Computer Animation II

Assignment 5

To round out our six week exploration into more advanced material, you are going to shade your Dippy model and light the scene you animated. In this assignment it's critical that you generate images of the highest technical quality, namely, images free of modeling, rigging, animation, shading, or lighting artifacts.

Requirements:

- You must once again render a folder of TIFF images (640 x 480).
- You must also turn your TIFFs into a QuickTime movie at 24fps, compressed with the Animation codec.
- You must render with motion blur.
- Make sure to smooth the Dippy model if necessary to create cleaner silhouettes, though be conscious about the impact this will have on shading and rigging!
- You must shadows in your scene from one or more light sources, and the shadows must be free of artifacts.
- Clean up your animation as best as you can to remove foot skating, model cracking, or other errors.
- Pick a reference surface material and do your best to re-create that material on Dippy. Don't pick anything furry. Include your reference material image(s) when you hand in the assignment.
- Try to use both procedural and painted elements on Dippy. The elements that need to be easily directed, placed, and controlled should probably be painted/texture mapped. Those that can be more stochastic or which translate nicely into mathematics should probably be procedural.
- You must eliminate all aliasing, buzzing, and sizzling from your final render. Rendering at "production quality" or higher will help with aliased edges, but artifacts from procedural shaders will need to be rooted out and fixed at the source. The biggest source of procedural shader errors are high frequencies in the pattern that are undersampled in the render.
- Hand in everything: rendered TIFFs, QuickTime movie, painted textures, reference images, and scene files.

Notes:

- MAKE A COPY OF YOUR RIG BEFORE STARTING!
- In a copy of your rig file, play around with the different approaches to hand-painting Dippy. Create an automatic mapping and try 3D paint. Create orthographic maps or spherical/cylindrical maps and paint in Photoshop. Learn from your mistakes before working on the actual model. Figure out what workflow makes sense to you and will afford you the greatest control.
- Also play around with procedural tricks. Ramps are extremely useful, as is 3D fractal noise. Use these procedural layers to add complexity to your painted ones. I find it easiest to make new materials for each component of a shader I'm building so I can easily render images of the components individually. After they look good on their own, then I try to piece them together in a layered shader or through some other mechanism.
- The "color gain" attribute of a material is simply a color multiplier. So if you have nice color but want to vary it a little bit, try assigning a low-contrast fractal noise procedural shader to the color gain of your material. This will modulate it with some randomness. You could also map the color gain with a noisy pattern from Photoshop.
- Use layered shaders to layer effects, but be wary. They can get very complicated very quickly.
- Be sure you know how to create, name, and manage multiple UV sets on your object. These get complicated as well but they're critical for understanding and controlling the shading process.
- Have a clear picture in your mind of where you want to go and once again work hierarchically. That is, if you want to make Dippy look like red Jell-o, first make a red shader. Then figure out what the next most important quality of Jell-o is and add that (transparency? reflection?). Then move on down the line until you're adding the subtle surface noise variations at the very end.
- Make sure that the material you create actually works on your animated model before committing to an approach. You don't want to have to re-do animation, shading, or rigging if you can avoid it.
- You can try using procedural shaders when lighting too. Light attributes can be fed by fractal noise or ramp shaders to create complex lighting effects!
- Read up on UV sets in the polygonal modeling portion of the pdf manual (chapters 10-12), read about 3D paint in the Painting pdf manual (chapters 1 and 15), and read about procedural shading in the Shading pdf manual.

DUE Wednesday March 9th at the beginning of class