

Dissecting An OpenGL Program

Tom Kelliher, CS 320

Feb. 1, 2013

1 Administrivia

Announcements

Assignment

Complete written assignment.

From Last Time

Introduction.

Outline

1. Evolving OpenGL
2. Default clipping volume
3. OpenGL APIs, libraries
4. Coordinate systems
5. Dissecting an OpenGL program

Coming Up

OpenGL introduction lab.

2 Evolving OpenGL

1. Evolution of video cards — GPUs, CUDA, etc.
2. Bottleneck between CPU and GPUs.
3. Originally, a fixed-function pipeline.
4. Eventually, the vertex shader was added — programmability. Other shaders added to later versions.

Competition with Direct X.

5. OpenGL uses a client-server model.

3 Default Clipping Volume

$2 \times 2 \times 2$ cube centered at the origin.

4 OpenGL APIs, Libraries

1. GL — just a rendering API. No knowledge of windows, events, etc.
2. GLUT — OpenGL Utility Toolkit.

Portability across platforms. Windows, events, etc.

3. GLEW — OpenGL Extensions Wrangler. Vendor extensions. ARB extensions. Compatibility extensions.

Extensions loader.

4. Support code, classes added by the textbook's author.

5 Coordinate Systems

1. World/object coordinates. Cartesian.
2. Window coordinates. Not quite Cartesian.

6 Dissecting an OpenGL Program

Refer to the Sierpinski gasket program for a triangle. Concentrate particularly on what's going on in `main()`.