

Drawing 3D Objects

CSCI 4229/5229

Computer Graphics

Fall 2026

Hints

- Build objects around origin and transform
- Form objects out of polygons
 - Make sure the edges match
 - Watch for holes
 - Watch front/back when using GL_CULL_FACE
- Build complex objects from simpler objects
- Intersecting objects may be simpler
 - Needs Z-buffering

glPolygonOffset(factor,units)

- Modifies the depth stored in the Z-buffer
- $\text{Offset} = m * \text{factor} + r * \text{units}$
 - m maximum slope relative to viewing direction
 - r minimum resolvable difference in Z-buffer
- Separate settings for POINT/LINE/FILL
 - `glEnable(GL_POLYGON_OFFSET_POINT)`
 - `glEnable(GL_POLYGON_OFFSET_LINE)`
 - `glEnable(GL_POLYGON_OFFSET_FILL)`
- Typically **`glPolygonOffset(1,1)`** works

Offset Uses

- Hidden line removal in wireframes
- Drawing lines on polygons
- Resolving z-fighting

