



$$U = [\theta, \varphi]$$

$$X = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ 0 \end{bmatrix}$$

Translation X_c et rotation R

$$X' = X_c + RX$$



$$X' = \begin{bmatrix} x'_1 \\ x'_2 \\ x'_3 \\ x'_4 \end{bmatrix}$$