketch plane and embossing to create an area of dense overlapping hair strands. Rotate the sketch plane as needed to follow the natural hair growth pattern, working from the back of the head towards the front. Realistic hair detail can only be achieved as a result of careful observation.



4. For some areas, you will find that a single style and length of hair strand won't work. Use the procedures outlined in step two to create additional sketch planes with different hair strands as needed. Continue the overlapping embossing process on these areas.



5. Work through the entire "Hair Form" piece until the desired result is achieved.

