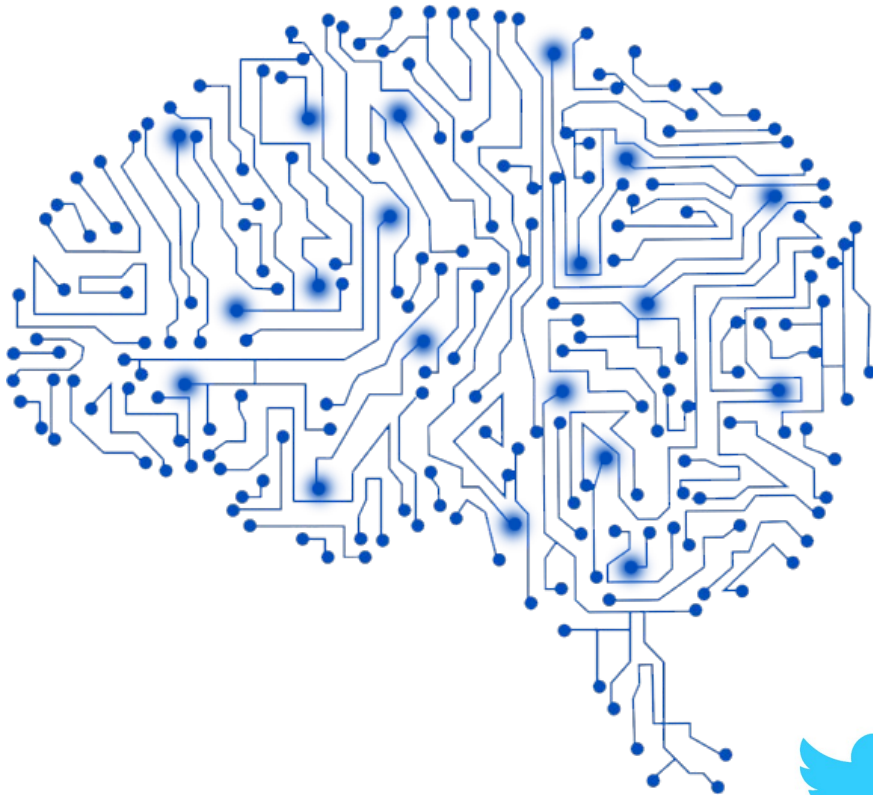
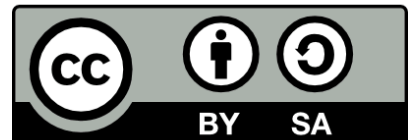


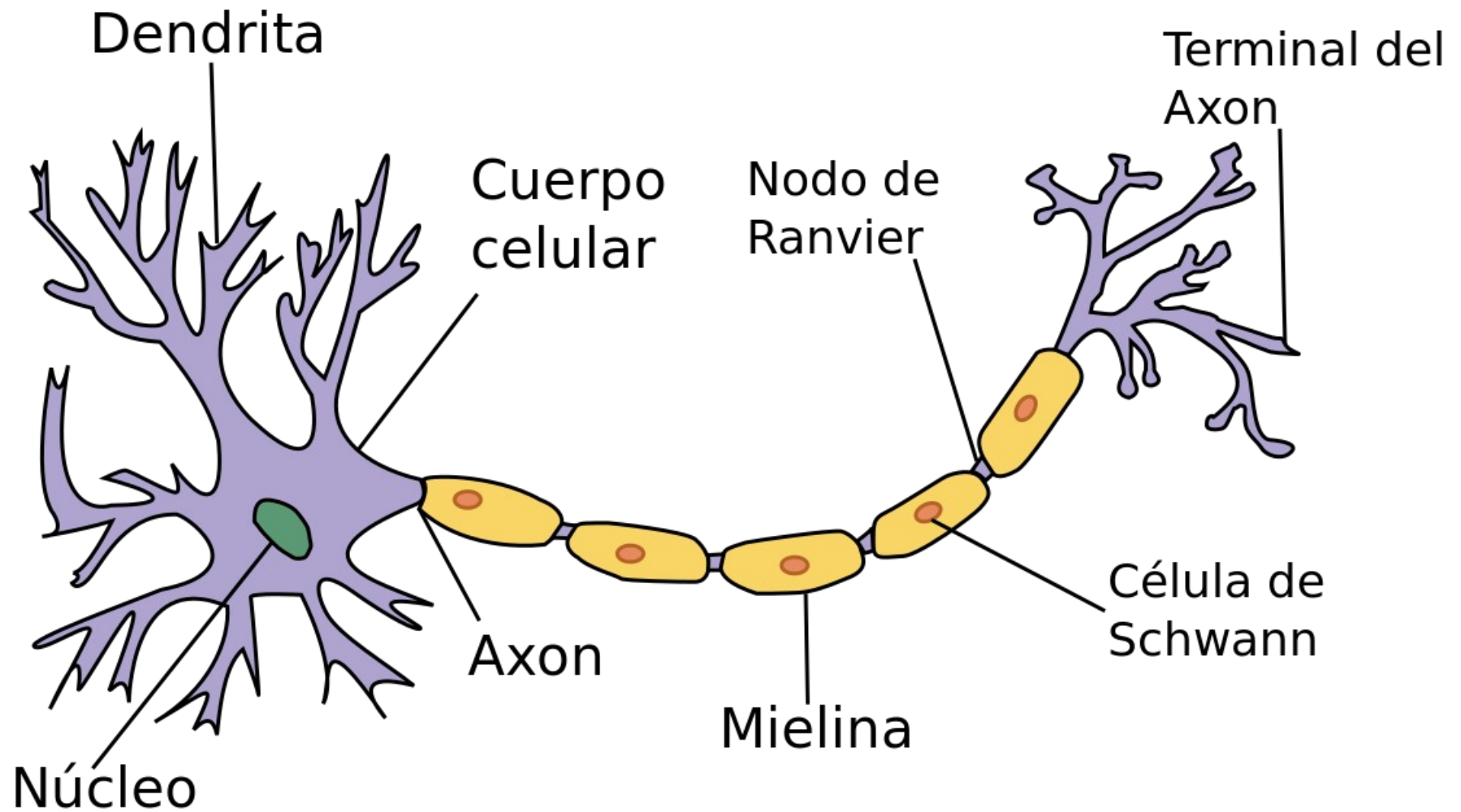
Xarxes Neuronals



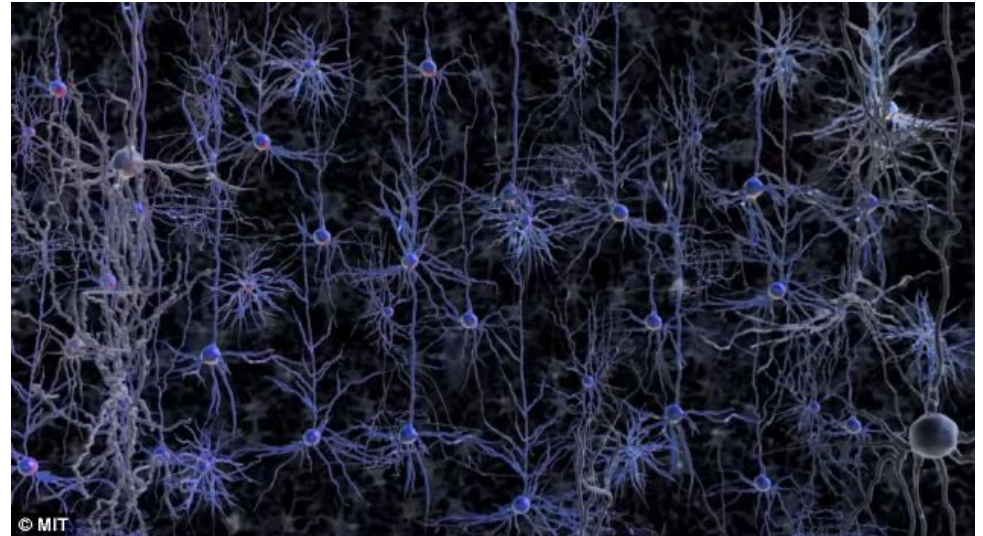
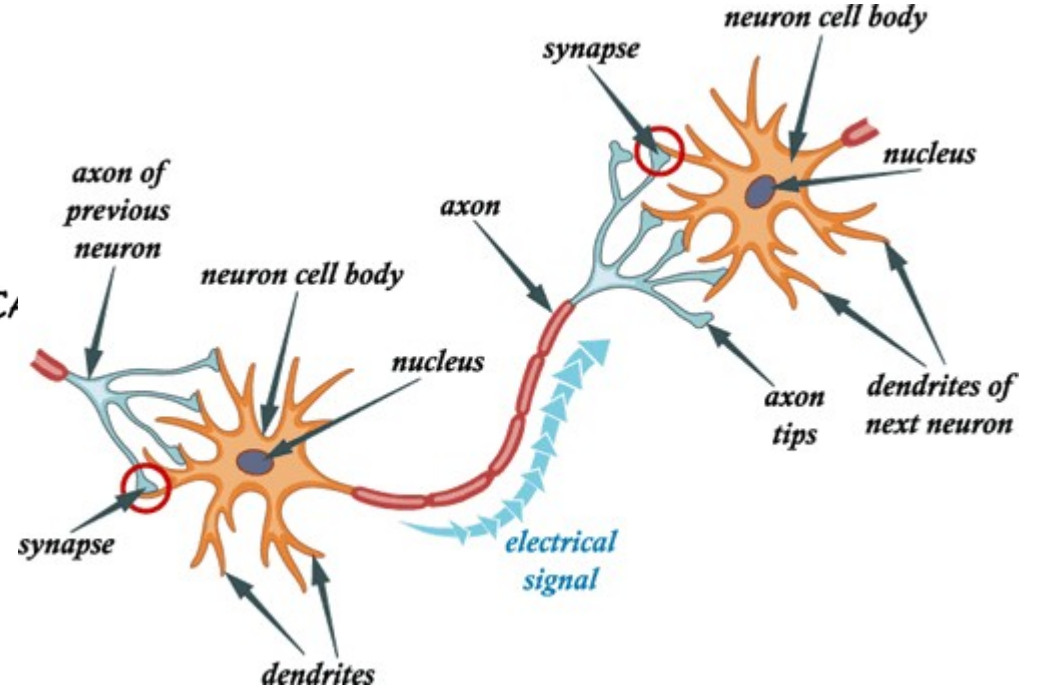
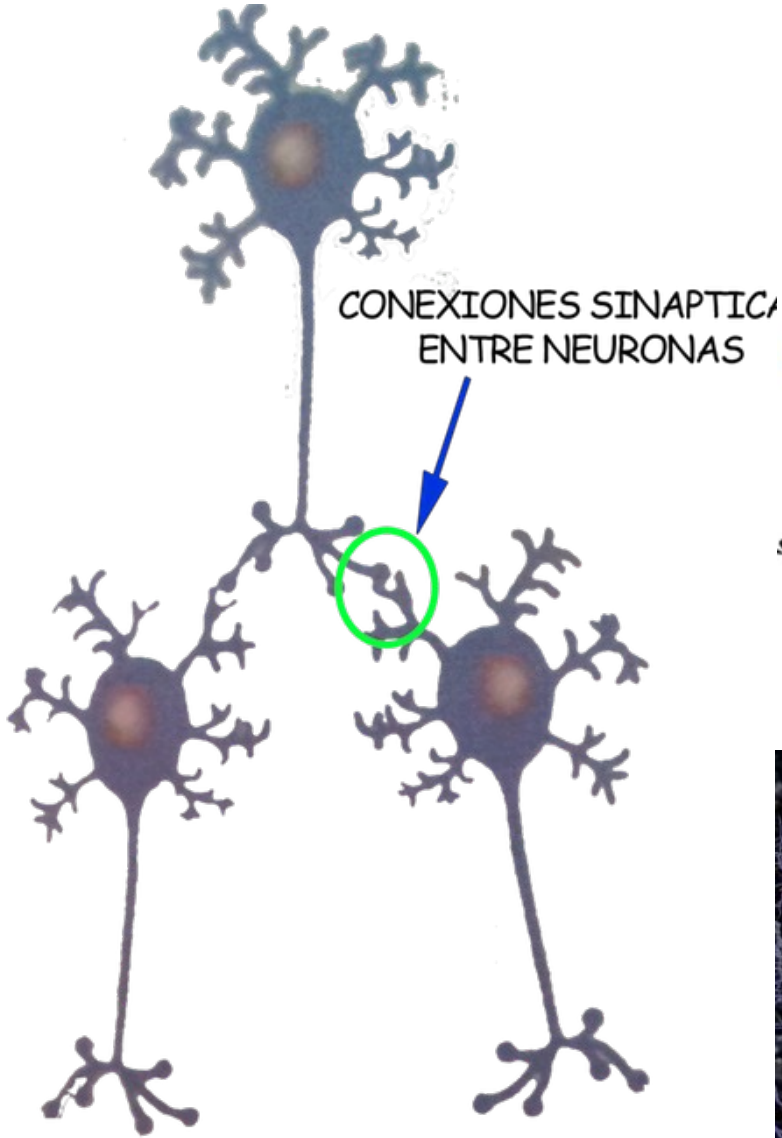

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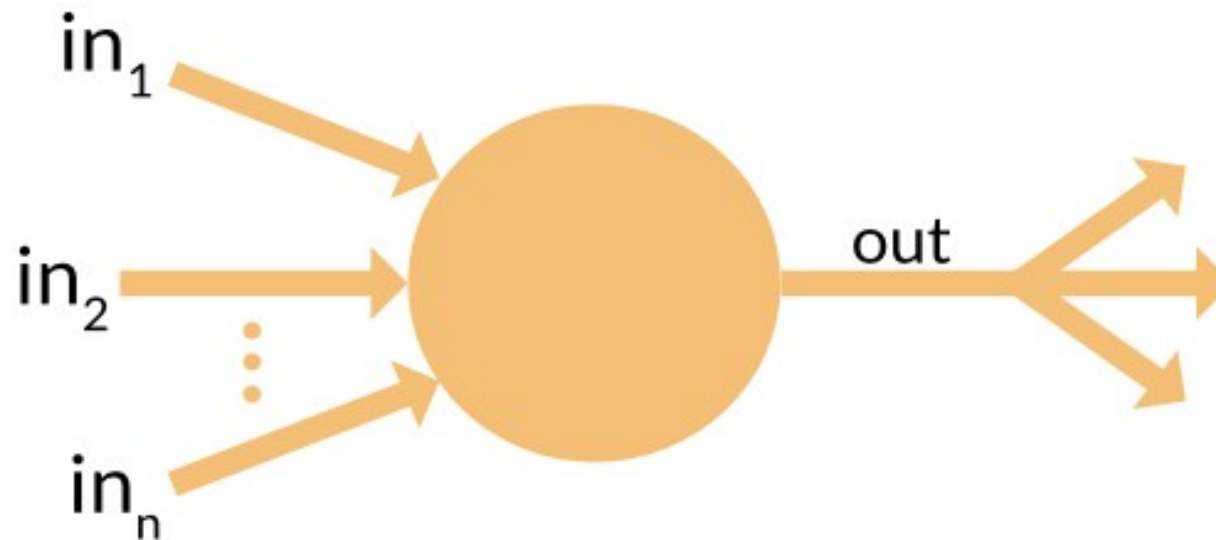
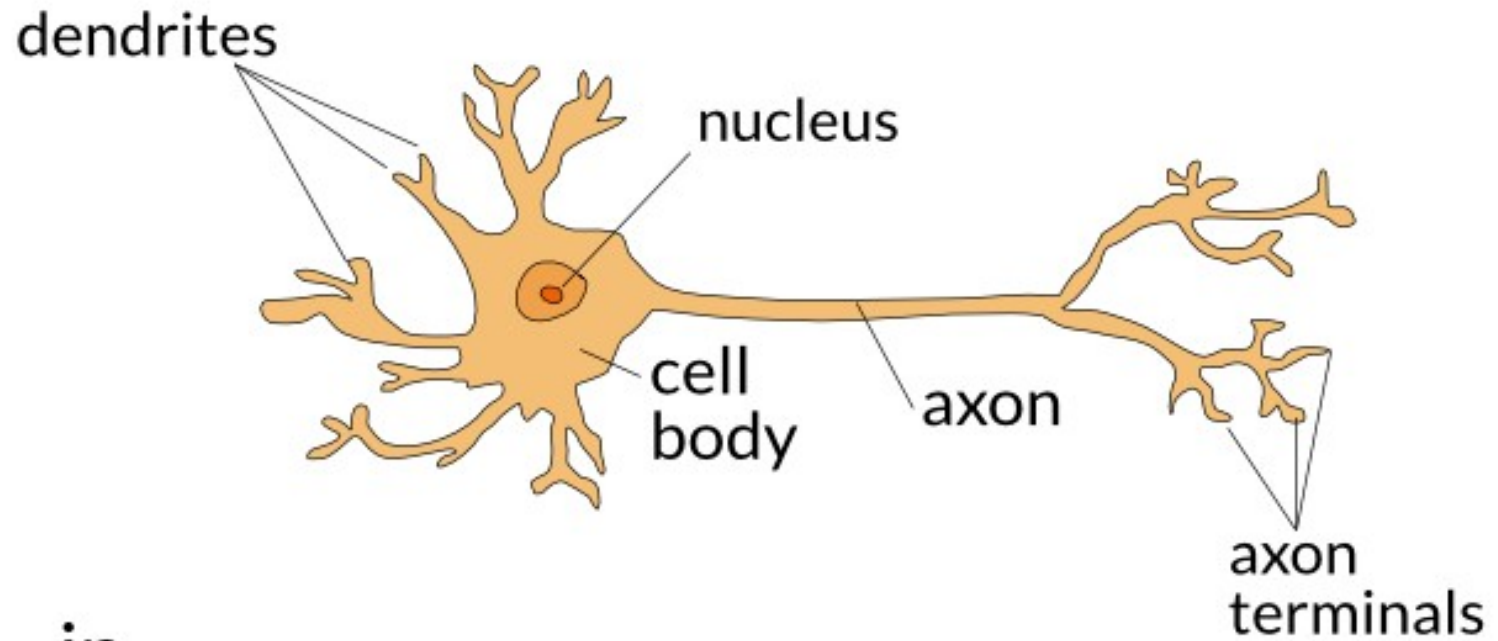
Neurona biològica



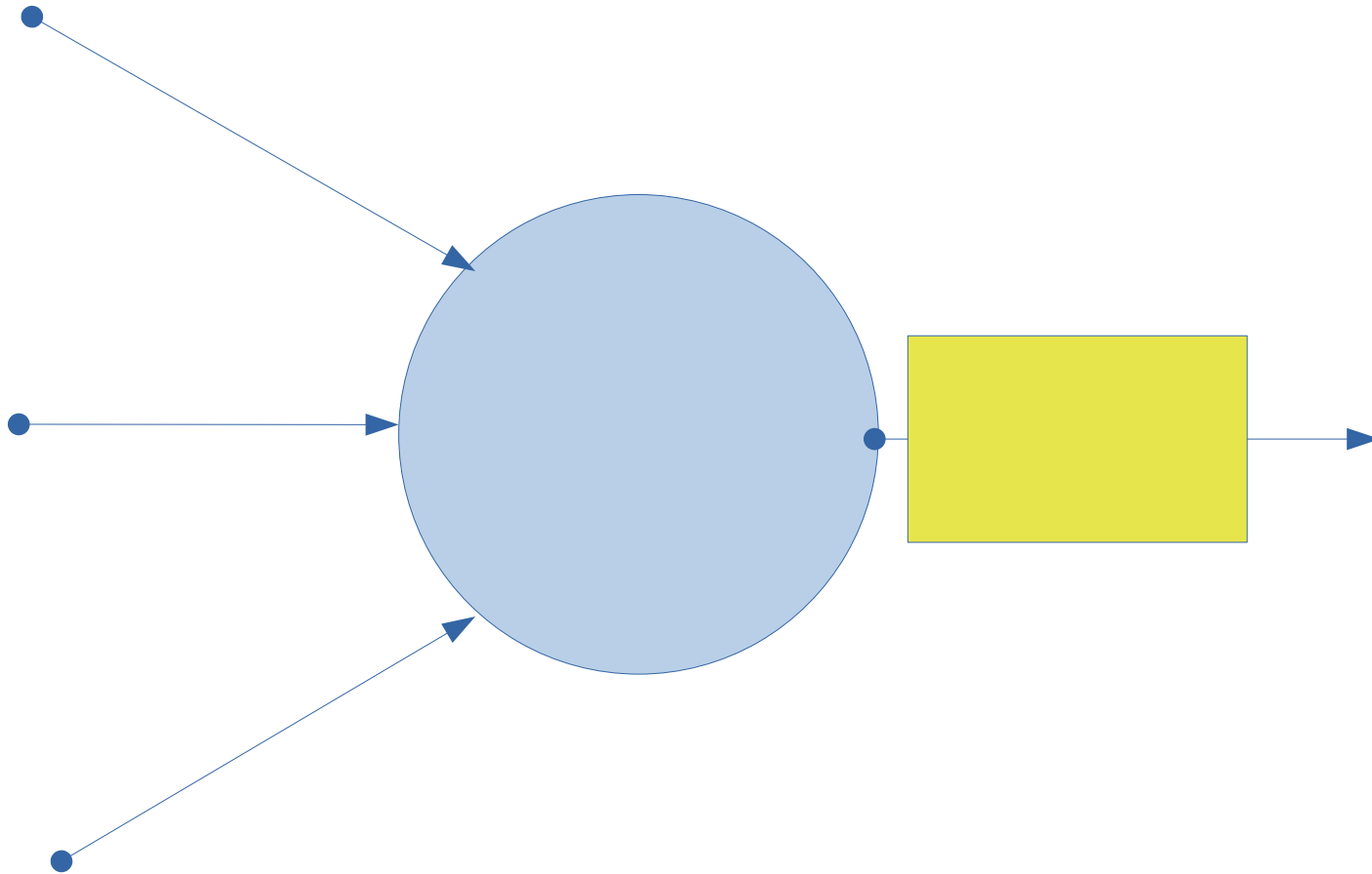
Connexions entre neurones



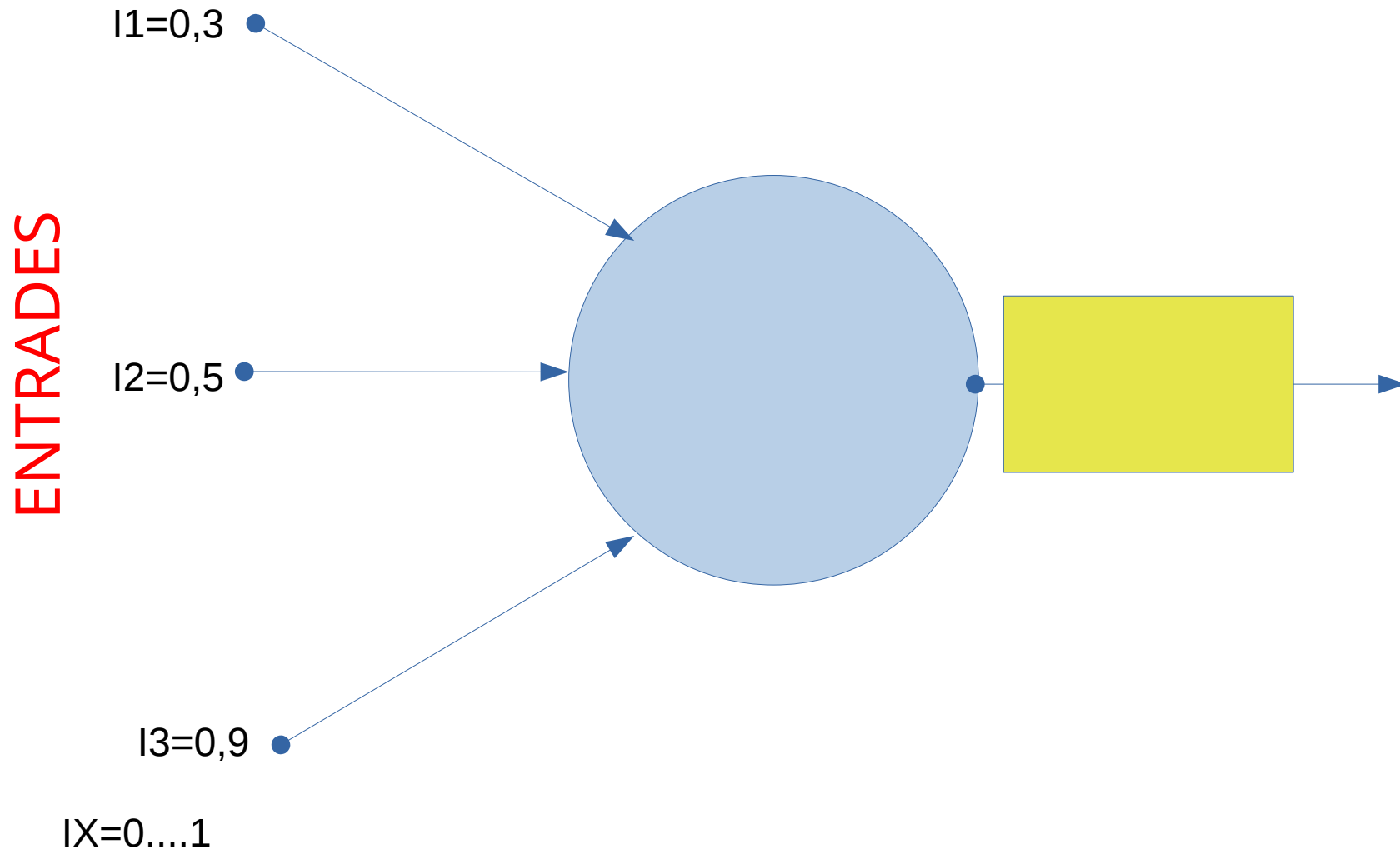
Perceptró, neurona artificial



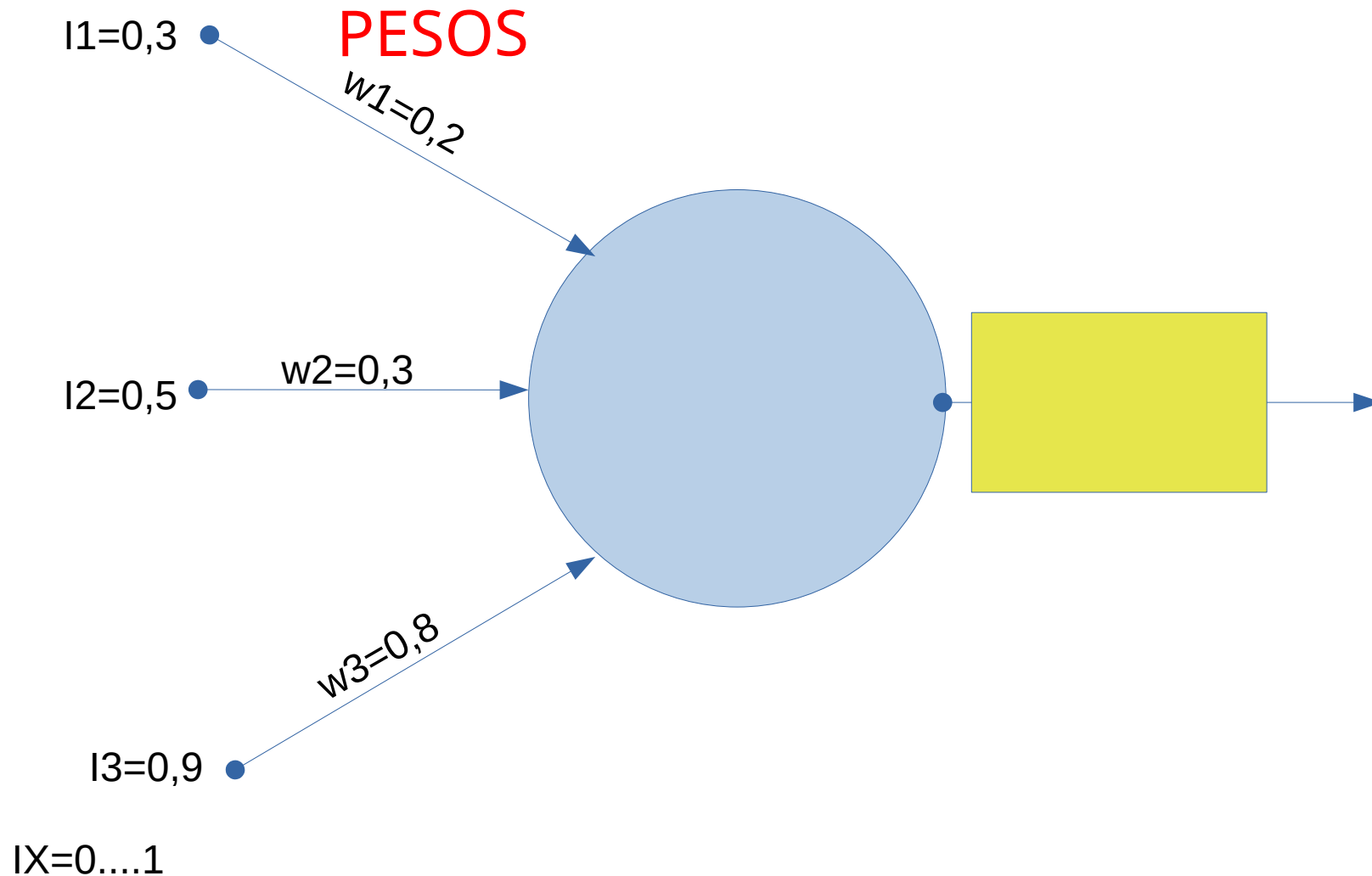
Perceptró, neurona artificial



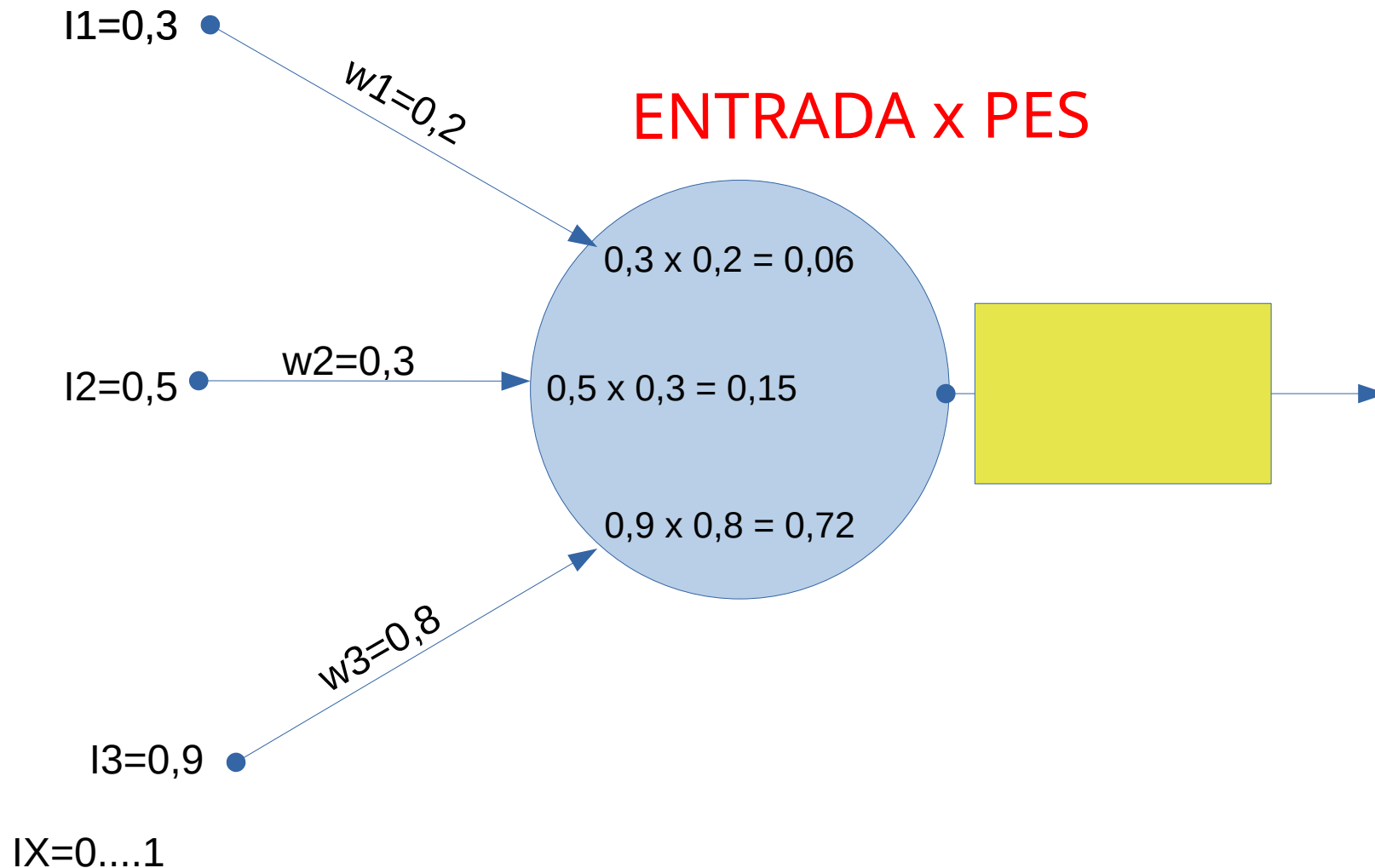
Perceptró, neurona artificial



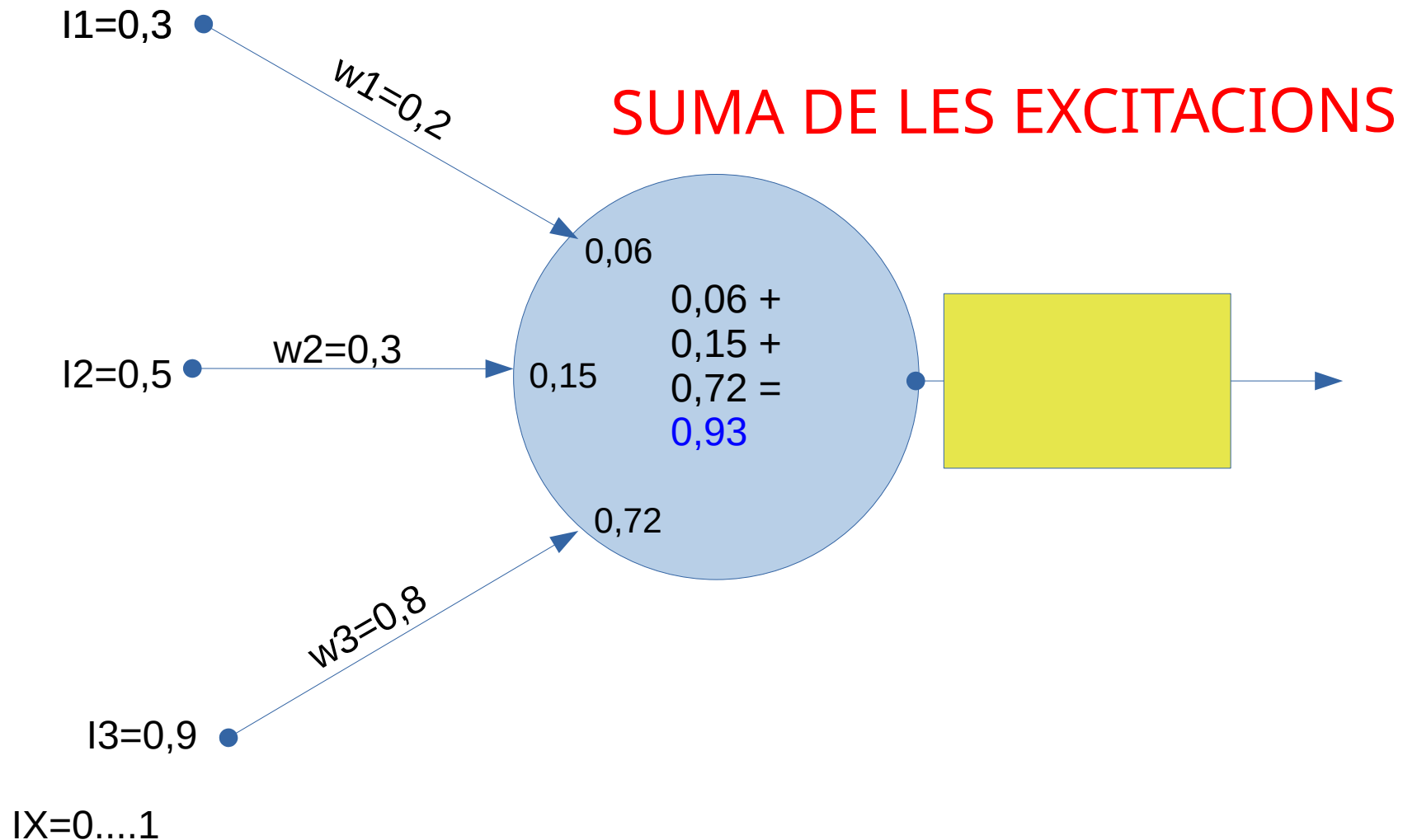
Perceptró, neurona artificial



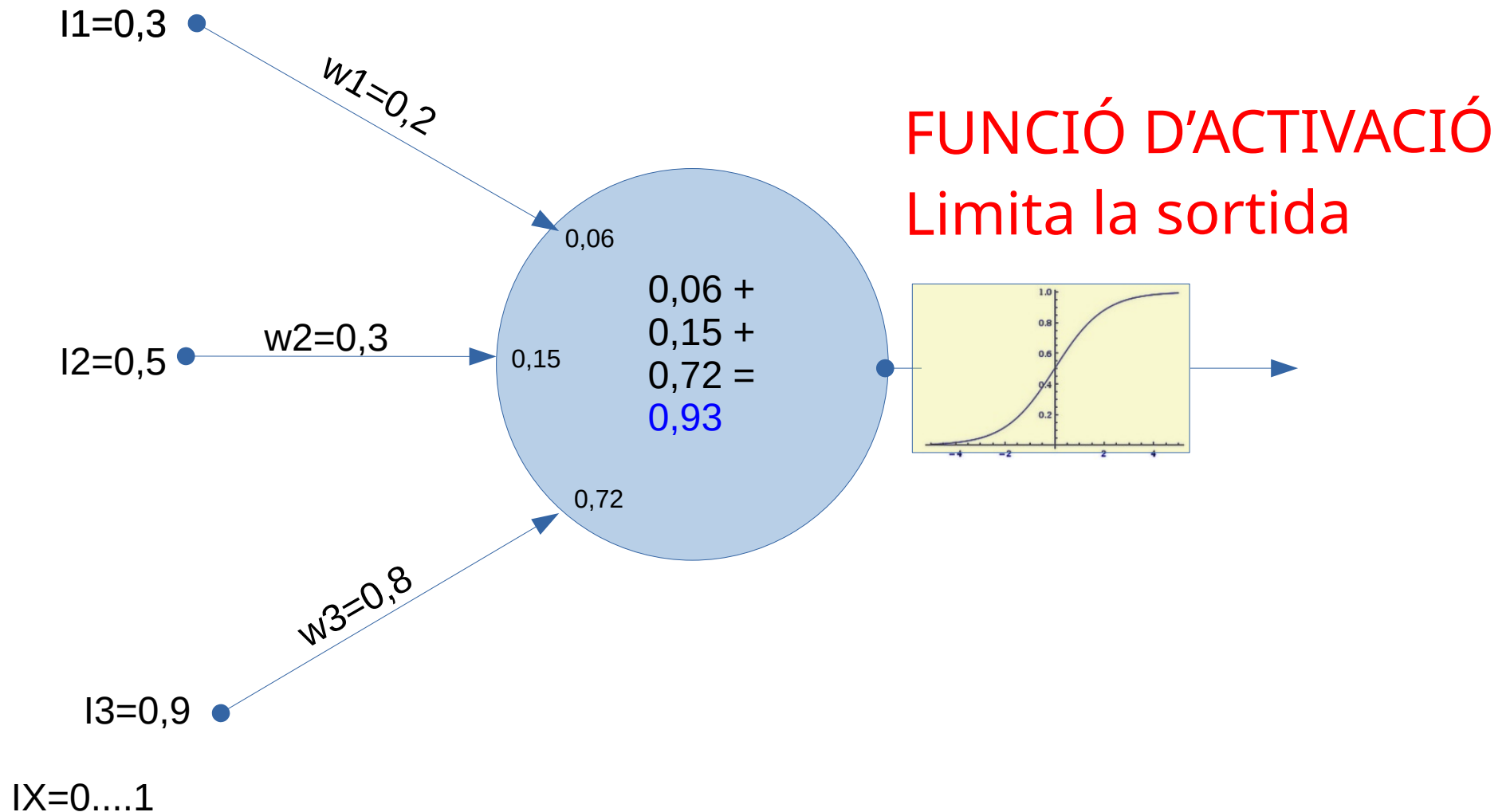
Perceptró, neurona artificial



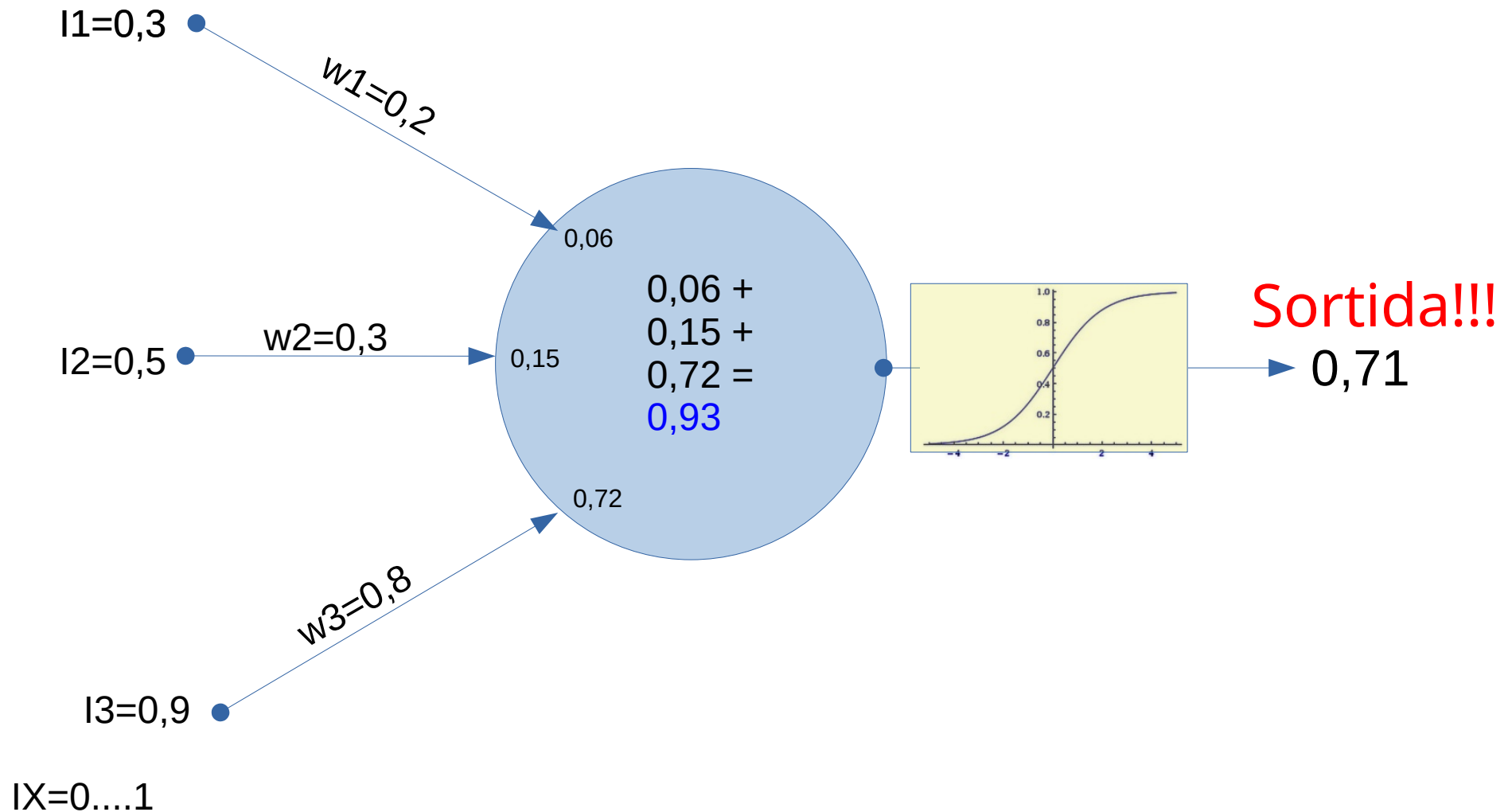
Perceptró, neurona artificial



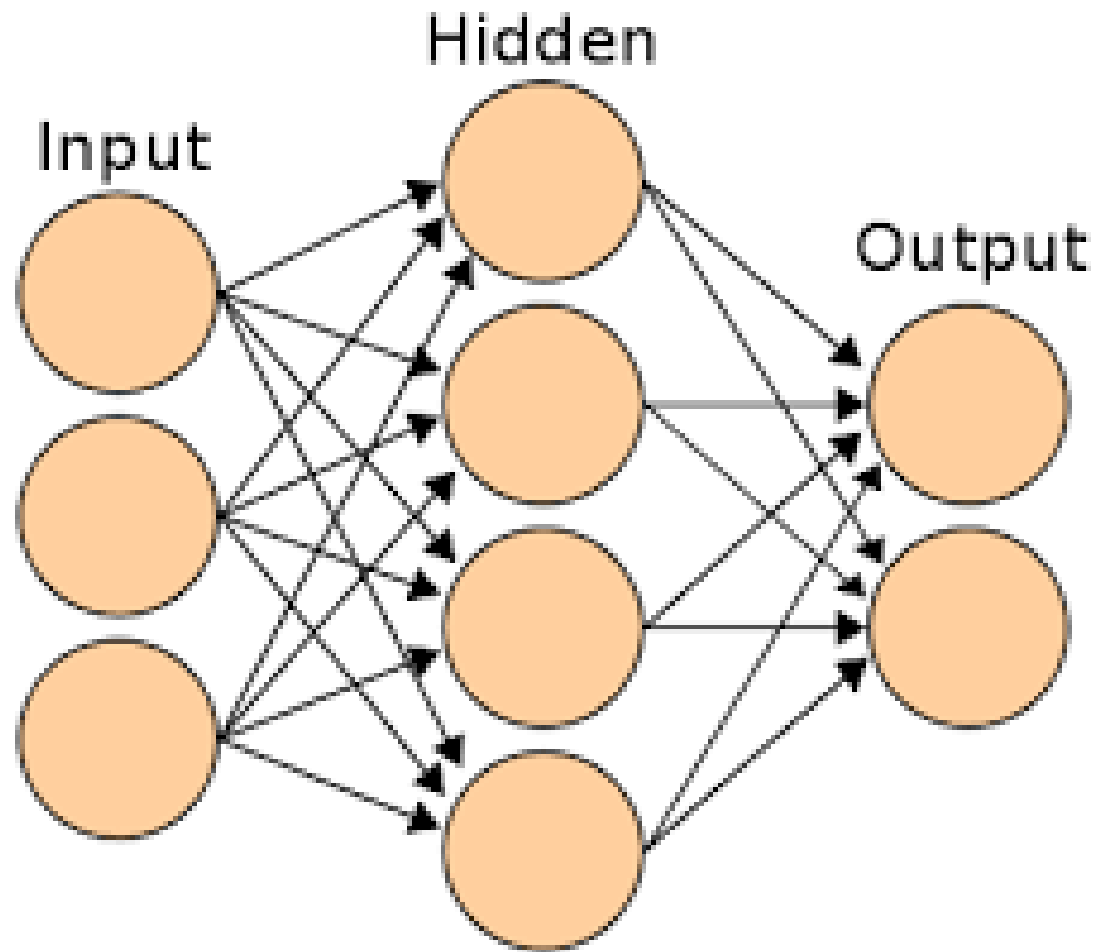
Perceptró, neurona artificial



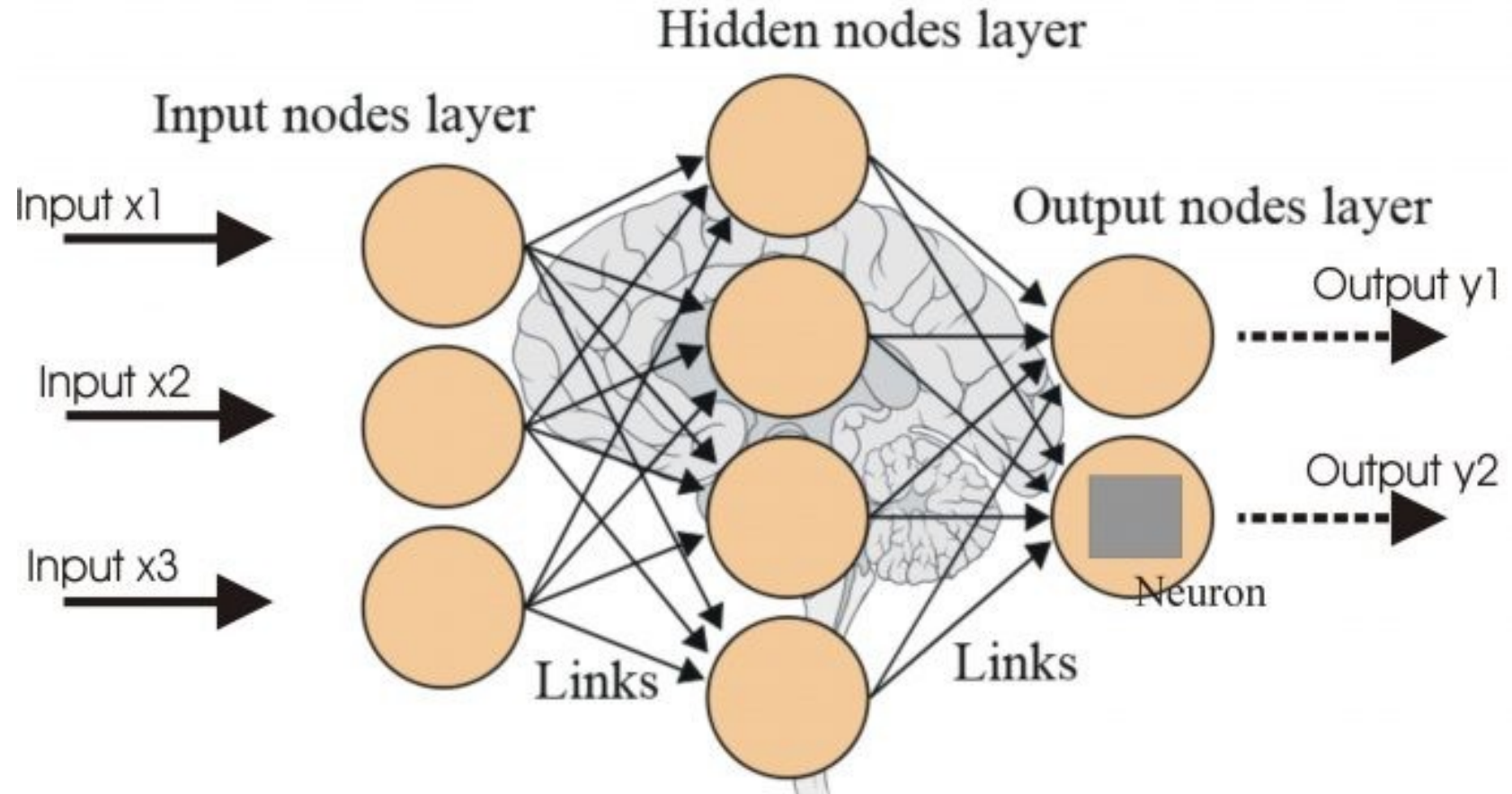
Perceptró, neurona artificial



Xarxa Neuronal artificial

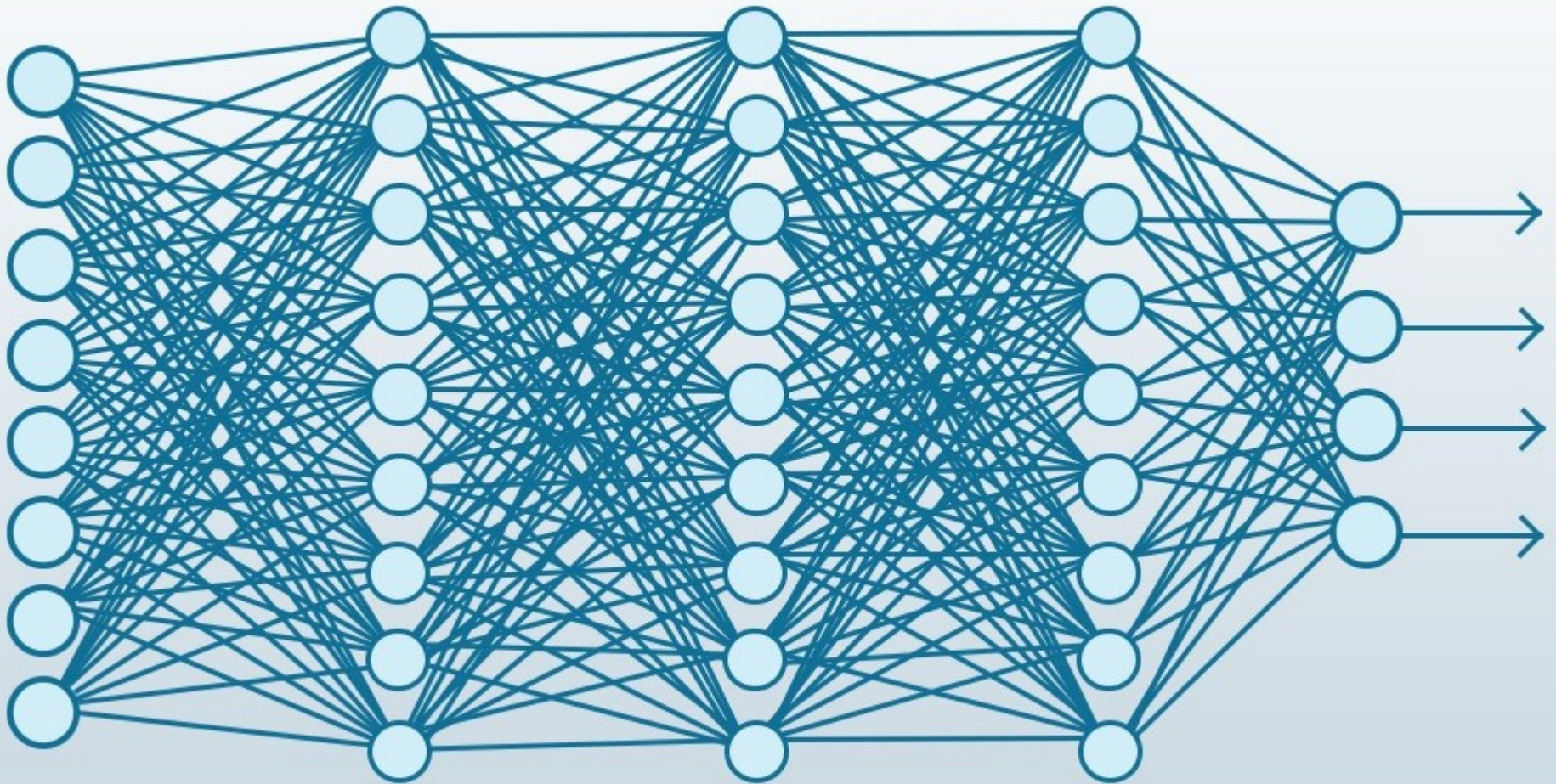


Xarxa Neuronal artificial



Xarxa Neuronal artificial

Deep learning



Xarxa Neuronal artificial

Porta AND

Neural Network demo Custom Network

Load Preset ▾

Network Graph

Error History

Weights

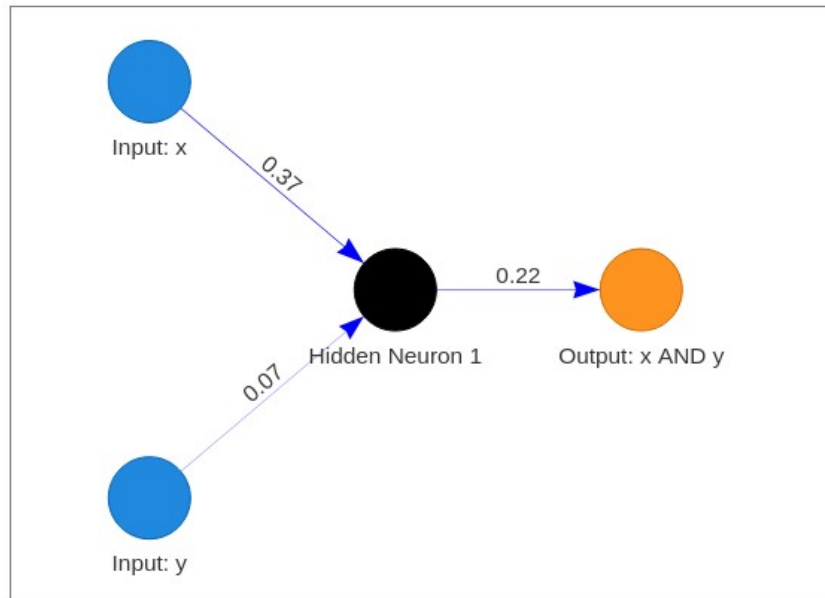
Move View

Add Red

Add Green

Remove

Table input



Inputs		Expected Output	Actual Output
x	y	x AND y	x AND y
0	0	0	0.493
0	1	0	0.493
1	0	0	0.497
1	1	1	0.498

Remove all

Entrenament!

Xarxa Neuronal artificial

Porta AND

Neural Network demo Custom Network

Load Preset ▾

Network Graph

Error History

Weights

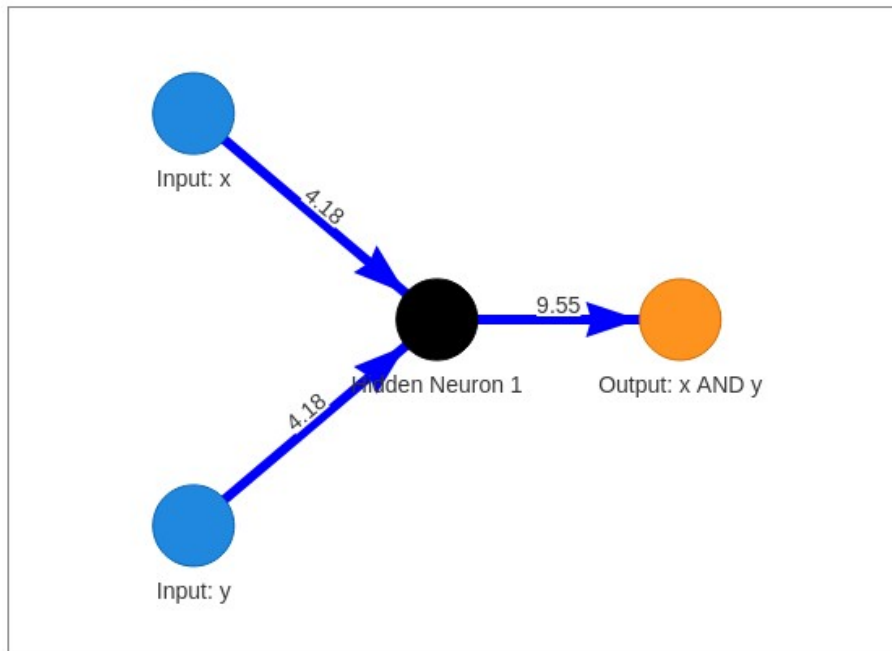
Move View

Add Red

Add Green

Remove

Table input



Inputs		Expected Output		Actual Output
x	y	x AND y	x AND y	x AND y
0	0	0	0	0.005
0	1	0	0	0.014
1	0	0	0	0.014
1	1	1	1	0.982

Remove all

Entrenament!

Xarxa Neuronal artificial

Porta AND

Neural Network demo Custom Network

Load Preset ▾

Neural Network demo Custom Network

Load Preset ▾

Network Graph

Error History

Weights

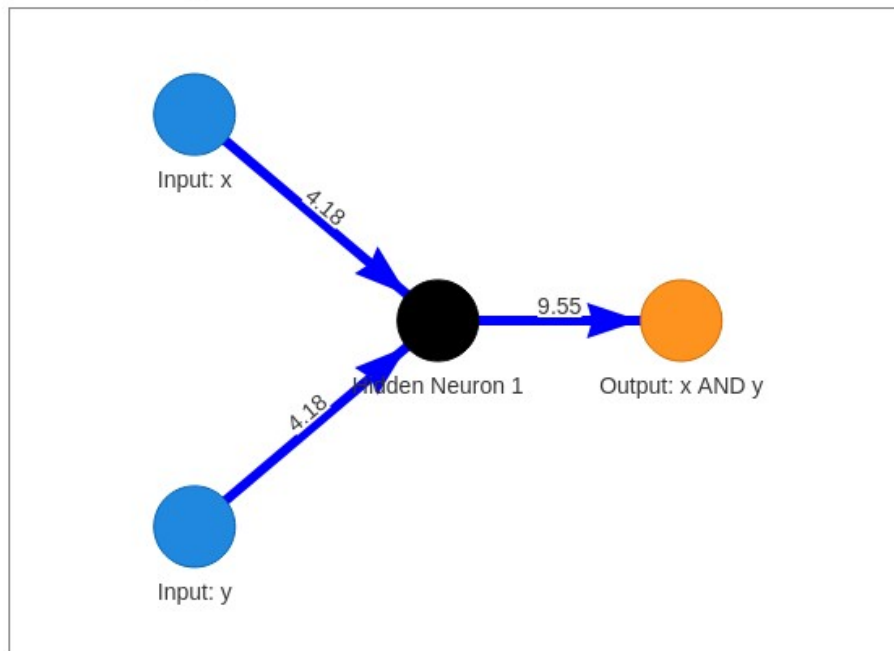
Move View

Add Red

Add Green

Remove

Table input



Inputs		Expected Output	Actual Output
x	y	x AND y	x AND y
0	0	0	0.005
0	1	0	0.014
1	0	0	0.014
1	1	1	0.982

Remove all

Xarxa Neuronal artificial

Porta OR

Neural Network demo Custom Network

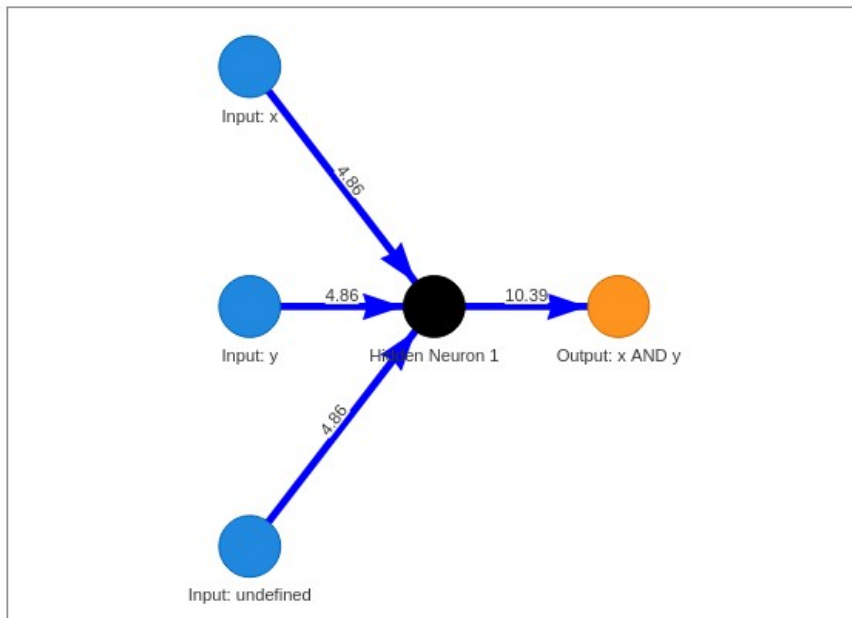
Load Preset ▾

Network Graph

Error History

Weights

Table input



Inputs			Expected Output	Actual Output
x	y	z	OR	OR
0	0	0	0	0.019
0	0	1	1	0.991
0	1	0	0	0.991
0	1	1	1	0.997
1	0	0	0	0.991
1	0	1	1	0.997
1	1	0	1	0.997
1	1	1	1	0.997

Remove all

Entrenament!!

Xarxa Neuronal artificial

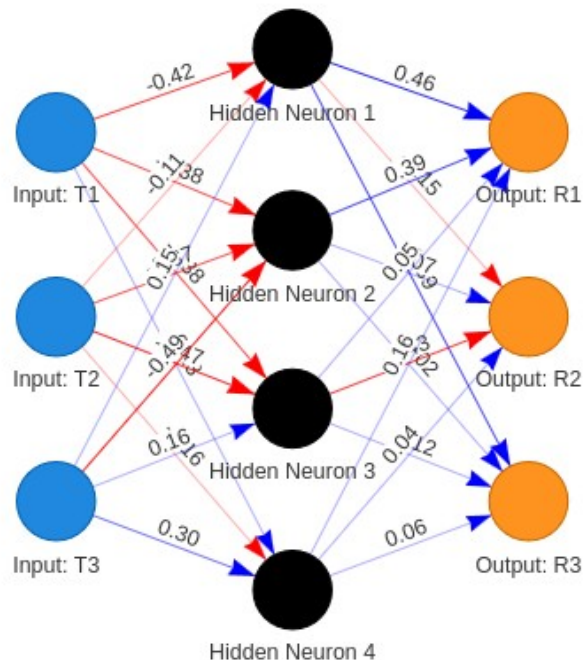
Exercici EXAMEN

Neural Network demo Custom Network

Network Graph

Error History

Weights



4. Tres termòstats de T1 40°C, T2 42°C i T3 44°C controlen la temperatura d'un escalfador amb tres resistències.

Simula el teu disseny de control per R1 (1 punt), R2 (1 punt) i Alarma (3 punts)

T1 (40°C)	T2(42°C)	T3(44°C)	R1(5W)	R2(10W)	Alarma
0	0	0	0	1	1
0	0	1	0	1	0
0	1	0	1	0	0
0	1	1	0	0	0
1	0	0	0	0	1
1	0	1	0	0	1
1	1	0	1	0	0
1	1	1	0	0	0

ENTRENAMENT!!

NeuralBOT



neuralBOT

HIDDEN LAYER

INPUT LAYER

OUTPUT LAYER

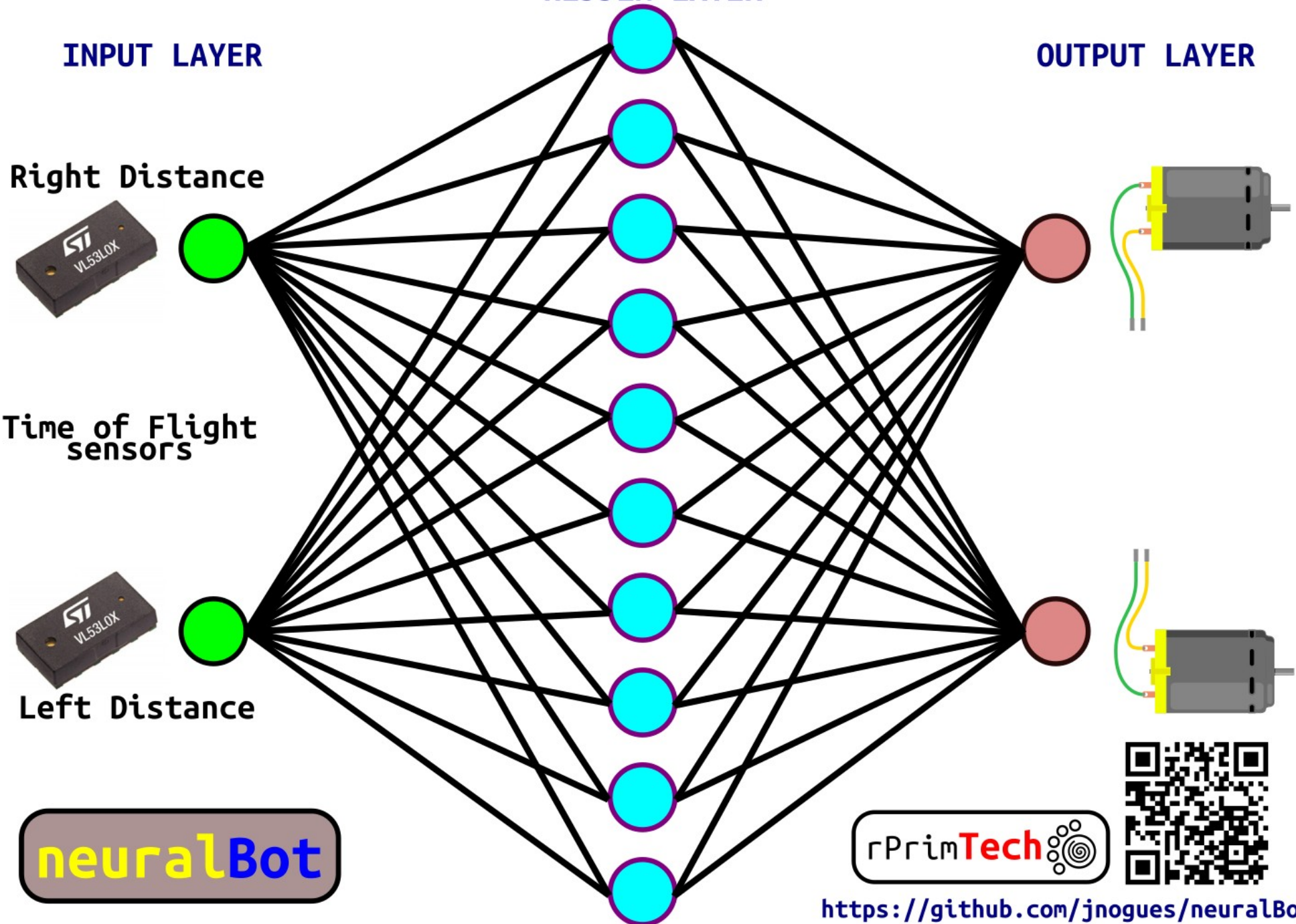
Right Distance



Time of Flight
sensors

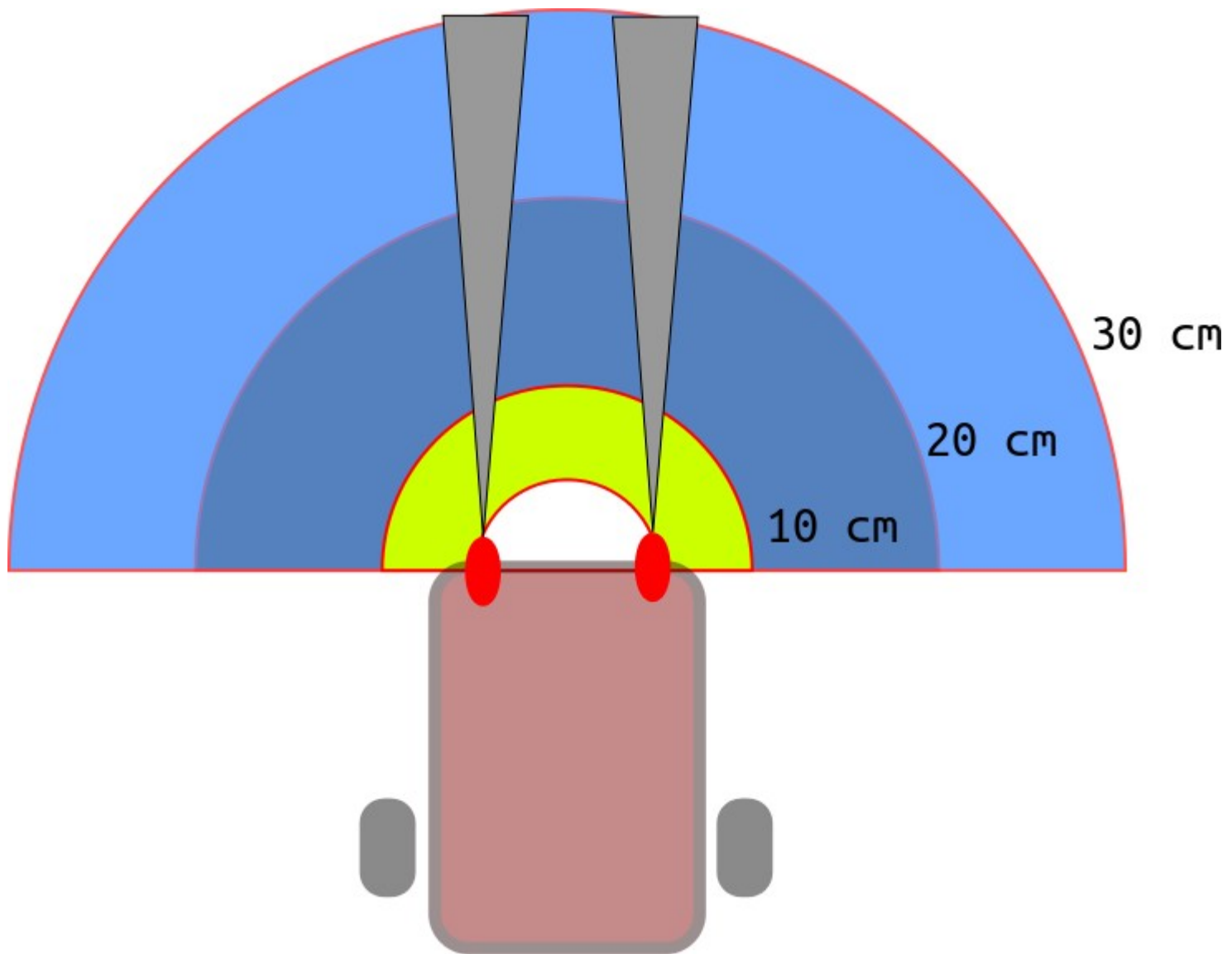


Left Distance

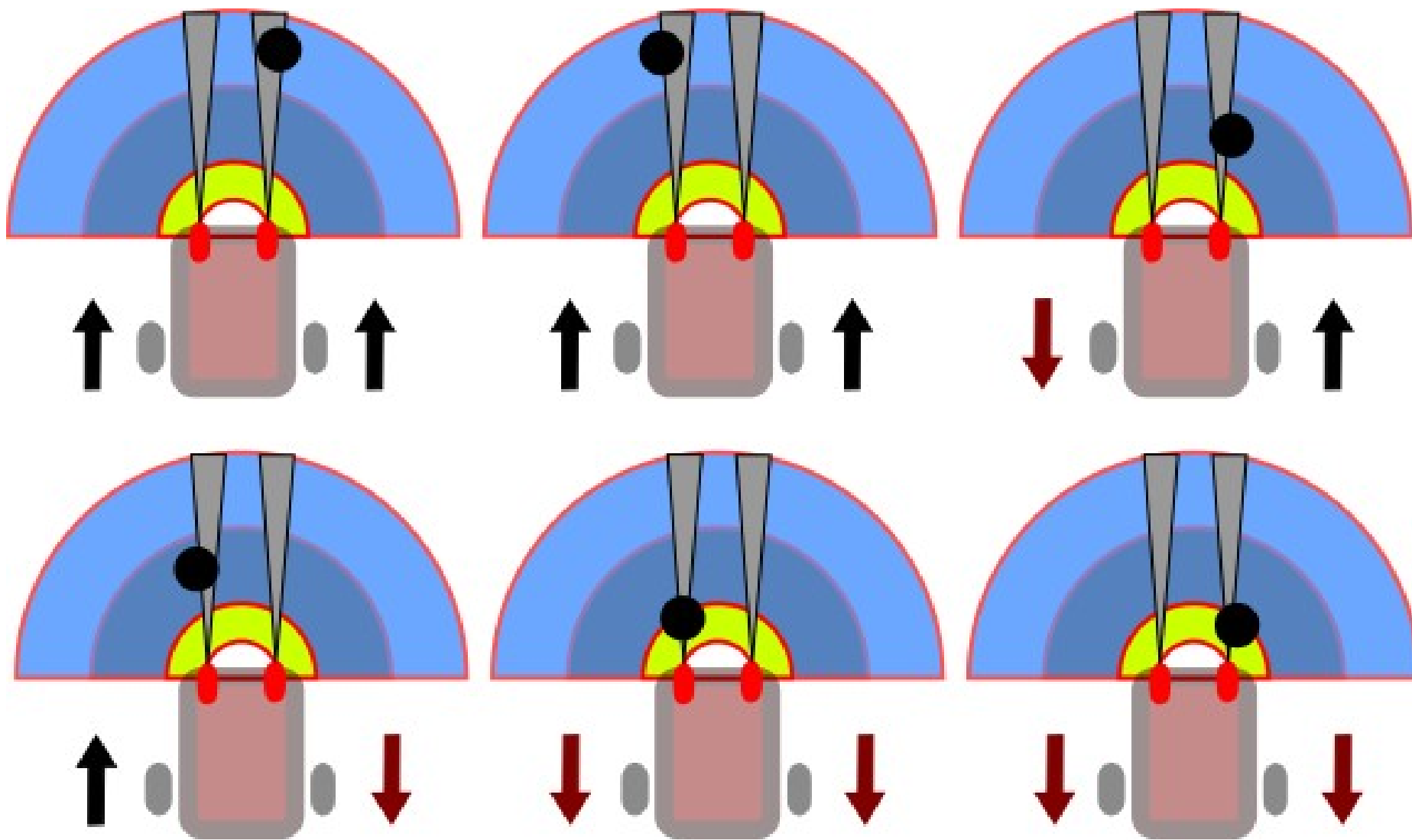


<https://github.com/jnogues/neuralBot>

neuralBOT



neuralBOT



NeuralBOT DATA SET

<u>LEFT</u>	<u>RIGHT</u>				<u>MOTORS</u>
30	30		1	1	<u>FOWARD</u>
30	25		1	1	<u>FOWARD</u>
25	30		1	1	<u>FOWARD</u>
21	28		1	1	<u>FOWARD</u>
28	21		1	1	<u>FOWARD</u>
22	24		1	1	<u>FOWARD</u>
24	22		1	1	<u>FOWARD</u>
22	21		1	1	<u>FOWARD</u>
21	22		1	1	<u>FOWARD</u>

<u>LEFT</u>	<u>RIGHT</u>				<u>MOTORS</u>
20	18		0	1	<u>TURN LEFT</u>
16	14		0	1	<u>TURN LEFT</u>
12	10		0	1	<u>TURN LEFT</u>
18	20		1	0	<u>TURN RIGHT</u>
14	16		1	0	<u>TURN RIGHT</u>
10	12		1	0	<u>TURN RIGHT</u>

ENTRENAMENT!!

<u>LEFT</u>	<u>RIGHT</u>				<u>MOTORS</u>
10	10		0	0	<u>REVERSE</u>
8	10		0	0	<u>REVERSE</u>
10	8		0	0	<u>REVERSE</u>
6	8		0	0	<u>REVERSE</u>
8	6		0	0	<u>REVERSE</u>
5	5		0	0	<u>REVERSE</u>
30	8		0	0	<u>REVERSE</u>
8	30		0	0	<u>REVERSE</u>
28	6		0	0	<u>REVERSE</u>

<u>LEFT</u>	<u>RIGHT</u>				<u>MOTORS</u>
30	18		0	1	<u>TURN LEFT</u>
15	28		0	1	<u>TURN LEFT</u>
12	26		0	1	<u>TURN LEFT</u>
18	30		1	0	<u>TURN RIGHT</u>
15	28		1	0	<u>TURN RIGHT</u>
12	26		1	0	<u>TURN RIGHT</u>

NeuralBOT

Codi a github!



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Add a bio

 Rambla Prin Tech School

 Barcelona

 jnogues@gmail.com

 <http://jnogues.org>

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