

Forward propagation

Input Layer

Input
 x_1

Input
 x_2

Output Layer

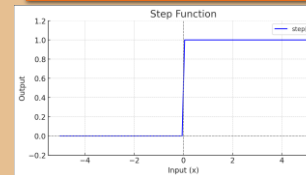
Perceptron (Neuron)

$$z = w_1 \cdot x_1 + w_2 \cdot x_2 + b$$

w_1
 w_2
 b

$w = \text{weight}$
 $b = \text{bias}$

Step activation function
 $y = \text{step}(z)$



Output
 y

Target
 t

$$w_1 := w_1 + \eta \cdot \text{error} \cdot x_1$$

$$w_2 := w_2 + \eta \cdot \text{error} \cdot x_2$$

$$b := b + \eta \cdot \text{error}$$

$\eta = \text{learning rate}$

$$\text{error} = \text{target} - \text{output} \\ = t - y$$

Update by the Perceptron Learning Rule