

Due: Wednesday April 21 at 6:00am

## Assignment 9—Hardware rendering, the fixed pipeline

### *In a nutshell*

Extend your interactive 3-D graphics application to make use of graphics hardware.

### *Details*

1. Hardware rendering functionality
  - Interpolation of vertex colors loaded from geometric model file.
  - Texture mapping.
  - Wireframe and filled mode, for both vertex color interpolation and texture mapping.
2. Example
  - Demonstrate hardware rendering on a 3-D scene with at least a per-vertex-colored object and a texture-mapped object.
  - Display the frame rate on the image (e.g. top left corner).
  - Define a camera path, save to file; have GUI button that animates camera along path.
  - Make a 10s 30fps video of your scene hardware rendered along the camera path.
3. Extra credit
  - Shadow mapping (3%)
  - Projective texture mapping (3%)
  - Environment mapping (3%)
  - Environment mapped reflections (3%)

### *Turn in*

- Code.
- Camera path file.
- Movie file.
- A README.txt description of your GUI.