Omer Ozkaya

ooo7580

Project B: Worm Wiggling in an Interesting Scene

Users Guide

W, A, S, D (forward, left, back, right) can be used to move the camera around the scene. The I, J, K, L keys change where the camera is pointing towards. The Q and E keys will fly the camera up and down, respectively depending on where the camera is pointing. Clicking and dragging with the mouse will rotate the star closest to the camera in the starting position. Inputting and pressing submit in the text box will create new bounds for the worm animation. To run/stop the worm animation, the "Run/Stop" button can be pressed.

Goals

A) Create a large, animated 3D 'world' that users view and explore with an interactive movable 3D camera. One simple set of GUI controls (keyboard, possibly mouse) will aim the camera in any direction by adjusting compass-heading (rotate left/right) and the camera's up/down rotation or 'tilt'. Another set of GUI controls (probably arrow keys or WASD keys or similar set of 4) will move the camera forward or backward in the camera's aiming direction, and will 'strafe' horizontally, moving side-to-side without changing the camera's aiming direction or height above the ground-plane.

B) Your program will automatically re-size its HTML canvas object to fill the full width of your browser window and at exactly two-thirds (66%) of its height. The 'canvas' object will show two camera images side-by-side; the right half will show the camera's image made with an orthographic projection matrix or 'lens' (from the 'ortho()' function), and the left half will show the camera's image made with a perspective projection matrix or 'lens' (use either the Matrix4 'perspective()' or 'frustum()' function).

C) The 3D world you explore will have some sort of patterned, grid-like 'floor' plane that stretches out to the horizon in the x,y directions. I require that world-space +z points 'up' to the sky, unlike the book starter code 7.07b.JT.LookAtScene....html). Arranged on this vast floor, you will place several animated, jointed assemblies made of solid 3D parts (not wireframe; not lines) that you can explore by interactively moving the camera among them.

Results

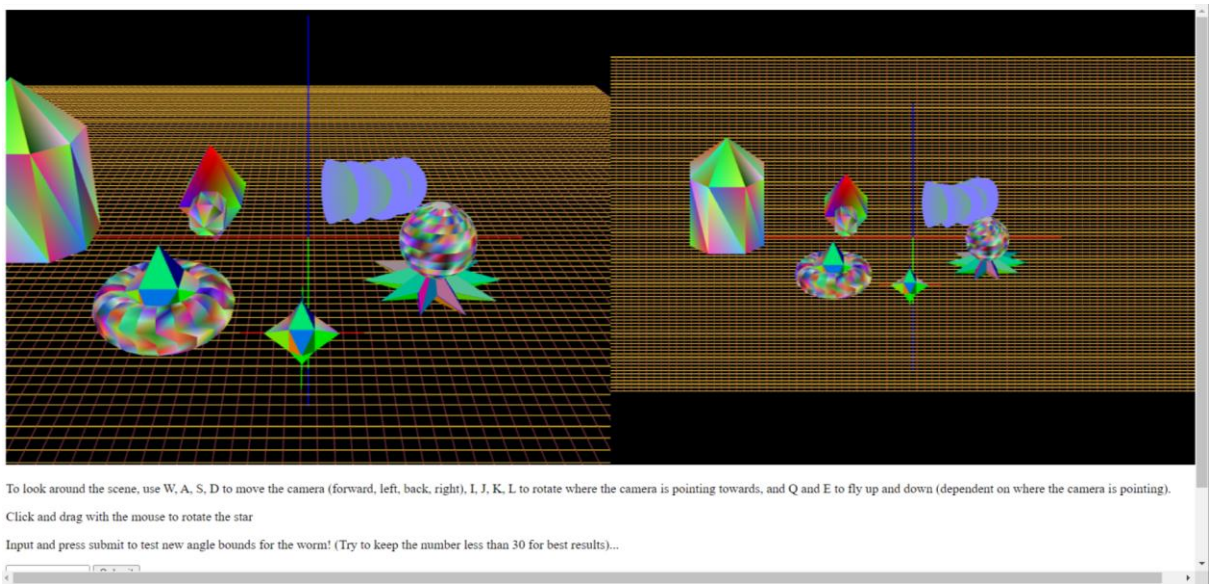

Figure 1

Figure 1 represents what the webpage looks like without any adjustments.

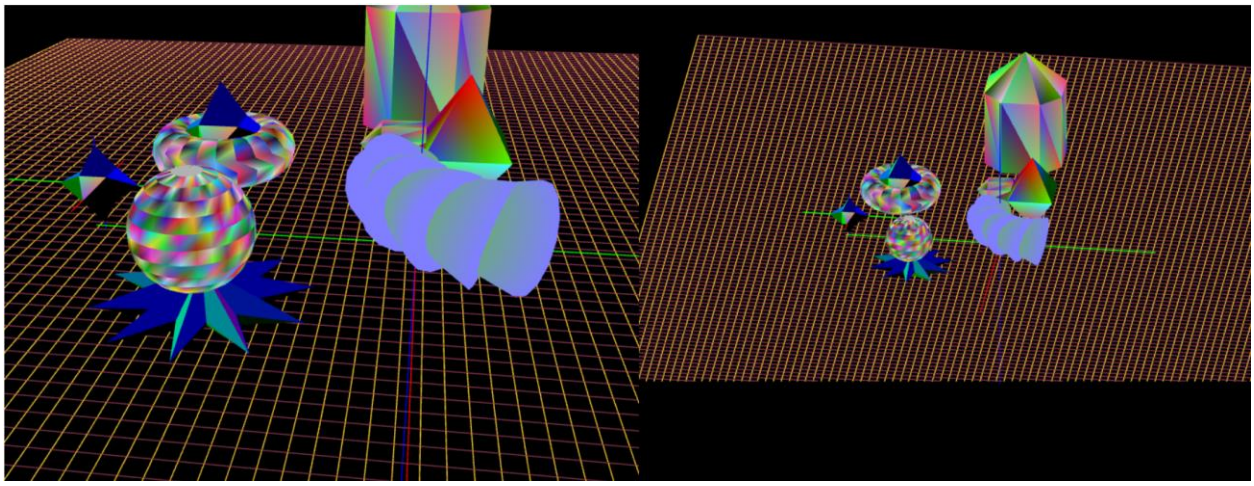

Figure 2

Figure 2 shows an example of the camera movement aspect.

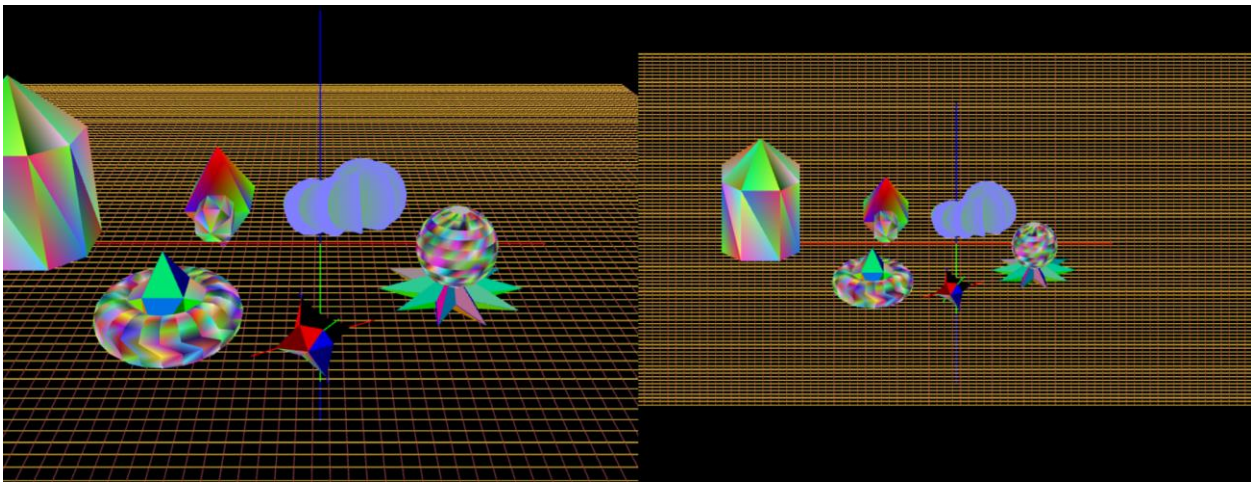

Figure 3

Figure 3 shows an example of the quaternion rotation used for the star.

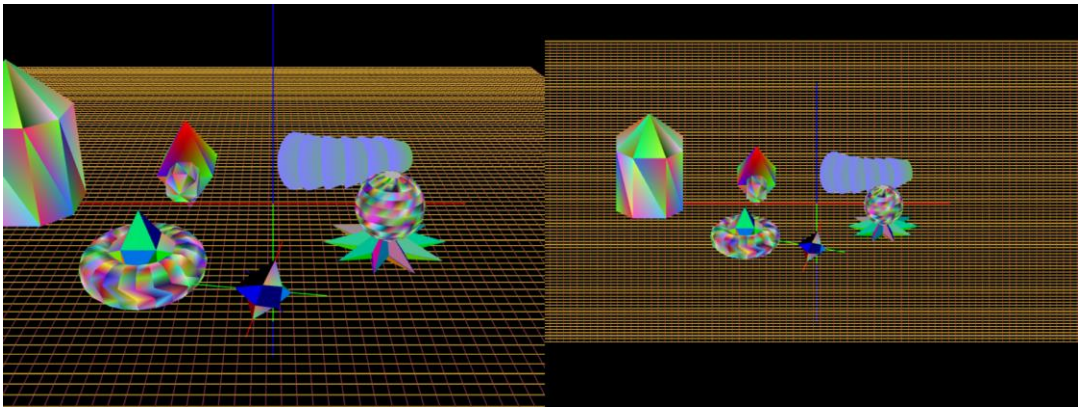

Figure 4

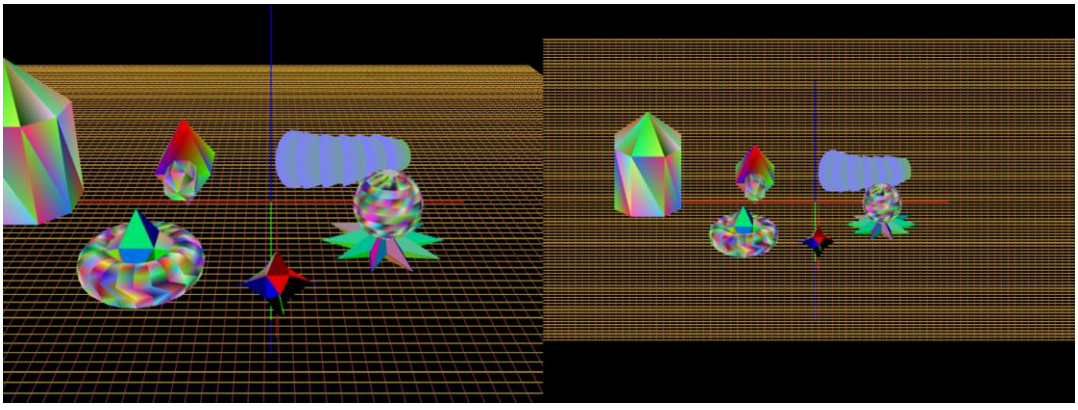

Figure 5

Figures 4 and 5 represent what happens to the worm when the “Run/Stop” button is pressed.