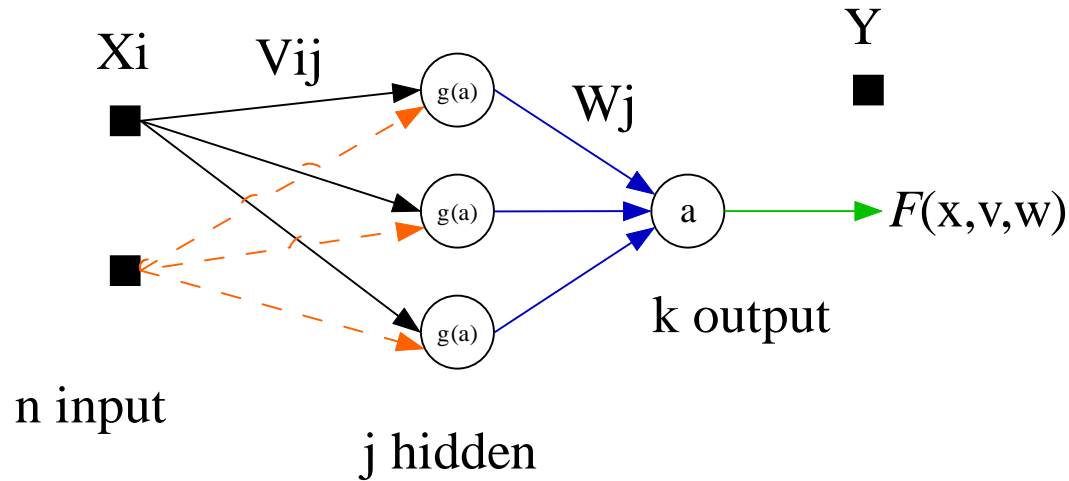


# Reti Neurali & Machine Learning

## Lezione 6

Derivazione  
**Error Back Propagation**

# Percettrone multi-strato



$$f_{\vec{v}, \vec{w}}(\vec{x}) = \sum_{j=1}^m w_j g \left( \sum_{i=1}^n v_{ij} x_i \right)$$

# Idea per la derivazione di EBP

$$f_{\vec{v}, \vec{w}}(\vec{x}) = \sum_{j=1}^m w_j g \left( \sum_{i=1}^n v_{ij} x_i \right) \quad f_{\vec{v}, \vec{w}}(\vec{x}) = \vec{w} g(\vec{v}_j \vec{x})$$

$$E_{x,y,v,w} = (y - f_{v,w}(x))^2$$

$$\frac{\partial E}{\partial w} = ?$$

$$w^{t+1} = w^t - \eta \frac{\partial E}{\partial w}$$

$$\frac{\partial E}{\partial v} = ?$$

$$v^{t+1} = v^t - \eta \frac{\partial E}{\partial v}$$