$$\begin{bmatrix} y_{PCA_1} \\ \vdots \\ y_{PCA_k} \end{bmatrix} = \begin{bmatrix} W_{11} & \cdots & W_{1i} \\ \vdots & \ddots & \vdots \\ W_{k1} & \cdots & W_{ki} \end{bmatrix} \cdot \begin{bmatrix} y_1 \\ \vdots \\ y_i \end{bmatrix}$$

$$NN-Layer Legend$$

$$\boxed{\qquad \qquad} Input/Output$$

$$\boxed{\qquad \qquad} Fully Connected$$

 $y_{PCA} = W \cdot y_i$