

Implementation of Rectified Linear Unit (RELU)

1. Defintion of RELU layer

$$y = \max(0, x) \tag{1}$$

2. Forward Propagation of RELU layer

$$RELU(x) = \begin{cases} x, & \text{if } x \geq 0 \\ 0, & \text{otherwise} \end{cases}$$

3. Backward Propagation of RELU layer

$$\frac{d}{dx}(RELU(x)) = \begin{cases} 1, & \text{if } x \geq 0 \\ 0, & \text{otherwise} \end{cases}$$