

$$\begin{aligned}
 \mathbf{a}_{x_i}^\top \mathbf{p} &= [-X_i, -Y_i, -Z_i, -1, 0, 0, 0, 0, x_i X_i, x_i Y_i, x_i Z_i, x_i] \\
 &= \left[\begin{array}{c} -\mathbf{X}_i^\top, \\ \mathbf{0}, \\ x_i \mathbf{X}_i^\top \end{array} \right] \begin{bmatrix} \mathbf{A} \\ \mathbf{B} \\ \mathbf{C} \end{bmatrix} \\
 &= -\mathbf{X}_i^\top \mathbf{A} + x_i \mathbf{X}_i^\top \mathbf{C}
 \end{aligned}$$

p_{11}
 p_{12}
 p_{13}
 p_{14}
 p_{21}
 p_{22}
 p_{23}
 p_{24}
 p_{31}
 p_{32}
 p_{33}
 p_{34}