

# CSC 4356

## Programming Assignment 2

Due 10/10/2017, 11:59pm

**Objective:** This programming assignment is designed to familiarize you with basic 3D model manipulation and user interaction interface.

### Requirements:

In this assignment, you are required to implement a virtual trackball interface based on the skeleton code and Wavefront OBJ class. You'll need to modify the Draw() function and mouse/keyboard callback functions in the skeleton code. (Total 15pt)

1. Download the skeleton code "trackball.cpp" from our course website and create a project such that you are able to view a 3D model in \*.obj format. (2pt)
  - a. You also need to add the Wavefront OBJ class to your project. Download "objLoader.cpp" and "objLoader.h" and put them in your project folder. In your Solution Explorer, add "objLoader.cpp" to Source Files and add "objLoader.h" to Header Files.
  - b. Download the "cow.obj" and put it in your project folder. (Please feel free to use your own obj file from other sources.)
  - c. \*.obj file is passed into the program via command argument. In Project Property, click on "Debugging", under "Command Arguments", put in cow.obj
  - d. If your setup is successful, you should be able to run the project and display cow.obj.
2. Implement the virtual trackball rotation as described in our class such that you can toggle the object when left clicking the mouse button. (5pt)
3. Implement translation along x, y, and z directions in the eye space. You can use keyboard callback to control translation and the amount of translation is controlled by key pressing. (4pt)
4. Implement zoom in and zoom out (scaling) by scrolling the mouse wheel. (4pt)

### What to Submit?

1. Source code: "trackball.cpp"
2. Executable: \*.exe file
3. A report explaining your implementation with key results