solve $\underset{h}{\operatorname{argmin}} \|Ah - V\|_2^2$

$\Rightarrow h = (A^T A)^{-1} A^T V$

affine

$h_{32} = h_{31} = 0 \qquad h_{33} = 1$

$$\begin{pmatrix} u_{1x} & u_{1y} & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & u_{1x} & u_{1y} & 1 \\ u_{2x} & u_{2y} & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & u_{2x} & u_{2y} & 1 \\ u_{3x} & u_{3y} & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & u_{3x} & u_{3y} & 1 \\ u_{4x} & u_{4y} & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & u_{4x} & u_{4y} & 1 \end{pmatrix} \begin{pmatrix} h_{11} \\ h_{12} \\ h_{13} \\ h_{21} \\ h_{22} \\ h_{23} \end{pmatrix} = \begin{pmatrix} v_{1x} \\ v_{1y} \\ v_{2x} \\ v_{2y} \\ v_{3x} \\ v_{3y} \\ v_{4x} \\ v_{4y} \end{pmatrix}$$

$A \qquad h \qquad V$

solve $\underset{h}{\operatorname{argmin}} \|Ah - V\|_2^2$

$\Rightarrow h = (A^T A)^{-1} A^T V$