Computer Graphic Homework 1 Report

109062671 吳竣宇

All the description of your program control instructions are annotated in program.
Some special design:

1. The viewing matrix update in callback() function.
2. The perspective matrix only determined by initialParameter().
3. The plane(quad) don’t move in Geotranslation mode, GeoScaling mode, GeoRotation mode, but it will be moved by cursor_pos_callback() or scroll_callback() in ViewEye mode, ViewCenter mode, ViewUp mode.
4. In ViewEye mode, ViewCenter mode, ViewUp mode, the cursor_pos_callback() and scroll_callback() will print current main_camera information in the executable binary.
5. All the starting_press_x(staring_press_y) in cursor_pos_callback() are the previous callback xpos and ypos, ignore the first cursor_pos_callback().
6. Since OpenGL will update all the callback() function twice a time, so we need to avoid it by if (action != GLFW_RELEASE)
7. In ViewCenter mode scroll_callback():
    - Demo: main_camera viewing direction is valid from (0, 0, 0) to (0, 0, 2).
        - if main_camera.center.z exceed 2, then object and quad vanish and can't be back by scrolling down.
    - My implementation: (0, 0, -2) -> (0, 0, 0)
        - if main_camera.center.z exceed 0, then object and quad vanish and can't be back by scrolling down.

Firgure 1. Initial information.

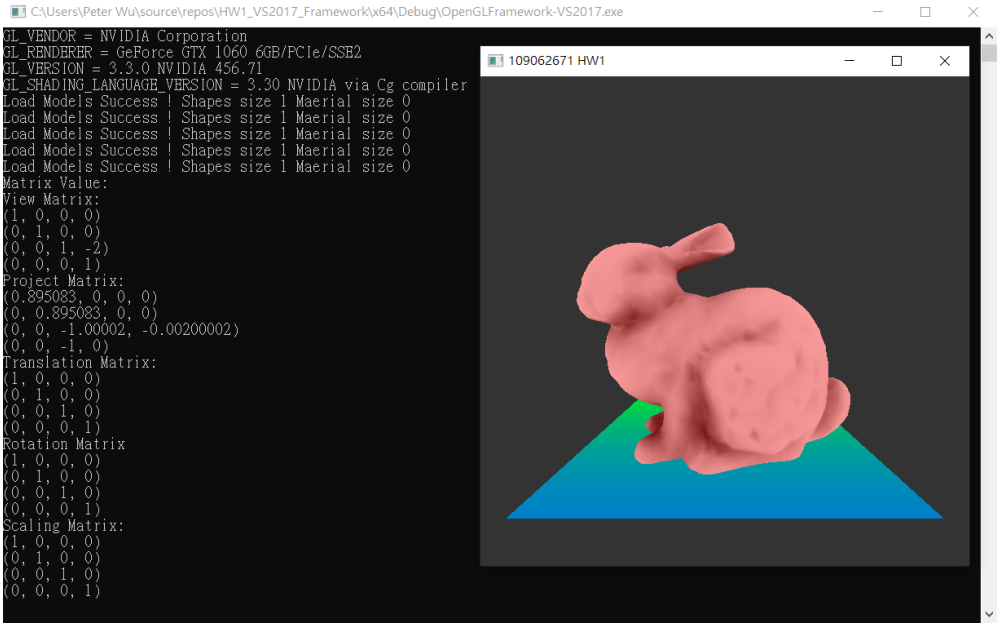

Figure 2. The plane don’t move in transform-related mode.

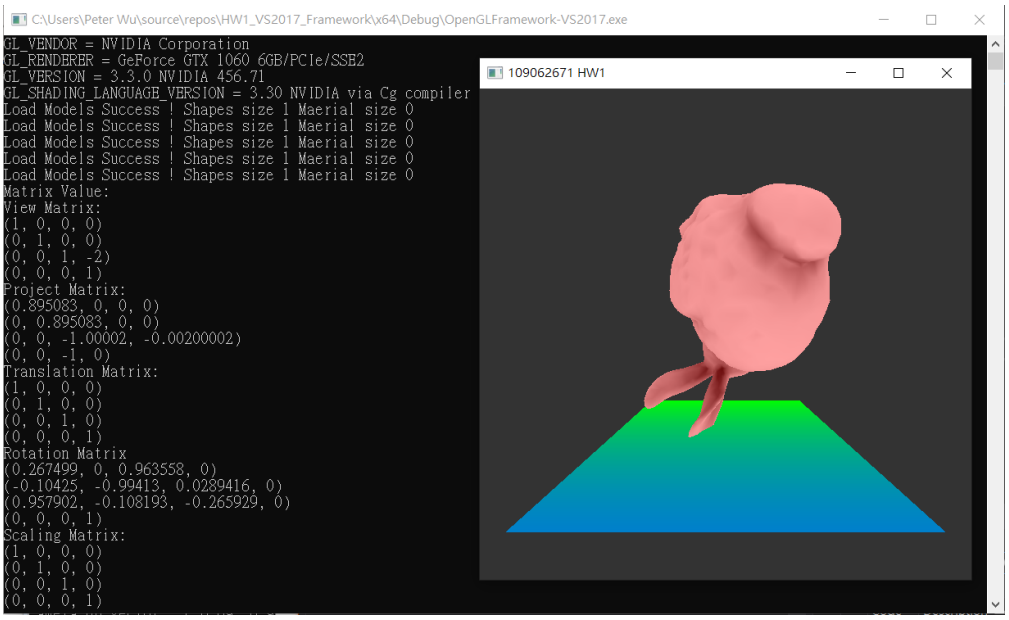

Figure 3. The plane move in Viewing-related mode, print the camera information.