$$\mathbf{W} = \begin{bmatrix} \bullet & \bullet \\ \bullet & \bullet \\ \bullet & \bullet \\ \bullet & \bullet \end{bmatrix}, n_x \times n_y \qquad \vec{x}^{(1)} = \begin{bmatrix} 1 \\ \bullet \\ \bullet \\ \bullet \end{bmatrix} \quad \vec{x}^{(2)} = \begin{bmatrix} 1 \\ \bullet \\ \bullet \\ \bullet \end{bmatrix} \quad \vec{x}^{(3)} = \begin{bmatrix} 1 \\ \bullet \\ \bullet \\ \bullet \end{bmatrix}$$

$$\mathbf{X} = \begin{bmatrix} \vec{x}^{(1)T} \\ \vdots \\ \vec{x}^{(n_x)T} \end{bmatrix} = \begin{bmatrix} \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \end{bmatrix}, m \times n_x$$

$$\hat{\mathbf{Y}} = \begin{bmatrix} \bullet & \bullet \\ \bullet & \bullet \\ \bullet & \bullet \end{bmatrix} = \mathbf{XW}, m \times n_y$$