

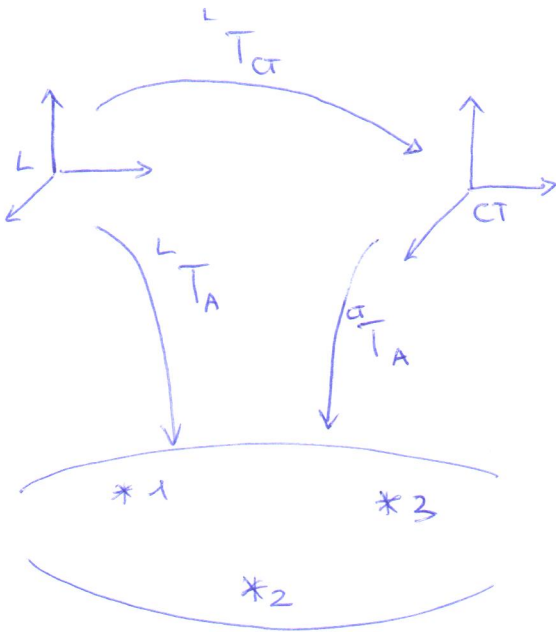
QUESITO (1)

$$B_{US}' = {}^S T_{US} \cdot B_{US} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & -1 & 2 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} -3 \\ 2 \\ 0 \\ 1 \end{bmatrix} = \begin{pmatrix} -2 \\ 2 \\ 5 \end{pmatrix}$$

$$T_{err} = \| B_{US}' - B_S \| = \left\| \begin{pmatrix} -2 \\ 2 \\ 5 \end{pmatrix} - \begin{pmatrix} -1 \\ 2 \\ 3 \end{pmatrix} \right\| = \left\| \begin{pmatrix} -1 \\ 0 \\ 2 \end{pmatrix} \right\| = \sqrt{5} \text{ mm}$$

QUESITO (2)

$$P_{1L} = {}^L T_{1S} \cdot {}^S T_{US} \cdot P_{1US}; \quad P_{2L} = {}^L T_{2S} \cdot {}^S T_{US} \cdot P_{2US}; \quad P_{3L} = {}^L T_{3S} \cdot {}^S T_{US} \cdot P_{3US}$$



$${}^L T_{CT} = {}^L T_A \cdot {}^{CT} T_A^{-1}$$

$${}^L T_A = \begin{bmatrix} \hat{x} & \hat{y} & \hat{z} & t \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$t = P_{1L}$$

$$\hat{x} = \frac{P_{3L} - P_{1L}}{\|P_{3L} - P_{1L}\|}$$

$$\hat{z} = \frac{(P_{2L} - P_{1L}) \wedge \hat{x}}{\|(P_{2L} - P_{1L}) \wedge \hat{x}\|}$$

$$\hat{y} = \hat{z} \wedge \hat{x}$$

${}^{CT} T_A$ come sopra con i punti in CT