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CSC 322

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Nov 21st, 2022

[Blender Activity #2]

Checkpoint 1:

$$Pxy \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos\frac{\pi}{4} & -\sin\frac{\pi}{4} \\ 0 & \sin\frac{\pi}{4} & \cos\frac{\pi}{4} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ \sqrt{2} \end{bmatrix}$$

$$\begin{bmatrix} \cos\frac{\pi}{4} & 0 & \sin\frac{\pi}{4} \\ 0 & 1 & 0 \\ -\sin\frac{\pi}{4} & 0 & \cos\frac{\pi}{4} \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ \sqrt{2} \end{bmatrix} = \begin{bmatrix} \frac{\sqrt{2}}{2} + 1 \\ 0 \\ -\frac{\sqrt{2}}{2} + 1 \end{bmatrix}$$

Checkpoint 2:

$$Pyx \begin{bmatrix} \cos\frac{\pi}{4} & 0 & \sin\frac{\pi}{4} \\ 0 & 1 & 0 \\ -\sin\frac{\pi}{4} & 0 & \cos\frac{\pi}{4} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} \sqrt{2} \\ 1 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos\frac{\pi}{4} & -\sin\frac{\pi}{4} \\ 0 & \sin\frac{\pi}{4} & \cos\frac{\pi}{4} \end{bmatrix} \begin{bmatrix} \sqrt{2} \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} \sqrt{2} \\ \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} \end{bmatrix}$$

Checkpoint 3:

$$t_1 = \begin{pmatrix} 3 \\ 0 \\ 3 \end{pmatrix}$$

Checkpoint 4:

$$t_2 = \begin{pmatrix} 3 \\ 1 - \sqrt{2} \\ 2 \\ 1 \end{pmatrix}$$

Checkpoint 5:

1)

2)

3)

Checkpoint 6:

increasing the focal length camera changes the zoom and the perspective angles of the object

Checkpoint 7: