

Project B: quad-dumbbell and windmills with diffuse shading

Xiao Pan, NetID: xpu1036

Users' Guide:

1) goal:

One 3-jointed, 4-segment shape with diffuse shading: quad-dumbbell from my projectA.
4 other shapes: a windmill, a cylinder, a torus and a single dumbbell on the same ground.

2) User instructions:

- Users could press “w, a, s, d” to control the direction of the camera
w: up, a: left, s: down, d: right
- Users could press arrow keys to move forward, backward, left and right.
- Users could input the 6 frustum parameters individually, in website:

6 frustum: left, right, bottom, up, near, far

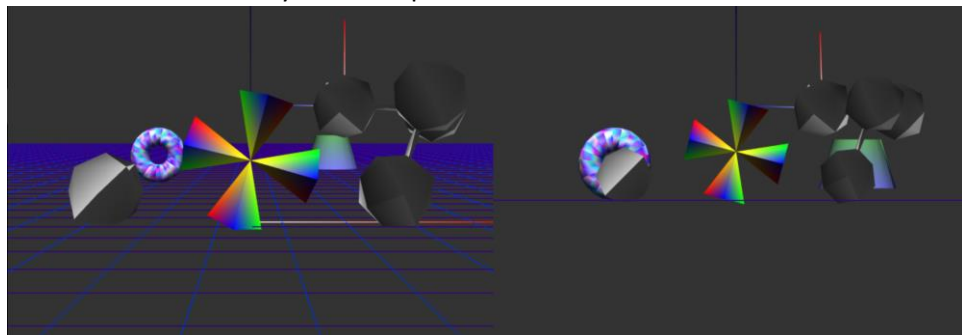
left: right: bottom: up: near: far:

- Users could click on the button “ViewFromEndSegment” to change the perspective view to follow the end segment of the quad-dumbbell:

see the view from end segment:

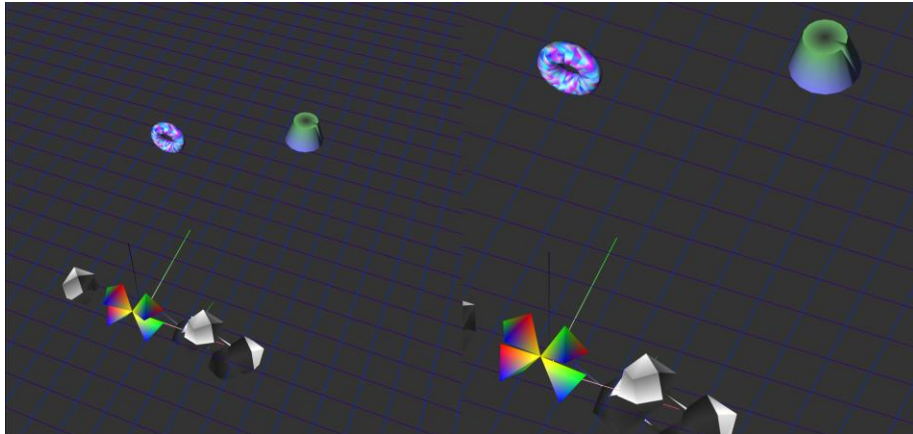
3) Result:

- Basic result: two side by side viewports:



Left side is the perspective view, right side is the Orthographic view.

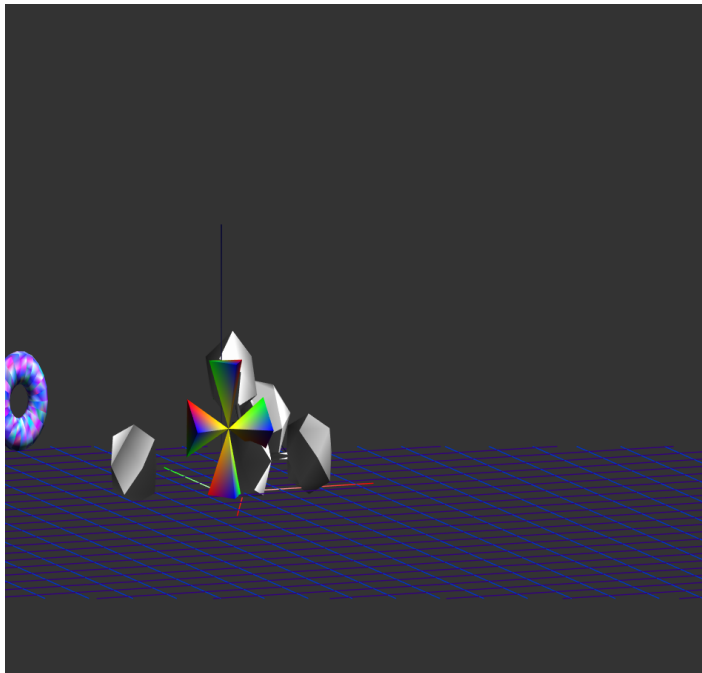
b. Different camera positions:



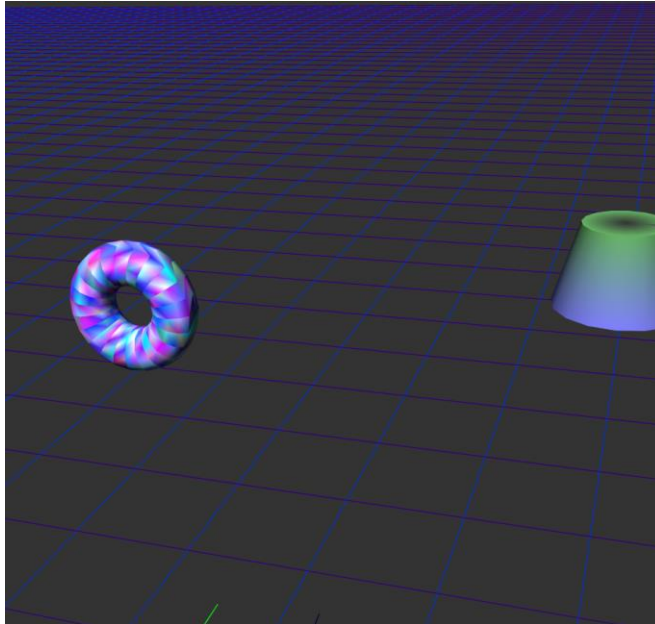
c. After change some frustum with below arguments:

```
6 frustum: left, right, bottom, up, near, far
left:-2 right:5 bottom:-1 up:3 near:1 far:10 Submit
```

The Orthographic view will change like that:



- d. After clicking on the “ViewFromEndSegment” button:
The perspective view will follow the end of the segment of the quad-dumbbell,
and from some angle, you can only see the ground.



Scene graph :

