

CS 446/MDST 375: 3-D ANIMATION AND SPECIAL EFFECTS

PROJECT 1: LEARN YOUR TOOLS

Goal: Showcase your creativity while gaining familiarity with some of the tools you will use throughout the course.

Due: Monday 17 September 2001

Synopsis: This is an individual warm-up assignment that will give you a chance to learn and experiment with some of the tools you will use. The assignment can take several forms, depending on what you submitted as your primary skill set when you applied to the class:

- **Modeling:** build a scene or animation in Maya.
- **Music/Audio:** set a soundtrack to a video we provide.
- **Drawing/Painting:** provide texture maps for our “Rorschach” scene
- **Storyboarding:** provide a storyboard for a 30 second commercial
- **Programmer:** either write shaders for the Rorschach scene, or write a physical simulation as a plug-in to Maya

Details: A few of the assignments need more explanation:

Modeling: This is straightforward. Do the tutorials, learn how to create 3-D scenes and animations, and design something unique from scratch. You are allowed to use textures from the Internet or other sources (with attribution, of course) but any 3-D models must be entirely your own. Animation is optional, but encouraged. You should turn in your scene as a binary (.mb) file, or as a zipped directory if you need to turn in multiple files. You will be graded on creativity (25%) and on the modeling skill you demonstrate (75%).

Music/Audio: We provide some footage of move-in day to which you will add a soundtrack. Compose the soundtrack using whatever tools you like (but try out SoundForge XP if you haven’t used it before, since that is one that we provide in the labs) and lay it down to the movie using Premiere or another video editing tool. You should use at least 30 seconds of footage from the video we provide, though it need not be consecutive footage. To get the movie, use the home directory service to log into `\\home2\courses` and navigate to `cs\446_luebke\files\project1`. You should turn in the edited movie with your new sound track. You will be graded on how well your soundtrack matches the video (25%) and how well your soundtrack helps the video tell a story (75%).

Drawing/Painting: We provide a rather abstract 3-D scene with several objects, and instructions for rendering the scene using Renderman. Your job is to edit the texture maps to make the scene look like something meaningful. To make this

easier, all the texture maps for the scene are contained in a single file you can edit with Photoshop. You will need to make a copy of the **samplescene** directory from **cs\446_luebke\files\project1**. Here are Brenden's directions for modifying the texture and rendering the resulting scene:

0. Skip to step 7 and render the unmodified scene. This will provide a reference image indicating which objects are textured with which sections of **texmap.tif**.
1. Open Photoshop.
2. Open **texmap.tif** in Photoshop.
3. Modify textures (you may wish to increase the image size for more resolution in the individual textures).
4. Save **texmap.tif**.
5. From the directory containing **texmap.tif** and **samplescene.rib**, run:
txmake texmap.tif texmap.tex
6. From the same directory, run: **prman samplescene.rib**
7. Open **samplescene.tiff** in Photoshop to view changes to the scene.
8. Return to step 3 until satisfied.

Programming: You can either write a Renderman shader for the sample scene or a physical simulation within Maya. Instructions are provided below for the shader; a very simple shader **plastic.sl** is included with the sample scene as an example. Begin by copying the sample scene as described above. For the shader assignment, you are allowed to textures or images from the Internet or other sources, but all code you write must be your own. You will be graded on the sophistication of your shaders; you need not attempt to create a meaningful scene.

0. Skip to step 7 and render the unmodified scene. This will provide a reference image indicating which objects are shaded by which sections of the **samplescene.rib** file.
1. Write a new shader using your favorite text editor.
2. Save with a descriptive name and **.sl** extension (e.g. "**crushed_velvet.sl**")
3. From the directory containing the new shader, run "**shader crushed_velvet.sl**".
This will create new file **crushed_velvet.slo** and may output warnings and errors. Treat these as you would those generated by a C++ compiler: errors need to be fixed, but some warnings (such as "Type mismatch") can often be ignored.
4. Open **samplescene.rib** in a text editor
5. Find the object to which the shader is to be applied in **samplescene.rib**. Each object is specified by "AttributeBegin", then a number of lines of data, then "AttributeEnd". The first line after "AttributeBegin" will have an identifier and name for the object, which includes the number that is displayed on the object when the object is textured with the provided **texmap.tif**.

6. The current shader for the object is 'texmap' as specified in the line 'surface "texmap" . . .'. Replace this line with new shader and any parameters. For example, replacing with the line "Surface "plastic" "Ka" [0.0] "Kd" [0.5] "Ks" [0.5] "roughness" [0.1]" uses the shader "plastic", which takes parameters for ambient, diffuse, and specular reflection and roughness.
7. From the directory containing the new shader and samplescene.rib, run:
prman samplescene.rib
8. Open samplescene.tiff to view changes to the scene.

Storyboarding: This is straightforward. Create a storyboard detailing the script and shot sequence for a 30-second commercial. Your commercial should attempt to sell a product or service. You will be graded on creativity (40%), on technical skill in drawing the storyboard (30%), and on how well your storyboard conveys the visual direction for the commercial (30%).