$$
\begin{array}{ccc}
u(\vec{e_1}) & \dots & u(\vec{e_n})
\end{array}
$$

$$
\begin{pmatrix}
a_{11} & \dots & a_{1n} \\
\vdots & \ddots & \vdots \\
a_{p1} & \dots & a_{pn}
\end{pmatrix}
\begin{matrix}
\vec{e_1} \\
\vdots \\
\vec{e_1}
\end{matrix}
$$

$$
\begin{pmatrix}
a_{11} & \dots & a_{1n} \\
\vdots & \ddots & \vdots \\
a_{p1} & \dots & a_{pn}
\end{pmatrix}
$$