

# 7M836 - Animation and Rendering

## Exercise 2: Camera

In this exercise

- we will manipulate the camera by experimenting with its parameters.

Open the file `ch2/room.pov`. In this file you will find a camera definition. The camera definition has been parametrized by a distance  $d$  to the projection plane, sizes  $sizeX$  and  $sizeY$  defining the clipping area on the projection plane, a point of interest  $focus$  defining the center of the view, and the position  $eye$  of the camera.

- To raise the point of interest, add a positive quantity to its y-component. To move the point of interest to the right, add a positive quantity to the x-component. This is most simply done by adding a vector to the  $focus$ :  $\langle -8.92, 2.92, -18.7 \rangle + \langle a, b, c \rangle$ .  
Move the point of interest four units to the right and four units up from where it is now, and redraw the scene.  
Try moving the point of interest to the foot of the bed.
- Restore the `look_at` clause to its original value of  $\langle -8.92, 2.92, -18.7 \rangle$ . Now try moving the camera location by adding  $\langle 4, 2, 12 \rangle$  to  $eye$  vector. This has the effect of moving the camera farther away from the bed. Render the picture. By repeatedly adding  $\langle 4, 2, 12 \rangle$  to the position clause, we move the camera backwards and zoom out.
- Restore the eye position. Try zooming out by changing the distance  $d$  to the projection plane.

Open the file `7m836b.pov`.

- Render this file.
- Now replace 'perspective' by 'orthographic' in the camera statement. What changed?