16-720 Computer Vision: Homework 4

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Q1.1

As learnt in class, one of the property of the Fundemental Matrix is $p^T F = 0$. When subsituting p with the normalized pointsm, we will get.

$$\begin{pmatrix} 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} F_{11} & F_{12} & F_{13} \\ F_{21} & F_{22} & F_{23} \\ F_{31} & F_{32} & F_{33} \end{pmatrix} \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} = 0$$

If we multiple the first point and the matrix, we will get

$$\begin{pmatrix} F_{31} & F_{32} & F_{33} \end{pmatrix} \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix} = 0$$

If we multiple the two vectors we will get, $F_{33} \times 1 = 0$. That means that F_{33} has to be equal to zero.