Computer Graphics with Modern OpenGL and C++

# Section 1: Introduction

## Introduction to GLEW, GLFW, and SDL

What is GLEW?

* OpenGL Extension Wrangler
* Interface for OpenGL versions above 1.1
* Load OpenGL extensions
* Some extensions are platform specific, GLEW can check if they exist on that platform
* Alternatives: GL3W, glLoadGen, glad, glsdk, glbinding, libepoxy, Glee

Using GLEW

* #include <GL/glew.h>
* After initialization OpenGL context:

glewExperimental = GL\_TRUE;

* glewInit();
* Should return GLEW\_OK. If it fails, it returns the error.
* Can read error with glewGetErrorString(result);
* Check extensions exist:

If (!GLEW\_EXT\_framebuffer\_object){}

* wglew.h for Windows-only functions

GLFW

* OpenGL FrameWork (…probably)
* Handles window creation and control
* Pick up and process input from the keyboard, mouse, joystick, and gamepad
* Even allows multiple monitor support
* Uses OpenGL context for windows

SDL

* Simple DirectMedia Layer
* Can do almost everything GLFW can do…
* and more! (Audio, Threading, Filesystems, etc.)
* Very popular, especially for Indie developers
* Used in: FTL, Amnesia, Starbound, and Dying Light
* Even used in level editors for Source Engine and Cryengine

Alternatives

* SFML (Simple and Fast Multimedia Library): Like SDL but with even more features
  + But the OpenGL context is very weak. Based on 2D only graphics.
* GLUT (OpenGL Utility Toolkit): Is no longer maintained. Try to avoid it
* Win32 API: For the purists. Lowest level for window creation. Only attempt if you know what you’re doing!