

Lab 5 result

Ambient occlusion.

We all know that global illumination is a very expensive thing. In this lab, I tried a method to find a compromise between computing time and rendering quality. In order to decrease the computing time. Instead of computing the solid angle for each point of the z-buffer, we approximate it as a sum of $(90^\circ - \text{max_elevation_angle}) / 8$. And using pow to increase the image contrast degrees.

By using these technique, in my computer, on a Intel Core i7 6770HQ @ 2.6GHz CPU. I can do ambient occlusion in a model with size and texture size like following

```
# vert_size 2519      #face_size 5022      #uv_size 3263#      norms_size# 2519
# Width : 1024      # Height: 1024      # Color depth : 24
texture file D:\Graphic_HW\ambient_occlusion\Debug\obj\diablo3_pose_diffuse.tga loading ok
# Width : 1024      # Height: 1024      # Color depth : 32
texture file D:\Graphic_HW\ambient_occlusion\Debug\obj\diablo3_pose_nm.tga loading ok
# Width : 1024      # Height: 1024      # Color depth : 24
texture file D:\Graphic_HW\ambient_occlusion\Debug\obj\diablo3_pose_spec.tga loading ok
Time using in rendering is 196 Seconds
Press any key to continue . . .
```

Finally the result will be like this



And we can move the camera to show the details of another side.



The image can be viewed using ACDSee.