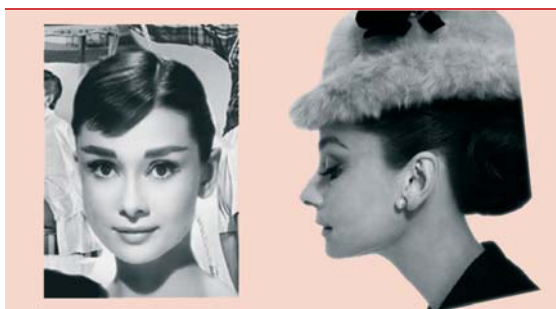


by Massimo Righi

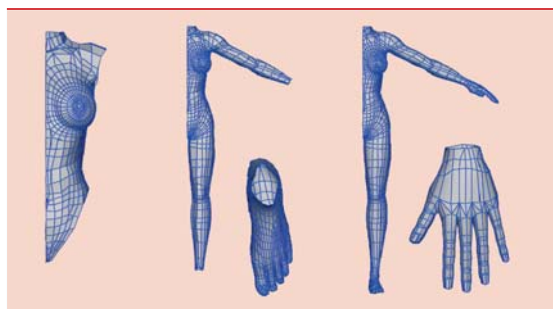
Audrey



Classical movies and photographs have always inspired me. This portrait is based on an old black and white Audrey Hepburn image that immediately catch my eyes for the delicacy and simplicity of the photo itself. The image has been made with Maya 8.0 and rendered with Mental Ray. I've painted the textures in Photoshop but the final result has no photoshop touch ups but some little contrast and color enhancement. My goal was to achieve a mix of real and illustration look. Starting from the modeling of the Audrey 3D character in a standard T pose and ending with the sitting pose that you can see in the final render I will try to show you the main steps of the making of this image.

**01** Finding reference pics

The first step before creating the 3D model is one of the most important. I've started doing research to find a good photo to use as reference for the main character shape. I've finally chosen two different photos to place as Maya image planes, one for the front view and one for the side view, that could work for the main 3D shape. By the way, I've downloaded many other Audrey photos that helped me during the entire modeling process.

**04** Modeling the low poly body

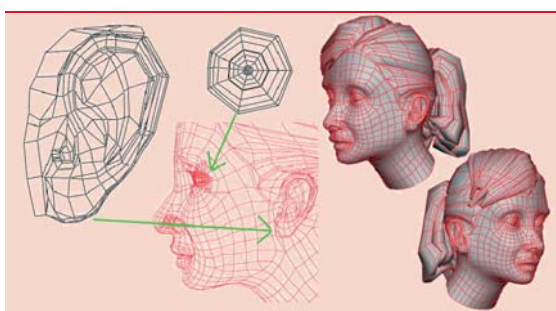
I've modelled all body of the character, because I needed it for future animation purpose. Anyway, I won't go through the entire modeling process because it is not useful for the final image, where I've used only the head and part of the body that was mainly overlaid by the dress. Just for the curious, I've used some photo reference of a standard nude female and I've created all body parts separately starting from the trunk. When I was happy with it, I've joined them together and to the head itself.

**02** Modeling the low poly head part 1

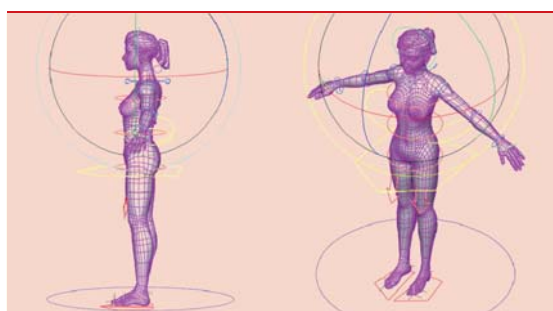
It's time to open Maya and start creating the low polygon 3d model before doing the high poly for the final render. I've placed both the chosen images as *image planes* and according to that I've created the main geometry. I've used a simple polygon plane and I've extruded the edges and manipulated vertices following the reference pics. I've started from the eye socket and model the head leaving hole for the eyeball and where the ears are placed. As you can see from the pic above I've created only half of the head.

**05** The UV mapping

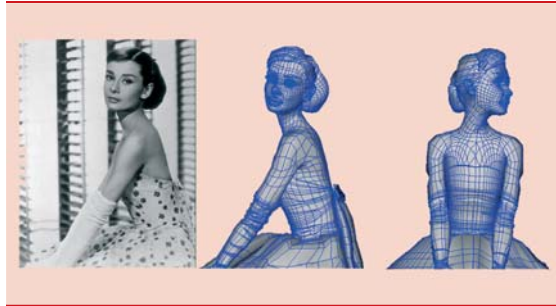
When the low poly model was complete, I had to start the UV mapping process, before posing it and adding details using the sculpting tool. For the head I started projecting a spherical map. For the leg, arm and trunk I used cylindrical maps, for feet and hand I used 2 planar maps (1top&1bottom view). Then a simple checker, applied to a lambert shader, to check the overall process, while tweaking the Uvs. The laying out of the UVs is a crucial step, so my advice: spend more time on it! The UV tools I've used were; *cut UV, move and sew and unfold*.

**03** Modeling the low poly head part 2

Then I've modeled the ear and the eyeballs separately and joined them to the head. For the ear I've first combined the meshes and than merged vertices. For the eyeball I've used half of a polygon sphere and I've placed it in the socket. Once happy with the main shape I've duplicated the head and joined the two halves together. Then I've created the hair using the same extruding method and always trying to follow the reference pics. I've decided to make a ponytail, but I will change it later accordingly to the final image I had in my mind.

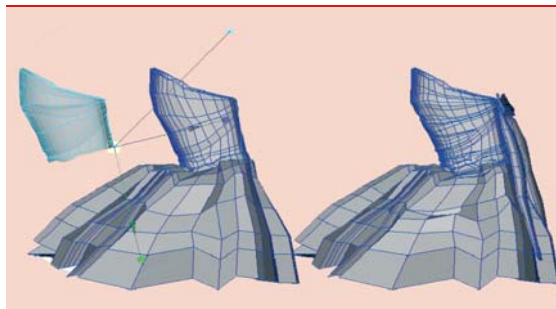
**06** Fast rigging the model

Now was the time to try recreating the pose of the photo I've chosen for the final render. When happy with the main body shape I've created a simple rig for the character just for easy turning the head, arms and body to the same angle of the photo. I've used *The Setup Machine* for the rigging process-a very useful Maya plug in.



07 Deleting unused parts

The next step once achieved the position I wanted, was to create the dress and the gloves. I didn't need all the body parts so I've started deleting all the geometry out of the camera resolution gate. I wanted to render it out in 4k resolution so the best thing was to have less polygon, considering that some geometry, such as the legs, would have not been in the final scene. As you can see from the pic above, I also deleted the portion of body just under the shoulders because I needed the dress to take the place of that part.



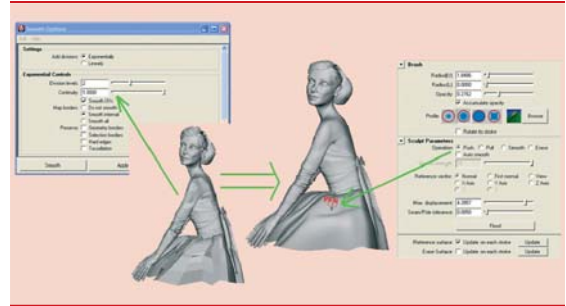
08 Creating the dress

For creating the dress I began from the border edge (result of the deleting process) under the shoulder and start extruding it many times following the new reference photo. I had to guess the other orthographic views because I had only that camera angle photo to use as reference. When finished the main dress shape I've added some geometry split for recreating the folds. That geometry was not UV mapped yet, so I've made the UV's starting from a cylindrical projection and tweaking the UV's using the same previous method.



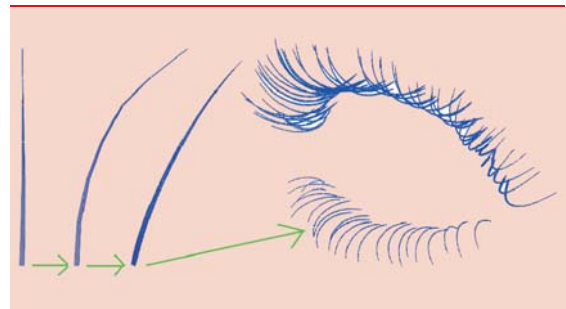
09 Creating the gloves

For the gloves geometry I've used the existing mesh. I've just scaled up a bit the arm and I've added some splits all around the glove for simulating the folds. For a better view I always make the model smooth for seeing if it is good enough and then go back to the low poly adding or deleting the edges. I've modelled only one glove then duplicated it for the other arm. Fortunately, I had already the UV map for the gloves because I've only moved the existing geometry, so I just needed to tweak some UV's that changed position after adding or removing the edges.



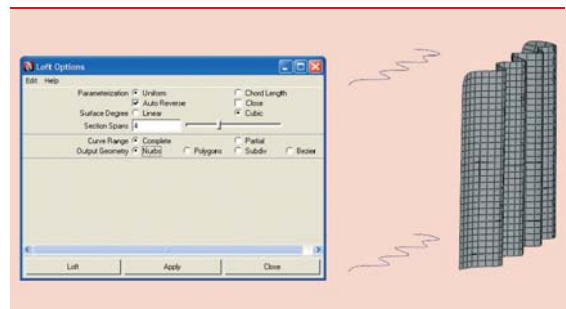
10 High poly: Smoothing and Sculpting

I had to make the geometry more dense, so that the final result will be soft and smooth. I've given to all model parts the command 'smooth' with a division level=2 ending up with about 120.000 polygons. With the Maya sculpting tool I've carefully sculpted the entire model pushing, pulling and smoothing vertices. At this stage I've used many reference photos that I had previously downloaded. Following them I've tried to make the model look more like the chosen subject. During the whole sculpting process I've used a Wacom tablet, so that I have more control over the brush opacity.



11 Making the high poly: Eyelashes

For the eyelashes I sometimes use transparent maps for simulating their look. But this time I've decided to model them. This is for sure the better choice if you have no polygon count limitations and you want to achieve accurate shadows when you render it out. Starting from a low polygon cone I've deformed its shape moving and rotating vertices. Then I've duplicated and scaled each hair placing them on the eye socket and following the eye line. At the end I've made a smooth operation with division level =1.



12 Modeling the curtains

The next step was to think about the background. I wanted to keep it simple and after some discarded ideas, I've decided that curtains could have been a good choice. Making them with a hand embroidery look, I could have played with the amount of light getting through them. For modelling those simple curtains. I've created a CV curve following some kind of a profile I had in mind, I've duplicated that curve and made a 'loft' operation between them. After the conversion from nurbs to polygons, I've made a smooth operation to make them look softer.



13 Starting with the textures

The first idea was to make it Black and White like the original photo, but then I've decided to make also a color version. I've imported the head template map in Photoshop with a 4k resolution and started making some skin layer. First I've chosen a pink color as skin base but then I've started making some skin darker areas using custom brushes and a Wacom tablet. For doing that areas I've also used burn operations. I've painted the eyes area and eyebrows always alternating brushes and burn/dodge tools.



16 The eyeball texture and the Maya shaders

In the picture above you can see the eyeball texture. For all the textures I've made also the specular, bump, reflective, scatter and diffuse maps. This time I won't go through all the *making of* process of those maps because it would take too long. For the skin shader I've used a Blinn material tweaking the Translucence and the Scatter Radius and Color as you see above. For the Eyeball I've used a phong shader. Finally I've used another Blinn for the dress shader giving an high reflectivity value.



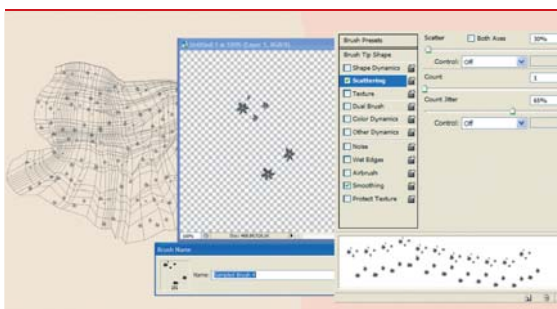
14 Mouth and hair painting

When happy with those layers I've checked it within Maya (test renders). I've used some reference pics for that, doing a mix between clone and hand painting. I've painted the hair separately, a layer always trying to follow the template map as reference for the exact placement of the painted areas. After that I've tested the textures and adjusted some texture seams (Maya). I've created a standard lambert shader and assigned the texture file. I've used Maya 3D paint tool to adjust the seams of the texture using the clone tool.



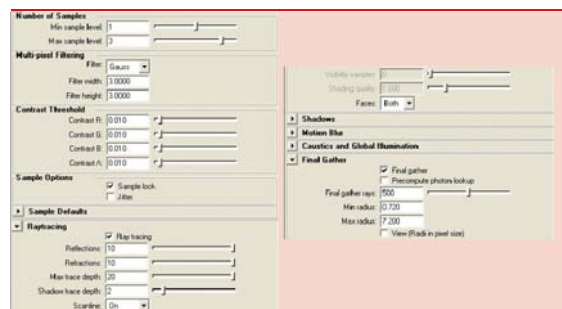
17 Illuminating the scene

One of the most important part of the entire process is setting the lights of the scene. I've used an HDRI probe as main illumination source and fifteen spot lights all around the scene. I've used an high intensity spot light that come from behind the curtains. For the curtains I've used a transparent map so that the light could go through them. The lights concentrate mainly around the lips, hair and eyeballs (only two of them have the 'Ray Trace Shadow' option enabled). My advice: work on the tweaking the lighting setup- it will affect the final render!



15 Painting the dress

After having imported the template map (2k) in Photoshop I've given a base color to the dress texture. I've defined a brush preset with different size flowers. I've opened a new transparent document with the resolution of 400x400 and started hand painting some simple flower shapes trying to follow the original dress photo reference. I've clicked on *Edit>Define Brush Preset*. I've created a scattering brush from this and I've used it to paint the entire dress area. I've tested it in Maya and in the same way adjusted the seams with the 3D paint tool.



18 Rendering and Conclusion

What you see above are my render settings for the A4 300DPI final render image. I've added some contrast and color gamma correction in Photoshop and that's all. As always, after the making of an image, I tend to feel like it could be improved further. In the future to work more with this, playing with more renders and light settings, and I would also like to animate her...So, we will see! Hopefully, I have given an insight into the idea behind the creation of this image, and I hope it will prove somehow helpful for you all. <<