3DXtract.com

ezine for Carrara and Amapi

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3dXtract.com's Featured Challenges: Adventures in Learning

By Claudia Coles

The 3D challenges hosted on 3dXtract.com are usually designed for the artist to have fun and to explore certain graphical avenues that they may not have thought of before. But I have noticed that the these challenges have had a higher degree of significance than I had first expected in helping me learn how to use other packages in conjunction with Hexagon and AMAPI such as Photoshop, BodyPaint, Artrage, and of course Carrara. These challenges definitely proved to be an adventure in learning and I enjoyed participating in each one.

WEEK 4 - AMAPI Challenge - A Character

In the "**Week 4**" **AMAPI Challenge,** Brian, the 3dXtract Challenge moderator, challenged artists to create a character of any sort and focus on the character itself, making sure that it was one that would "express itself." This challenge really made me focus on how to make a character that could stand on it's own and be easily recognized as a "character" rather than just a creature or humanoid-type individual. I decided to model a marine-type character called "Kubo" (pronounced "Koo-boe") and make him a cross between a manatee, whale, and a dolphin (manawhalphin). One of the things I did to represent his "manatee" heritage was that I gave him nostrils in the front of his face -- Kubo has no blowhole. I also decided to give him a small mouth, but that was mainly because I wanted his expressions to come through his eyes and facial structure, rather than the shape of his mouth. I also did not want to disrupt his cheek lines.

I used BodyPaint, for the first time with this project, to paint his skin texture and used a combination of textures and paint to get the coloration and bump texture that I was looking for. I didn't want his skin to look so "pristine" because then it would look too "CG". Also, marine mammals rarely have perfectly clear/clean skin (due to barnacles, bruises, cuts, etc.) so I found a texture that I felt had "blotches" that I could use as "liver" spots or skin discolorations. I also found a texture that I felt would

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Figure 1. Skin Discolorations

work for the somewhat roughness of his skin. [Figure 1] One thing I always felt in seeking out the right texture map is that I don't always look for what I need, I look for what "looks" right to me. Meaning, someone may say that a certain texture map comes from a "rust-colored garbage can lid", but perhaps it could be used for something else. So I don't always take the name of a texture into consideration.

I also had to think about Kubo's personality. Was he smart, friendly, shy...what? I finally decided that I wanted him to be a cool dude, yet educated, but a manawhalphin who knew how to take care of business, just the same. However, I also wanted him to be a gentle little cutey as well, so I felt that an old-school fedora-type hat and some old fashioned spectacles would help round out his character. I left off the band around his hat because I wanted to give him more of a casual look and felt that the band make it look too much like a real fedora, which may hold some uninvited connotations.

So that's how Kubo came about. Both his glasses and hat were made in AMAPI, but they were both textured in Carrara. I needed to find a felt-like material for his hat but didn't know where to look. I checked out Kirk Saavedra's shaders CD, but didn't find one. However, I did find a blue jean texture that I felt I could convert into what I needed. What I had to do was to set the UVs for the hat in the Vertex Modeler's UV editor in order to get the texture map to take to the model in the way that I wanted it to. [Figure 2] After some experimenting in the Texture Room, I decided not to use a bump texture after not liking the results. I simply let the fabric go as-is. Afterwards I overlaid the texture map with the Gray-Scale Shoestring Shader, tweaked it some and "Voilà!" A blue felt hat. :)

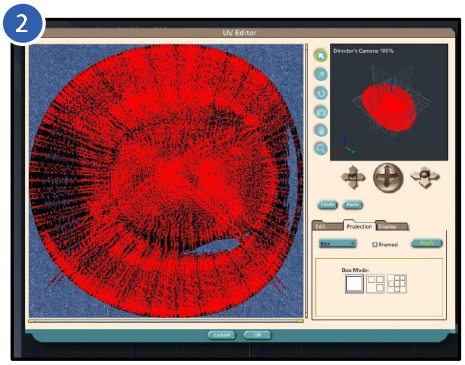

Figure 2. Setting up the UVs

Because Kubo is a marine mammal, I had to come up with a marine setting for him. However, since the emphasis was on character rather than the setting, I kept the scene elements to a minimum. But even with that in mind, it wasn't simple to come up with the correct scenery. I wanted to show Kubo in an ocean setting, near an ocean floor, so I had to design the background accordingly. I was able to generate several terrain objects that I felt I could convincingly pass off as small sea bed with rock formations. But getting the proper color and texture for the sand was a challenge because I had to find a "sand-like" color and texture, not just any old yellowish hue. I finally used three different terrain layers (land, grass, and snow) with a mixture of color and bump channel in each to come up with the sea bed shader. For the non-sand area, I used a metal shader (yes, metal) that looked more like granite, which textured the "rocky" areas enough to make them look like rocks peeking out from the sand. [Figure 3]

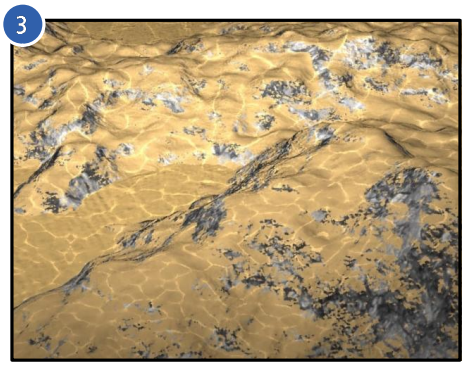

Figure 3. Ocean floor with sand and rocks

The water effect was achieved with a bitmap gel over the main light, generated by the Caustic Generator freeware package. http://www.lysator.liu.se/~kand/caustics/ I created a black and white caustic texture map and used it as a gel with one spot light which I, in turn, combined with another non-gelled light to balance out the lighting in the scene. [Figure 4] Since I wanted to focus on Kubo rather than the background, I allowed the background light to fade off. For the time being this is okay, but when I add more elements to this WIP scene, I will have to re-adjust the lights to accommodate them.

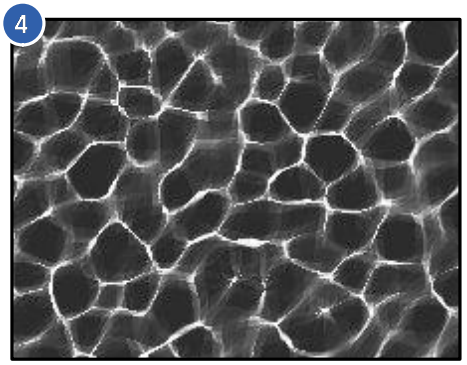

Figure 4. Caustic texture map for light gel

WEEK 1 - 3dXtract
Hexagon Challenge

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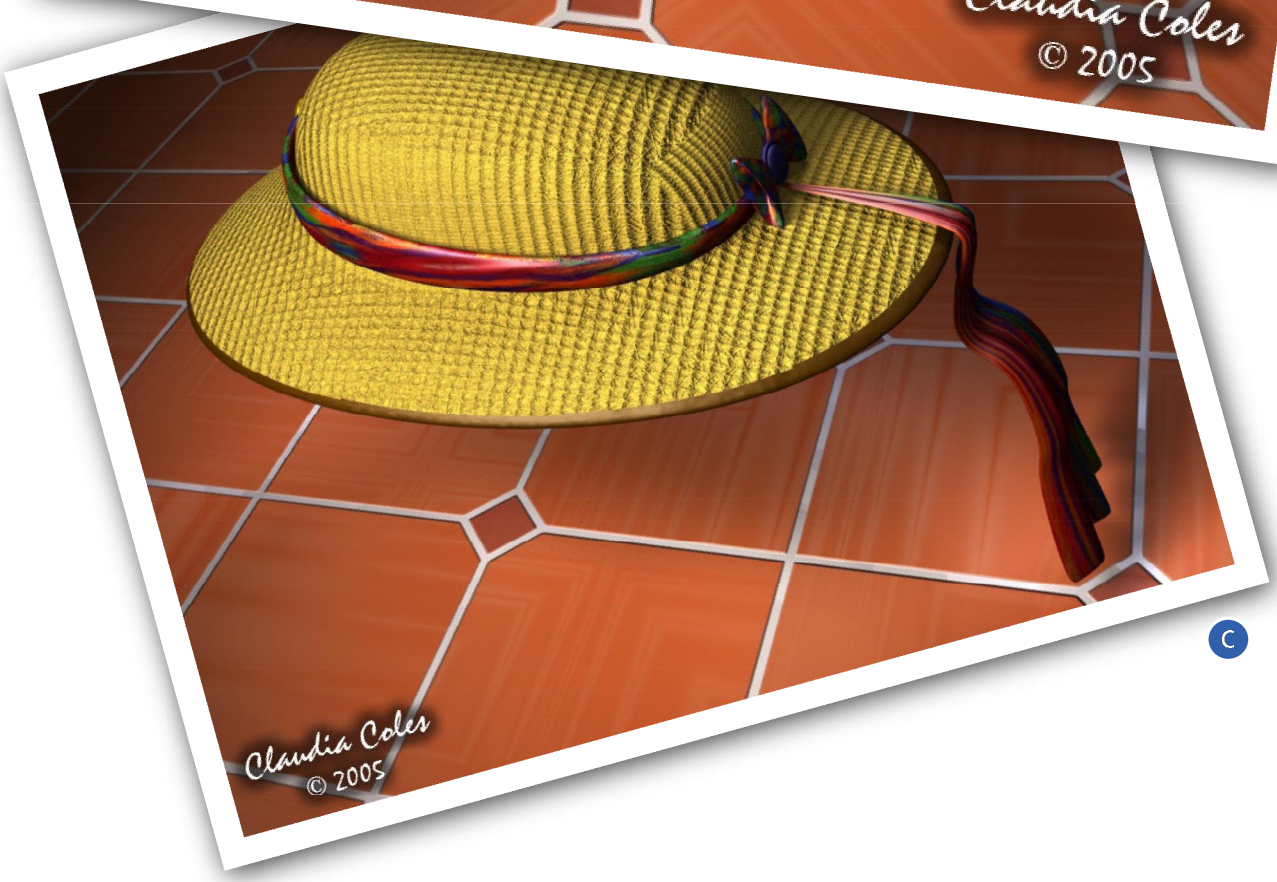

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WEEK 1 - Hexagon Challenge
A Hat

Well, Kubo was my first real "character" that I modeled in AMAPI. However, with the dawn of Hexagon, it was only right to assume that Brian would hold a Hexagon challenge sooner or later. And he did. :)

The next challenge hosted at 3dXtract.com was one that would help users become familiar with the new Hexagon polygon software. The goal this time was to simply model a hat and it seemed as though everyone was in full throttle, as entrants started to submit models right away. Even Carl submitted some, one of which was a model that I had wanted to do; a top hat. Well, ideas for hats started dwindling for me with each submission and it was hard for me to decide which one I should and could model. Then, it dawned on me: why not do a hat that most likely no one [read "guys" :)] would dare to do. That's when I thought of the Spring bonnet. They wouldn't touch that one with a ten-foot pole -- I was sure of it.

The bonnet I had in mind was a typical one as far as the shape goes, but I wanted to make it a bit less typical. So, I started with the basic shape and box modeled the main shape from a cube primitive. The extract edge tool was extremely helpful in creating the band object for the hat. I used an extruded cube with subdivision for the bow in the back and a simple curve, thickness and extrusion to create the brooch in the front. The scarf part of the band was made with the gordon tool and curves.

One of the things I like the most about Hexagon is the ability to create shading domains for basically whatever area and shape that is needed on a model's surface. In the case with my bonnet I wanted to have a rim around the edge of the hat. So, I set a shading domain for the rim as well as for the rest of the hat. [Figure 5] It translated well in Carrara (I used the Carrara export format) and in the end, I was able to create a separate texture (including a little bump for puckering), to get the look I wanted for the rim.

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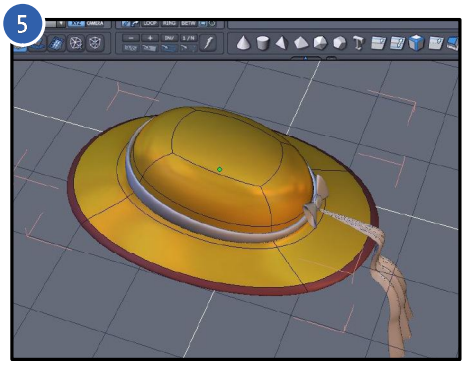

Figure 5. Bonnet in Hexagon with shading domains

My biggest challenge, however, was getting the UVs correct on this model, which to this day I am still not happy with. I cannibalized a bump map from the cane shader and attempted to use that to create a type of "straw-ish/woven" effect for the bonnet. The main problem I ran into was that the UVs mapped the texture map in an odd way at the front and the back. I tried to manipulate them in several ways, including changing the projection mapping, but I still couldn't get it quite the way I wanted. Well, time got the best of me so I had to punt and simply use parametric mapping to finally get the results I did (the least of all evils). What I did learn from this challenge, however, was how the UVs worked in conjunction with texture maps and projection mapping in general, which was very helpful with understanding how Bodypaint and Carrara would work together for my next challenge entry.

WEEK 2 - Hexagon Challenge
Artist's Tools

The second Hexagon challenge really pushed me to my limits but I probably learned the most from it compared to the other challenges, thus far. The premise was to model a tool that was used by an artist. Again, it seemed like I was kind of slow on the draw (no pun intended) because there were already two entries submitted before I came up with my idea. But what I decided to do was to keep it "simple" and model an old-fashioned and somewhat timeless artist's tool rather than go for something modern. So I started out designing an old artist's palette. I thought I had a good idea of what a palette looked like until I realized I left out the thumb hole! But the boolean tool in Hexagon took care of that little detail quite well. [Figure 6]

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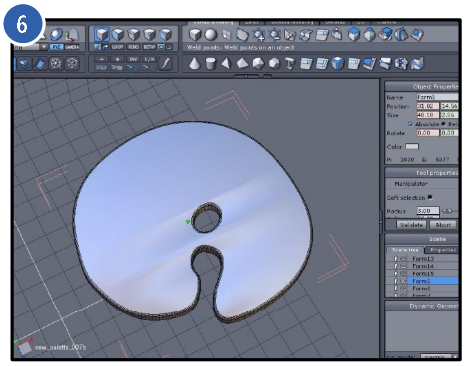

Figure 6. Screen shot of old palette model in Hexagon

As I modeled the palette, I was already forming in my mind how I wanted it to look as far as textures go. I knew I wanted it made out of wood, but I wanted it to have a "weathered" or used look as well. So far, I was running across a lot of possible wood textures on the Net, but they were too uniform and pristine in appearance. However, I was able to come across a wood-ish texture on Kirk's 301 texture CD that contained something that looked

WEEK 2 - 3dXtract
Hexagon Challenge

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like turpentine stains to me and I was able to import it into BodyPaint and manipulate the UVs of the palette model to set the texture correctly onto the face of the palette. I then set up the different channels and painted them as desired to get the basic effect that I wanted. But I also wanted to show the palette in use, so I created extra color layers in BP that held the three different brushed areas of paint that you see on the finished version. I exported a texture map for each channel for more control in Carrara's Texture Room, however, the color channel texture and the layers were composited into one TIFF. [Figure 7]

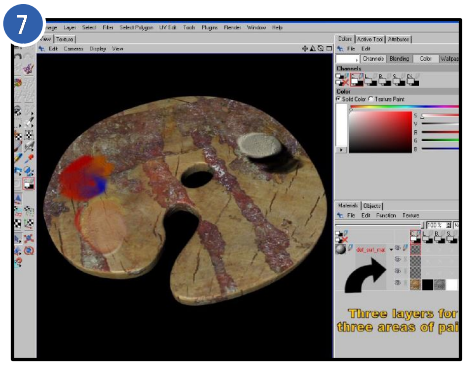

Figure 7. Painted palette model in BodyPaint

In the Texture Room, I imported the textures into their respective channels and manipulated the Shininess and Highlight Channels in conjunction with th Bump Channel to get the look I wanted. One thing I learned was that when setting up UVs for any object, the user can gain more flexibility with the Bump Channel's Bump Amplitude setting than if the UVs were not set up. I noticed that when I used a value higher than "1" in the Bump Amplitude setting for the Bump Channel texture, the texture would in turn look like it had too much bump to it. So basically, I set the Bump Amplitude to "1" and make adjustments to the Shininess and Highlight channels to yield results that matched those that I had when I was working with the textures in BodyPaint.

The old palette was basically the only model I textured in BodyPaint in this scene. The other models, such as the brush and palette knife, were all textured in Carrara's Texture room.

I decided to model a brush and knife because I felt that the palette didn't look right by itself. But unlike the palette, which was constructed out of curves, the brush and knife models were basically box modeled.

One challenge I did face with these tool models was that I wanted to create a convincing "metallic" texture for their metal parts. I was finding problems with the metal shaders that I ran across because they all looked too "plastic" or dull to me. So I took some time to create a "brushed metal" texture map in Photoshop that I used in the bump channel to get the effect I was looking for, particularly for the metal areas of the palette knife. I took a similar approach for the collar of the brush, however, I used a noise bump instead of the brushed metal texture map. With some other tweaking, including keeping the reflection set high, I was able to produce the

Figure 8. Paintbrush with just some paint on bristles

results I was satisfied with for my metallic shaders. [Figure 8] The only thing I regret was not having the time to "dirty up" the metallic areas with dabs of paint, although I was able to apply a paint effect to the brush's bristles. But hopefully, I will have time to do this on my next go around.

Now, remember I said earlier to consider a texture map for what it "looks like", not for what it is? Well take a look at this image? [Figure 9] Does this look like the deeply colored wooden bitmap that was used for the brush handle? Well, "yes" and "no". It is actually an image of a fiber-ish textile, and applied with the proper orientation and projection mapping, it passes pretty well for wood. So now you see what I mean by seeing things for how they seem or look like to you. It's all about thinking outside of the box.

Figure 9. Fiber type textile texture map used as a "wood" texture

To finish off my challenge entry, I wanted to place all my models into a scene that would give them some coherency and meaning. So I decided to place them in an artist's scene where it looked as though the artist was working on a painting. However, I first needed an image for a painted canvas model. After trying a landscape image and not liking the results I got, I visited a resource and reference site called 3dref.com (http://www.3dref.com/images.html) and found an image of a gentlemen who I learned was a street person. I felt that he, along with the other

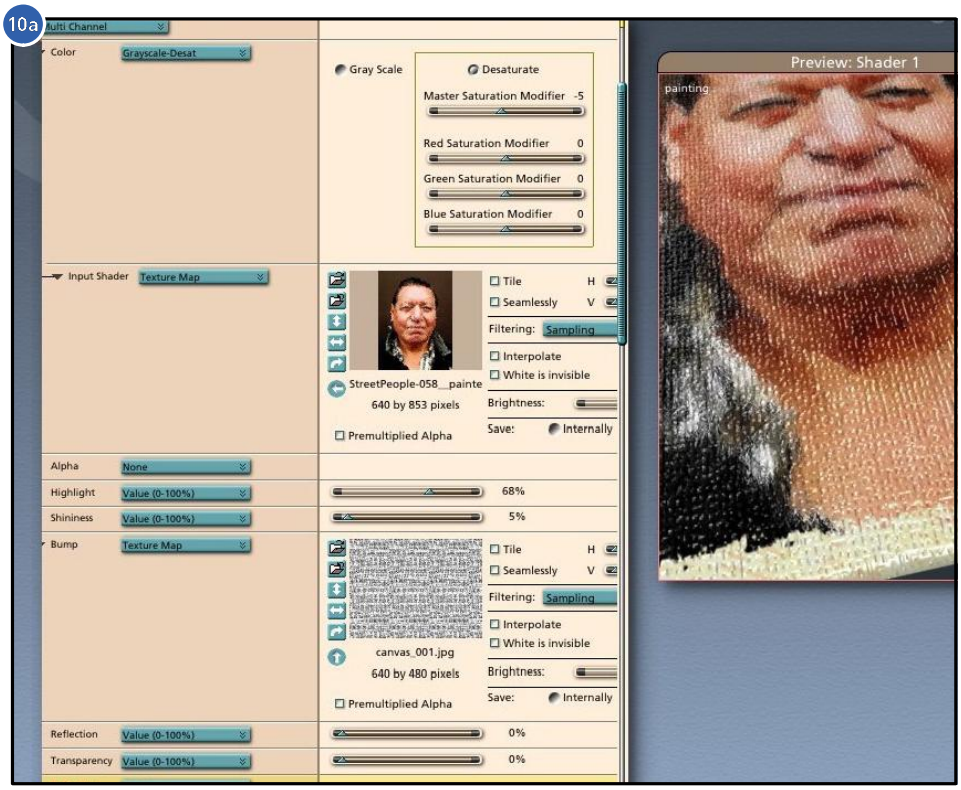

Figure 10a. First half of canvas model shader in Carrara's Texture Room

models there, should be used in a way that would be respectful, so I decided to make this gentleman a key figure for the scene in the hopes that if he ever saw his image over the Internet, it would be something he would not be ashamed of viewing.

What I did first with his image was treat it in Photoshop with filters to create an "oil-painted" look to it. I actually went into Paint Shop Pro as well to finish this effect because I only received what I felt was a limited result from the filters I found in Photoshop. However, I did create a "canvas" matte in Photoshop that I later used in the Opacity Mask channel of the painted canvas model's shader to yield the paint brushed edge look. Along with the canvas matte, I had to create a canvas color and texture and created those in Photoshop and Paint Shop Pro. The final textures were combined in a layer list shader in Carrara [Figure 10A/Figure 10B].

In addition to Photoshop and Paint Shop Pro, I also used a freeware paint package called Artrage which helped with creating the painted brush strokes on the art blanket on the floor.

http://www.ambientdesign.com/artrage.html

The final key element was the lighting. Because of my video production and post-production background (I have been in the field for over 20 years), I tend to want my scenes to look "photorealistic" so as to always have the option of integrating them with live video, if necessary. It is also a style that I decided to follow since I began learning 3D graphics in the Fall of 2003. The typical approach to lighting in video is with three lights: a key, a fill and a back light. However, I can usually achieve good lighting with using just one or two lights in my 3D scenes. And, in this case, because I don't have any other elements in the scene that I want to focus on, I use one spot light and allow the light to fall off into the background. However, this Artist's Scene is also a WIP, just like my Kubo entry, and I plan to add more elements when I get the chance. At that time, I will put in additional lights based upon

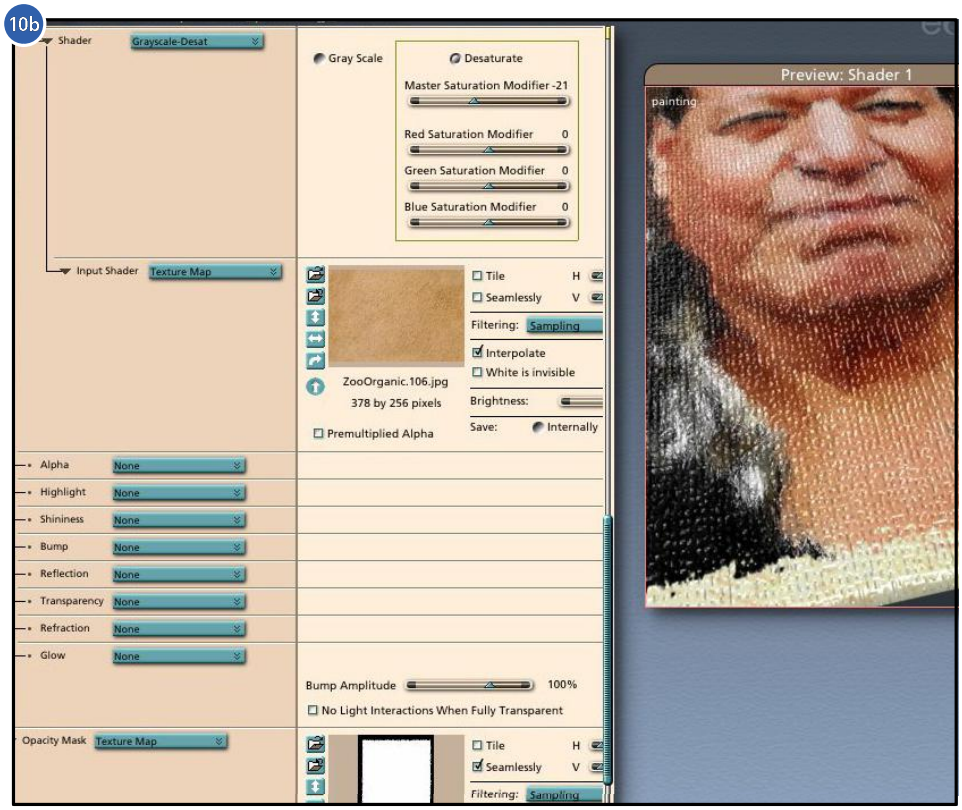

Figure 10b. Second half of canvas model shader in Carrara's Texture Room

what I feel is needed to illuminate the rest of the scene. But one key tip I can offer for lighting is this: keep it simple. Too many lights in a shot can ruin a scene. Another tip is, with the advent of shadow tags in CS4, turn off all unnecessary shadows in your scene. Shadows help the viewer to observe depth and placement of an object within a scene. However, too many shadows can be distracting, so this is something to look out for.

Waiting for More..

I am really looking forward to future challenges because they really stretch me and I get a chance to explore and learn things that I might not have if I did not participate in a particular challenge. I learned A LOT about UV painting and editing, as well as some new techniques in Photoshop. And I notice that when I have the opportunity to put more into a challenge than what is called for, I get more out of it. I usually try to set time aside every day to work on the challenges, although the duration of the sessions may vary. But I probably spend about 50-70 percent of my time in texture map and image research, preparation and creation, although depending on the scene, this may vary. To me, texturing is as key an element in creating a 3D scene as lighting. So, I take my time surfing the Net, trying to locate texture maps that I feel will help "translate" what I want to communicate in my scene or that I can modify to create the effect I want. If I can't find what I need, then I have to set aside time to create certain elements from scratch, such as the painting of the man, canvas matte, brush metal texture map, etc. But regardless of how many elements I have to create, I will usually spend a major amount of my time in the Texture Room trying to make both created elements and shaders work together to achieve the final look I have in mind. I believe that the Texture Room is the hub of any 3D scene or animation and spending time there is a good investment for whatever work you are doing in Carrara.

Well, I hope I was able to inspire and encourage you to participate in the 3dXtract.com challenges. If you would like to talk more about some of the things I shared in this article, please post your comment or question on 3dXtract's Content and Tutorials section of the 3dXtract Forum.

Enjoy the challenges! :)

Claudia Coles
"Selocic"
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