

## Project 3: 3D Interactive Polygon Viewing

Assigned: November 8, 2019 (Friday)

Due 11:59pm: November 17, 2019 (Sunday)

In this project, you are asked to set up a 3D interactive polygon viewing **using OpenGL functions**. The following specifications should be taken into consideration:

- (1) You should load a 3D polygon defined by a triangular mesh. The format OFF is described in the lectures. A sample polygon and a sample parser code are provided with this assignment.
- (2) You need to call OpenGL functions to manipulate the polygon. These include translation, rotation, and scaling, all controlled by the left button of the mouse. If the key 't' is hit, then moving the mouse with left button pressed will translate the object. Similarly the key 'r' and 's' will initiate rotation and scaling if the left mouse button is pressed and the mouse moves. A sample code on rotation is provided with this assignment.
- (3) Another goal in this project is to create menus and invoke associated actions. You should include at least the following menus:

```
POINT // draw the polygon in point mode
LINE  // draw the polygon in line mode
FILL  // draw the polygon in fill mode
BOTH  // draw the polygon in both line and fill modes
EXIT  // exit the program
```

Your menus should be displayed when you click the right button of the mouse. A sample code is provided to create menus in OpenGL.