Computer Animation II

Assignment 5

To round out our multi-week exploration into more advanced material, you are going to shade your Dip 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:

- Work at 640 x 480 and 24 fps.
- You must render with motion blur. If this causes floors and other objects to magically vanish, try turning motion blur off for the vanishing objects in the attribute editor.
- You should render your derived Dip surface, not the animated base mesh. Smooth the model only as much as necessary to generate high-quality silhouettes.
- You must use shadows in your scene from one or more light sources, and the shadows must be artifact-free.
- Clean up your animation as best as you can to remove foot skating, model cracking, and other errors.
- Pick a reference surface material and do your best to re-create that material on Dip. Don't pick anything furry. Include your reference material image(s) when you hand in the assignment. You can invent a material from multiple references if you choose.
- Try to use both procedural and painted elements on Dip. 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 that are undersampled in the render.
- Hand in a QuickTime movie, compressed with the H.264 codec at high or best quality, painted textures, reference images, and your scene files. Please collect all this into a folder (named unambiguously).

Notes:

- MAKE A COPY OF YOUR RIG BEFORE STARTING TO SHADE!
- In a copy of your rig file, play around with the different approaches to hand-painting Dip. 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 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 render images of the individual components (or "layers"). 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.
- 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 Dip 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? Refraction?). 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 14th at the beginning of class