

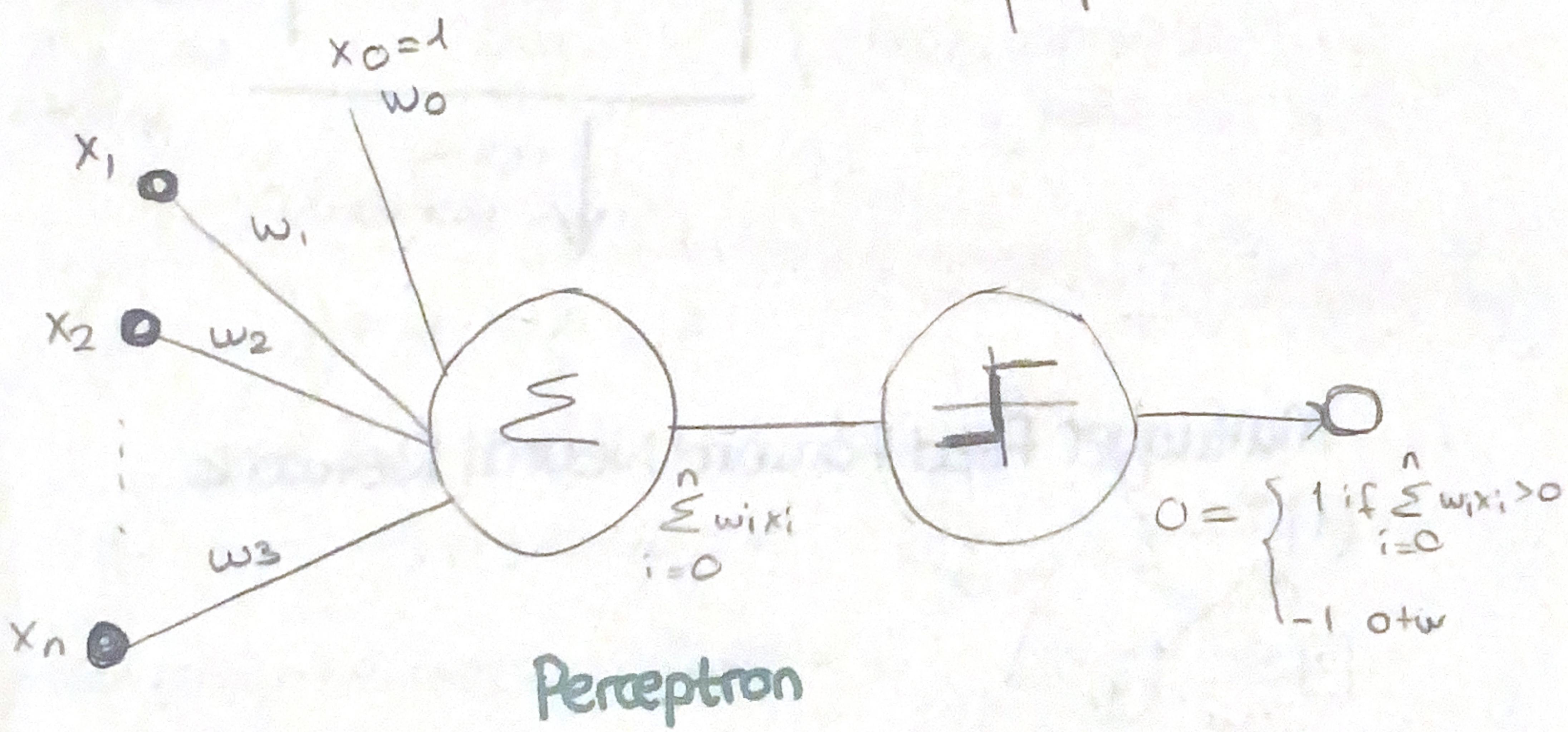
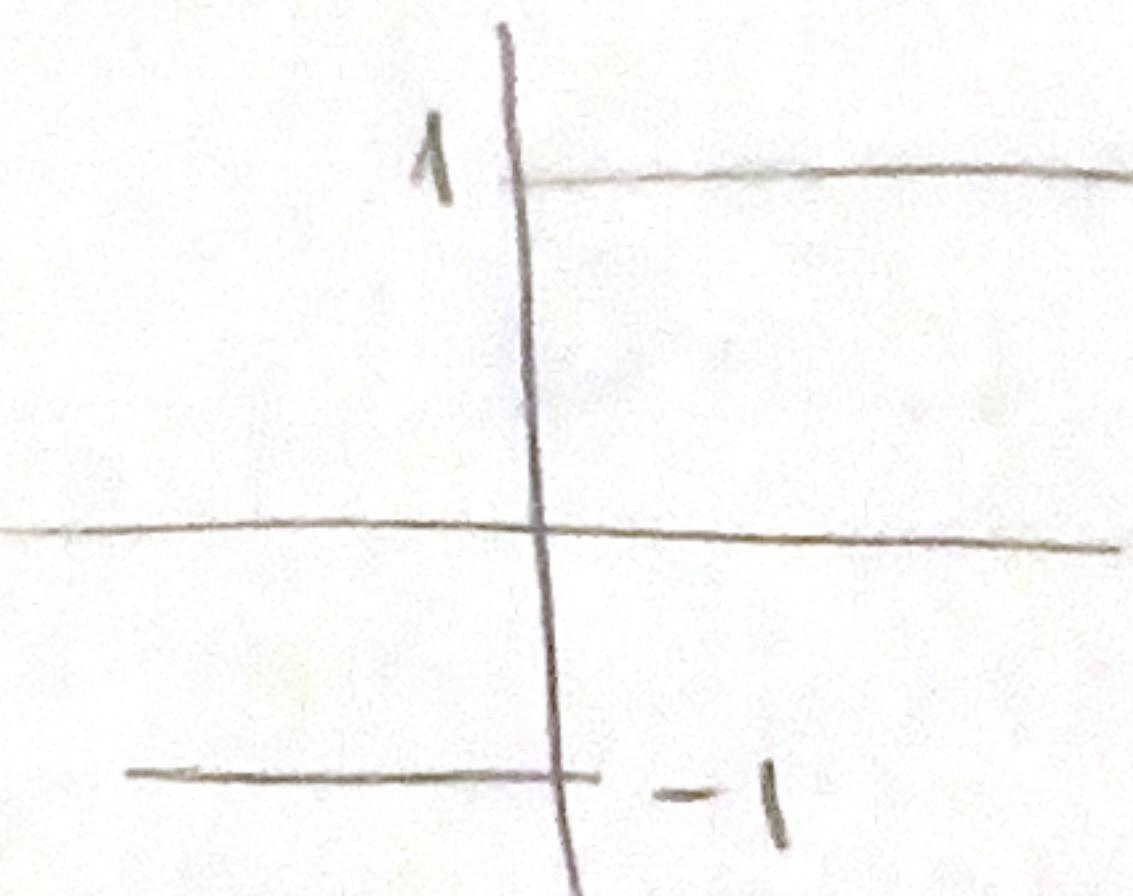
Artificial Neural Networks

Perceptrons: Takes inputs, calculates a linear combination, prompts 1 if $\text{result} > \text{threshold}$ & -1 if otherwise

$$O(x_1, \dots, x_n) = \begin{cases} 1 & \text{if } w_0 + w_1x_1 + w_2x_2 + \dots + w_nx_n > 0 \\ -1 & \text{otherwise} \end{cases}$$

↙ signum function (sgn)

$-w_0 \rightarrow \text{threshold}$



Weights for AND $\rightarrow w_0 = -0.8 \quad w_1 = w_2 = 0.5$

x_1	x_2	res
0	1	0.5 $\rightarrow < 0.8 = 0$
1	1	1 $\rightarrow 1$
0	0	0 $\rightarrow < 0.8 = 0$

OR $\rightarrow w_0 = 0.3 \quad w_1 = w_2 = 0.5$

x_1	x_2	res
0	1	0.5 $\rightarrow > 0.3 = 1$
1	1	1