Tutorial Questions Week 7

5.1 ALL perspective views are characterized by diminution of size. When objects moved farther from the viewer, their images becomes smaller. How does the classical perspective view work?

Answer: In the classical perspective view, the viewer is located symmetrically with respect to the projection plane and the viewer is on the perpendicular from the centre of projection. Owing to the fixed relationship between the back of the eye (retina) and the lens of the eye and to similar fixed relationships in most physical situations, the viewer sees a symmetrical object.

5.7 What is a shadow polygon?

Answer:
The projection of the original polygon onto the surface is called a shadow polygon because it is a projection of the polygon on the surface, with the center of projection at the light source.

5.21 Stereo images are produced by creating two images with the viewer in two slightly different positions. Consider a viewer who is at the origin but whose eyes are separated by dx units. What are the appropriate viewing specifications to create the two images?

Answer:
Suppose that the average of the two eye positions is at (x, y, z) and the viewer is looking at the origin. We could form the images using the LookAt function twice, that is

LookAt(x-dx/2, y, z, 0, 0, 0, 0, 1, 0);
/ draw scene here */*
/ swap buffers and clear */*
LookAt(x+dx/2, y, z, 0, 0, 0, 0, 1, 0);
/ draw scene again */*
/ swap buffers and clear */*
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5.25 What is the use of Projection Normalization?

Answer:

The process of projection normalization is used to convert all projections into orthogonal projections by first distorting the objects in such a way that the orthogonal projection of the distorted objects is the same as the desired projection of the original objects.

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