(T_{LR}) $O_L O_R$ is known

R_{LR} is known : $\underline{X_L, X_R}$: bearing vectors obtained by unprojecting
deected 2D image points

$\therefore$ According to rigid body transformation

$$X_L = R_{LR} X_R + T_{LR}$$

$\Big\downarrow$ crossproduct T_{LR}

$$T_{LR} \times X_L = T_{LR} \times (R_{LR} X_R)$$

$\Big\downarrow$ dot Product X_L

$$0 = \underbrace{X_L^T (T_{LR} \times X_L)}_{} = X_L^T \hat{T}_{LR} R_{LR} X_R$$

skew symmetric

$$\therefore \begin{cases} X_L^T \hat{T}_{LR} R_{LR} X_R = 0 \\ X_L^T E X_R = 0 \end{cases} \Rightarrow E = \hat{T}_{LR} R_{LR} = \widehat{O_L O_R} R_{LR}$$