

# An OpenGL Toolbox I

CS 420

Objectives:

- Use vertex arrays.
- Use vertex buffer objects and vertex array objects. (Store this away for later use.)
- Use keyboard and mouse input.

## Experiments

- Experiments 3.1 through 3.6.
  1. Carefully study how vertex arrays and their features are used in increasingly sophisticated ways.
- Experiments 3.7 and 3.8.
  1. Vertex Buffer objects (VBOs) are stored on the “server” (the GPU) to minimize bus traffic between the server and the “client” (your OpenGL program running on the CPU).
  2. Carefully study how VBOs are used.
- Experiment 3.9.
  1. Vertex Array Objects (VAOs) are also stored on the server to minimize bus traffic.
- Experiment 3.10 and Exercise 3.11.
- Experiments 3.13 through 3.15.
  1. The mouse wheel won’t be functional in our environment. Study the mouse wheel callback carefully — you’ll use its ideas and adapt them to work with the arrow keys in a later exercise.
  2. Note how we have to convert from screen coordinates back to window coordinates because the Y-axis in screen coordinates points “down.”
  3. Note the constants used for the mouse buttons and their states.
- Experiment 3.16.
  1. Note the constants used for the special keys.