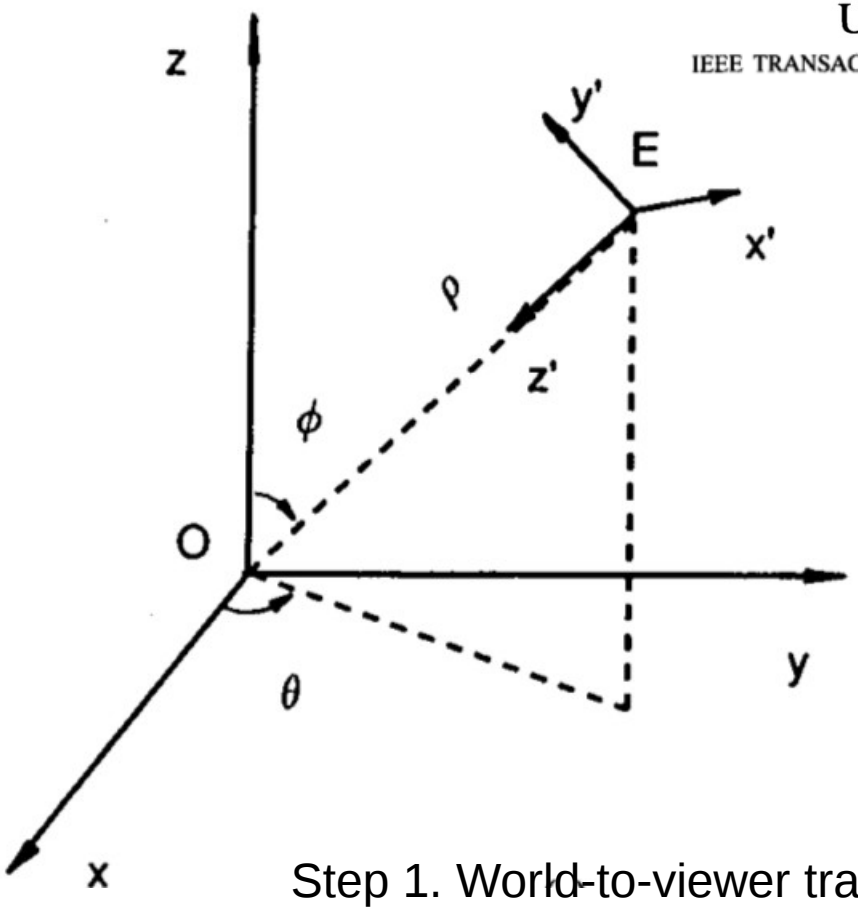
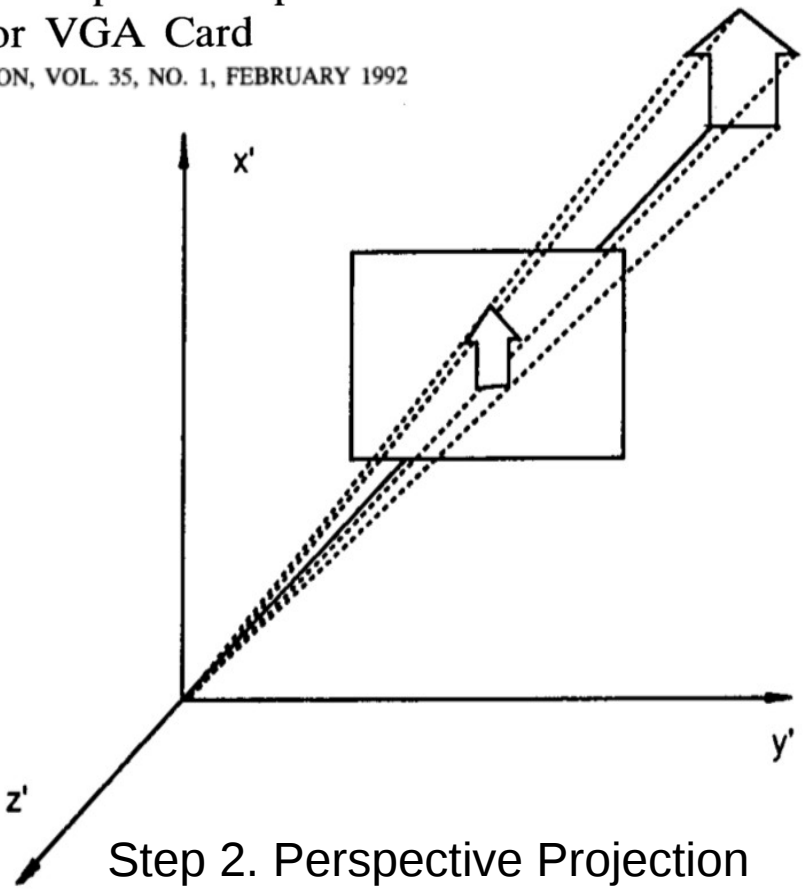
3D Transformation Pipeline Technique

Reference: H. Li Three-Dimensional Computer Graphics Using EGA or VGA Card

IEEE TRANSACTIONS ON EDUCATION, VOL. 35, NO. 1, FEBRUARY 1992



Step 1. World-to-viewer transform



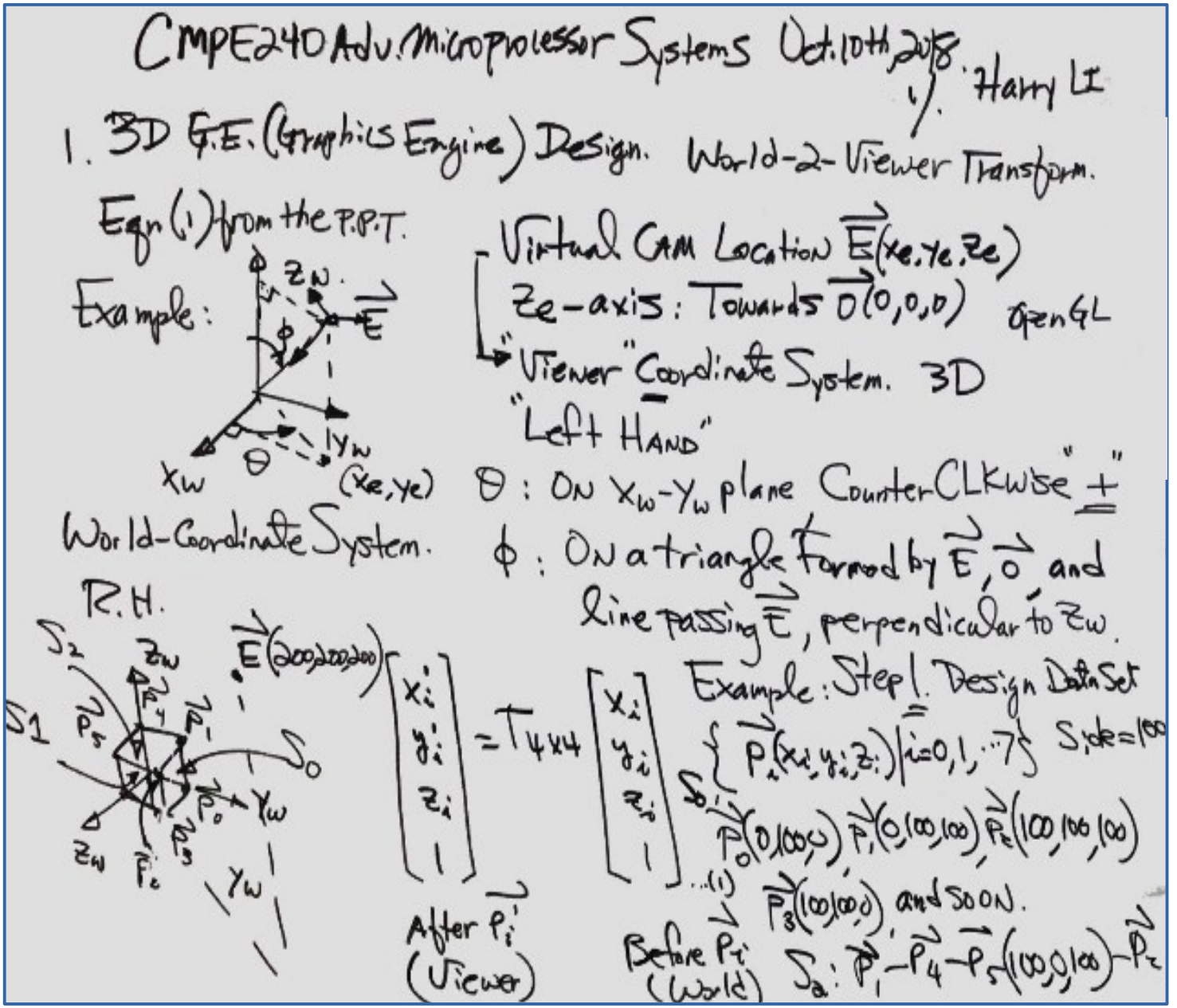
Step 2. Perspective Projection

$$\mathbf{T} = \begin{bmatrix} -\sin\theta & \cos\theta & 0 & 0 \\ -\cos\phi\cos\theta & -\cos\phi\sin\theta & \sin\phi & 0 \\ -\sin\phi\cos\theta & -\sin\phi\cos\theta & -\cos\phi & \rho \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

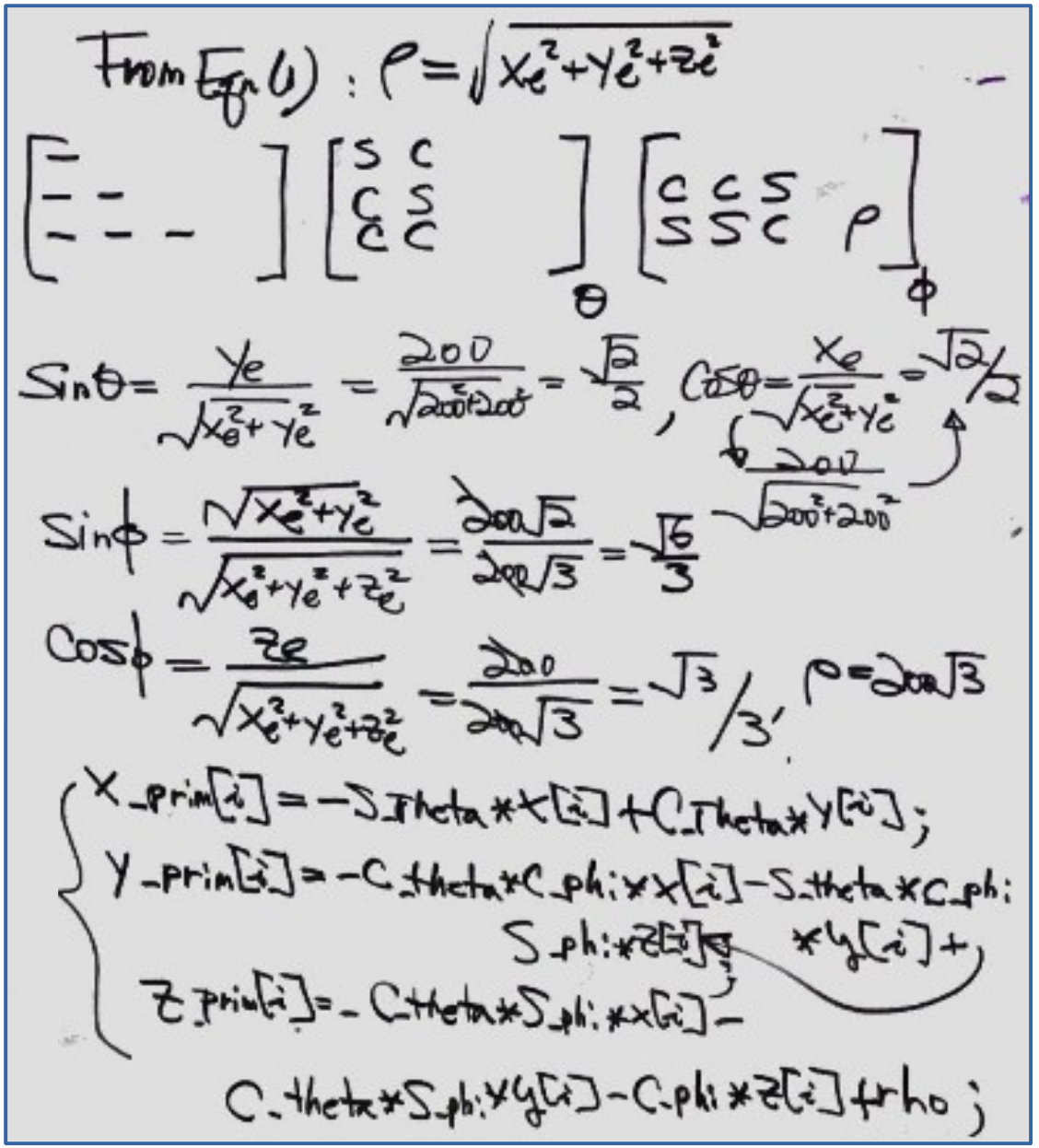
$$x_p = x_e\left(\frac{D}{z_e}\right)$$

$$y_p = y_e\left(\frac{D}{z_e}\right)$$

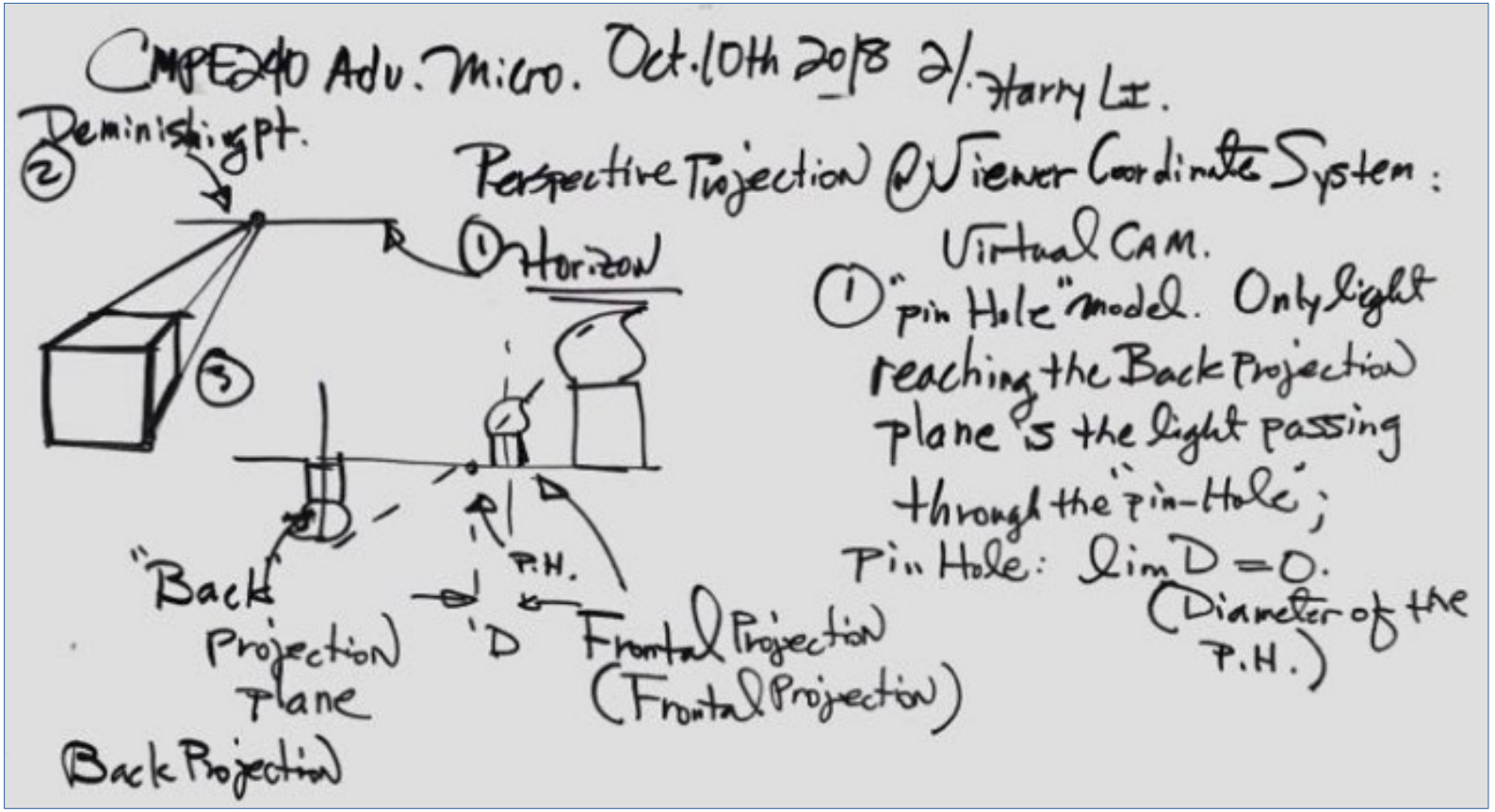
10-10-2018 Transformation Pipeline



10-10-2018 World-to-Viewer Transform



10-10-2018 Perspective Projection



10-15-2018 Perspective Projection