

$$\begin{array}{c} \mathbf{y}(t) \\ \left[\begin{array}{c} \text{green wave} \\ \text{green wave} \\ \vdots \\ \text{blue wave} \\ \text{blue wave} \end{array} \right] \end{array} = \begin{array}{c} \mathbf{X} \\ \left[\begin{array}{cc} 1 & 1.5 \\ 1 & 0 \\ \vdots & \vdots \\ 1 & 1.2 \\ 1 & 0 \end{array} \right] \end{array} \begin{array}{c} \boldsymbol{\beta}(t) \\ \left[\begin{array}{c} \text{black wave} \\ \text{red curve} \end{array} \right] \end{array} + \begin{array}{c} \mathbf{Z} \\ \left[\begin{array}{cccc} 1 & \cdot & \cdot & \cdot & 0 \\ 1 & \cdot & \cdot & \cdot & 0 \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ 0 & \cdot & \cdot & \cdot & 1 \\ 0 & \cdot & \cdot & \cdot & 1 \end{array} \right] \end{array} \begin{array}{c} \mathbf{u}(t) \\ \left[\begin{array}{c} \text{green wave} \\ \vdots \\ \text{blue wave} \end{array} \right] \end{array} + \begin{array}{c} \boldsymbol{\varepsilon}(t) \\ \left[\begin{array}{c} \text{green wave} \\ \text{green wave} \\ \vdots \\ \text{blue wave} \\ \text{blue wave} \end{array} \right] \end{array}$$