CS 535, Fall 2011

Due Tuesday October 4 at 6am.

Assignment 3—Coloring within the lines

Extend your graphics application with the following functionality:

- Triangle rasterization with z-buffering (demonstrate using color stored with geometric models).
- Gouraud and Phong shading (demonstrate on uniformly colored geometry, i.e. a white teapot, a green Happy Buddha statue, etc.).
- Diffuse and specular lighting (demonstrate on uniformly colored geometry as above).
- Texture mapping (demonstrate on a 3-D scene you create with at least 3 different textures).

Make a movie that shows off your scene and the various rendering styles you support.

- The view should change smoothly (along a path).
- Length 30s, frame rate 30Hz, resolution 640x480.
- Compress the movie to a file size < 10MB.
- Use a popular format (e.g. MOV, AVI, MPG) and a popular codec (e.g. mpeg4, H.264).
- The movie should be assembled from consecutively numbered stills that are pre-rendered.
- Use a library (that you find and download, e.g. OpenCV) linked in with your program or an external movie making application (that you find and download, e.g. VirtualDub, Windows Movie Maker). Do not use pirated software.

Extra credit
- Add an explanatory audio track to your movie. (2%)
- Extend your PPC visualization method with an image plane that shows the image captured by the PPC. A parameter should specify the depth (camera z) where the image plane is located. (2%)
- Implement bump mapping and demonstrate it by rendering a golf ball and embossed text. (4%)

Turn in instructions
Turn in your work in an archive submitted via Blackboard Vista. The archive should contain:

- Source code.
- The movie file and the path text file used to render the movie.
- External libraries used.
- Code should compile, link, and run.
- A Readme.txt or Readme.doc file that lists the movie making library or software used, any special GUI features, and extra credit features attempted.

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