

The translation-rotation matrix:

(3)

$$\underline{\check{TR}} = \begin{bmatrix} \underline{\check{R}}_{3D} & \underline{t} \\ \underline{0}^T & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -0.9923 & -0.1240 & 1.5504 \\ 0 & 0.1240 & -0.9923 & -3.721 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

e) The camera matrix:

$$\underline{\check{M}} = \underline{\check{K}} \begin{bmatrix} \underline{\check{R}}_{3D} & \underline{t} \end{bmatrix}$$

$$= \begin{bmatrix} 5495 & 0 & 2000 \\ 0 & 5495 & 2000 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -0.9923 & -0.1240 & 1.5504 \\ 0 & 0.1240 & -0.9923 & -3.721 \end{bmatrix}$$

$$= \begin{bmatrix} 5495 & 248.1 & -1984.6 & -7442.1 \\ 0 & -5204.5 & -2666.1 & 1077.5 \\ 0 & 0.124 & -0.992 & -3.721 \end{bmatrix}$$

Normalized, dividing by $m_{34} = 3.721$:

$$\underline{\check{M}}_{\text{norm.}} = \begin{bmatrix} -1476.7 & -66.67 & 533.33 & 2000 \\ 0 & 1398.65 & 716.498 & -289.564 \\ 0 & -0.0333 & 0.26667 & 1 \end{bmatrix}$$