

Lab 05 - Open GL Visibility - Detection (chapter 16)

I. Culling

- A. `glEnable(GL_CULL_FACE) / glDisable(" ")` - turn feature on/off
- B. `glCullFace(*)` where * is `GL_BACK`, `GL_FRONT`, or even `GL_FRONT_AND_BACK`
 - Back face culling
 - Front face culling
 - all face culling.
- C. Defaults: `fronling` is off, Back-face set

II. Depth-Buffer functions

- A. In `glut`, must call `glutInitDisplayMode` w/ `GLUT_DEPTH` bit enabled
- B. `clear`, - should clear depth each frame by enabling depth buffer bit
`glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);`
- C. Turn on/off depth testing: `glEnable(GL_DEPTH_TEST) / glDisable(" ")`
- D. Set clear depth: `glClearDepth(maxDepth)`, Default: 1.0
- E. Set depth test range: `glDepthRange(min, max)`, Default: (0.0, 1.0) i.e. near/far planes
- F. Set test condition: `glDepthFunc(*)` where * is `GL_LESS`, `GL_GREATER`, `GL_EQUAL`, `GL_NOTEQUAL`, `GL_LEQUAL`, `GL_GEQUAL`, `GL_NEVER`, and `GL_ALWAYS`
Default: `GL_LESS`
- G. Set read/write permissions of depth: `glDepthMask(*)` where * is `GL_TRUE` (read/write) or `GL_FALSE` (read only)

III. Depth testing on wire-frame - just set polygon mode to `GL_LINE` also set `glPolygonOffset` when necessary.

IV. Depth Cueing

- A. Turn on/off - `glEnable(GL_FOG) / glDisable(*)`
- B. Params: `glFog(*, value)`
 - i. Function: `glFogi(GL_FOG_MODE, GL_LINEAR);` // near depth function from `gl`
 - ii. Start stop: `glFogf(GL_FOG_START, value);`
`GL_FOG_END`
 - iii. More advanced options. SEC APT