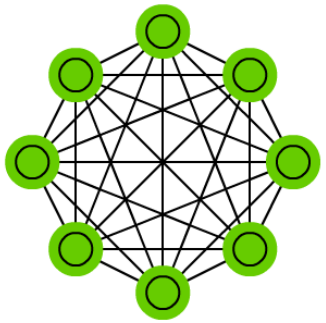
Neural network from scratch

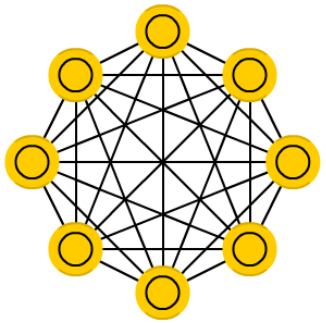
David TOUSSAINT
Move Next

Comment fonctionne un réseau de neurones?

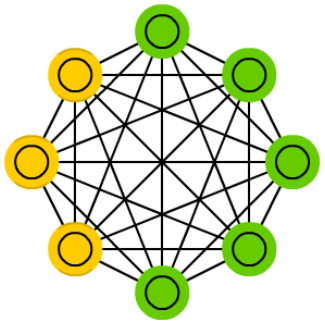
Markov Chain (MC)



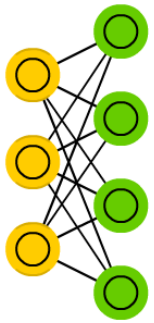
Hopfield Network (HN)



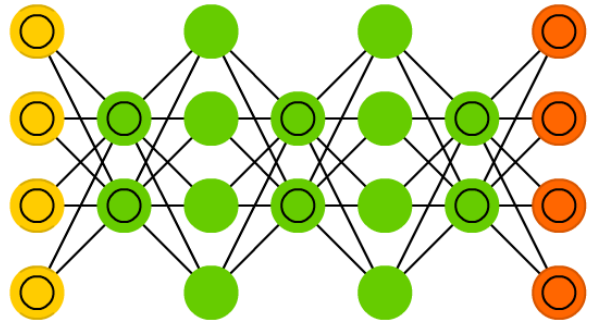
Boltzmann Machine (BM)



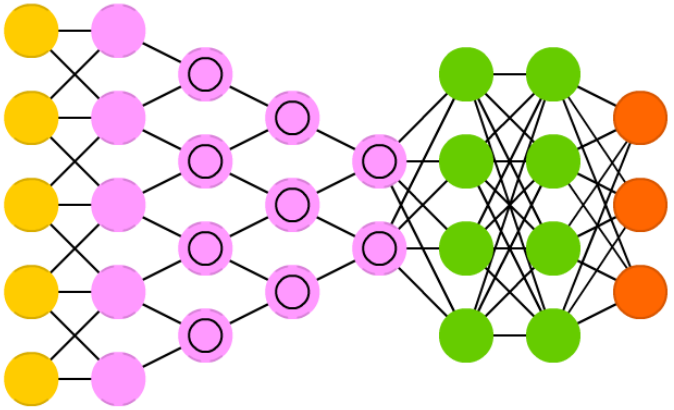
Restricted BM (RBM)



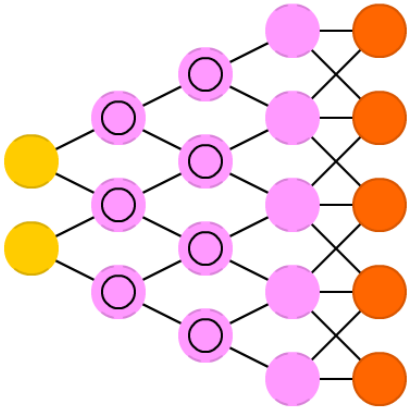
Deep Belief Network (DBN)



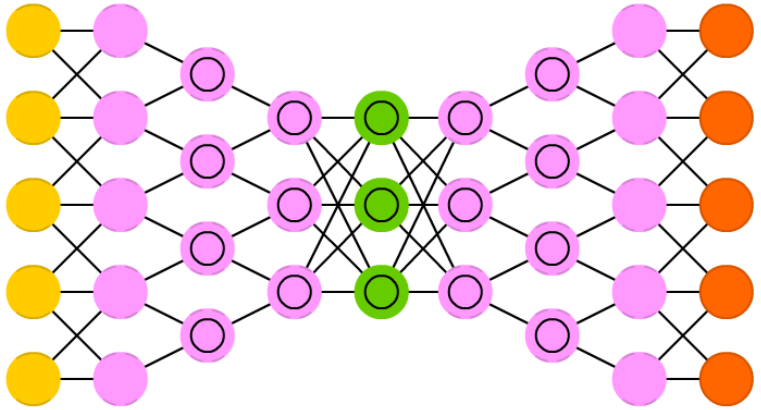
Deep Convolutional Network (DCN)



Deconvolutional Network (DN)



Deep Convolutional Inverse Graphics Network (DCIGN)



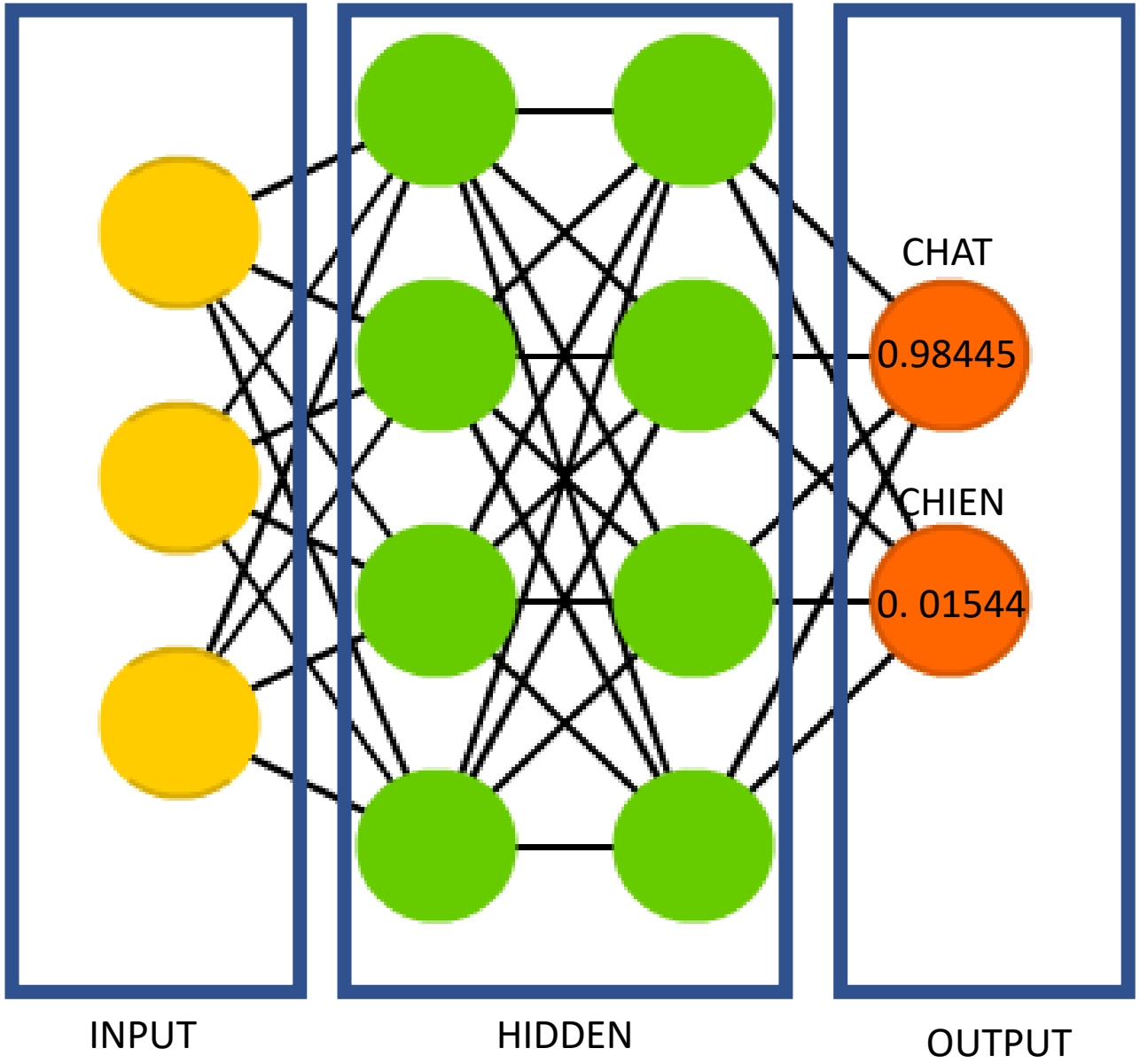
Generative Adversarial Network (GAN)

Liquid State Machine (LSM)

Extreme Learning Machine (ELM)

Echo State Network (ESN)

Comment fonctionne un réseau de neurones?



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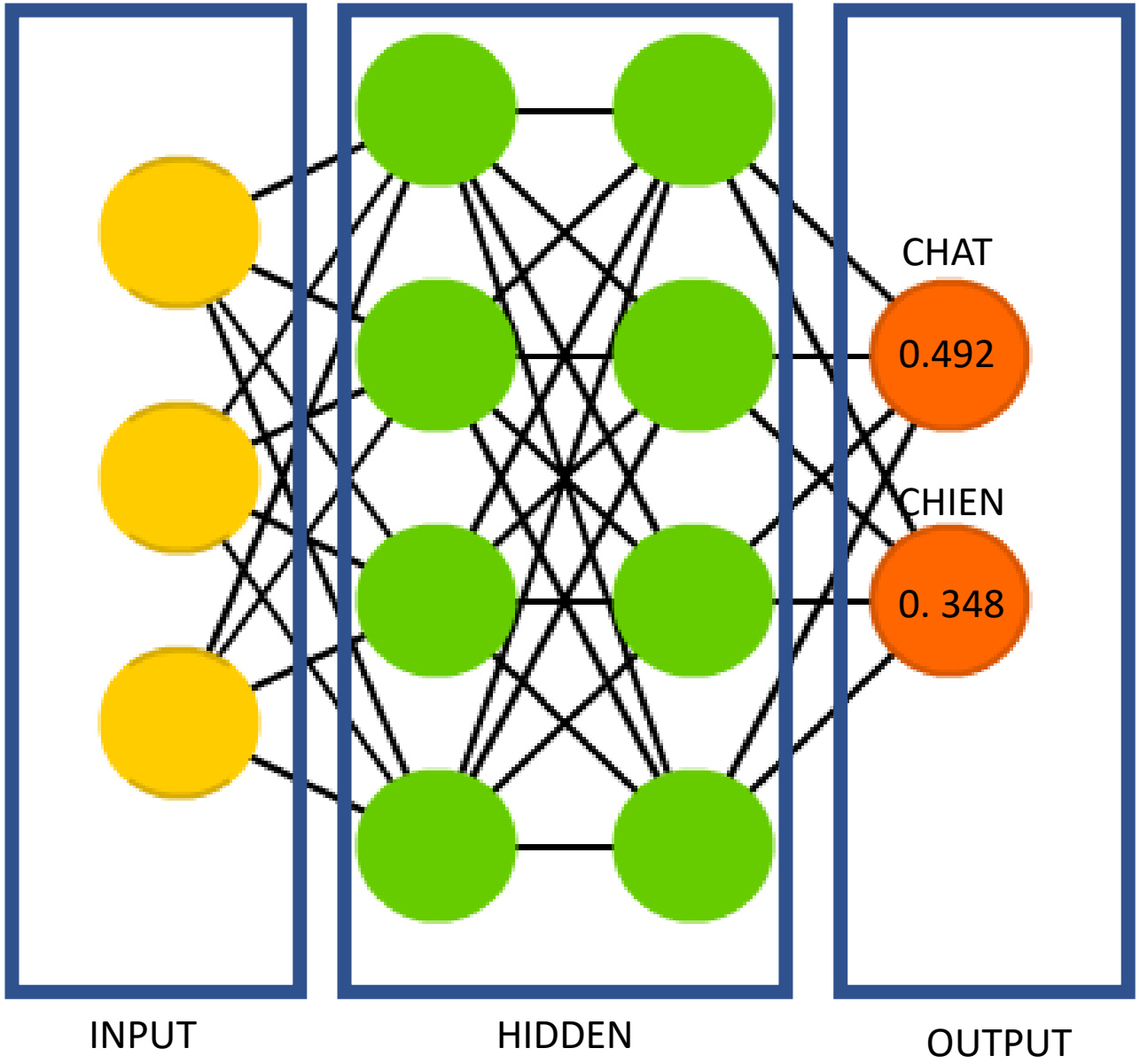

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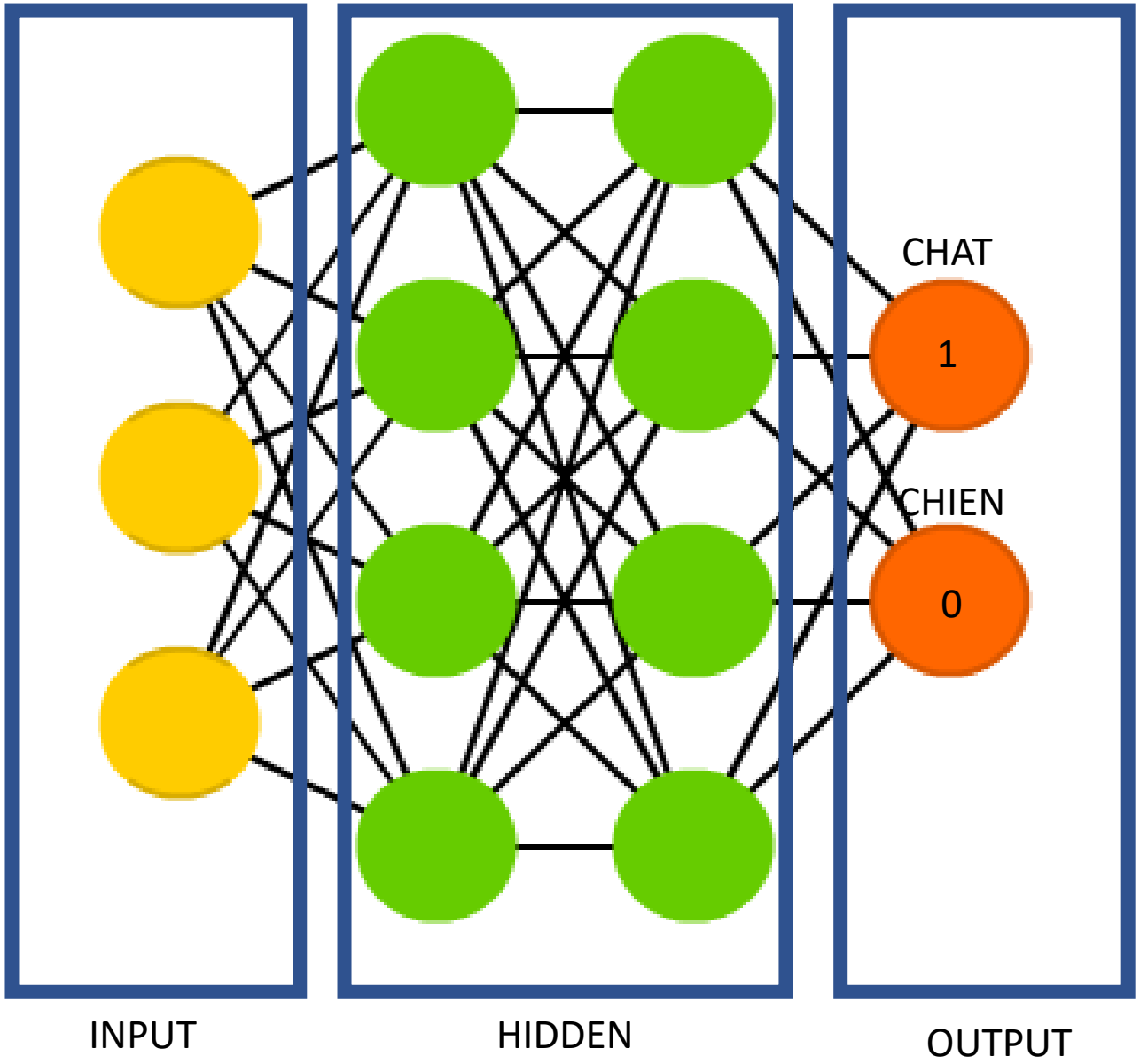

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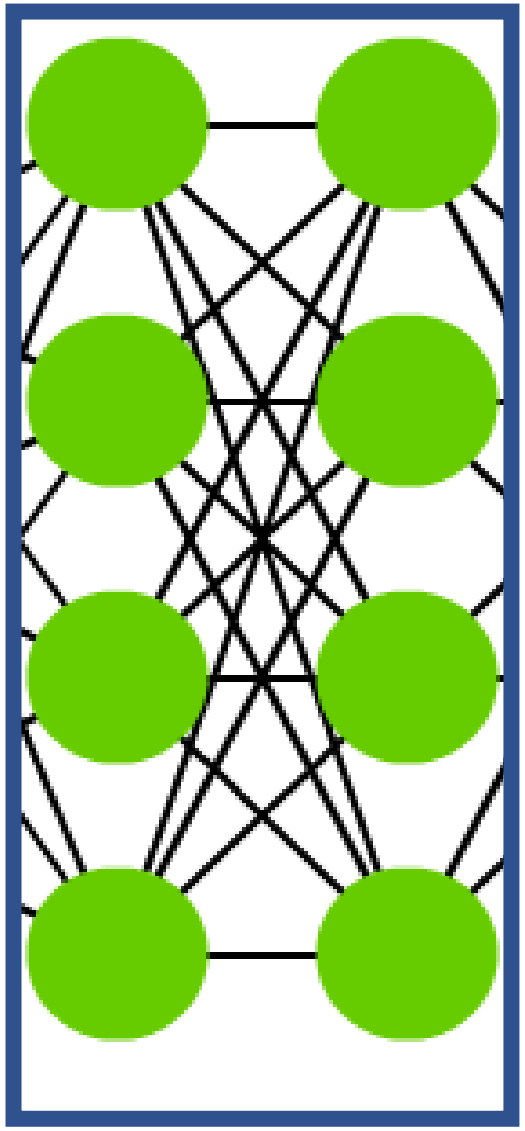
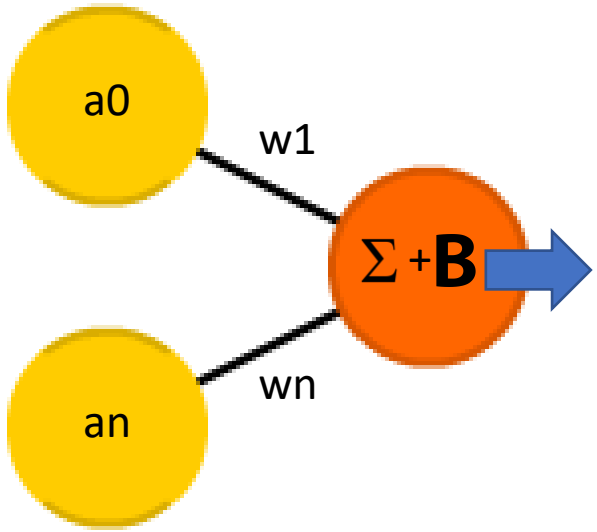
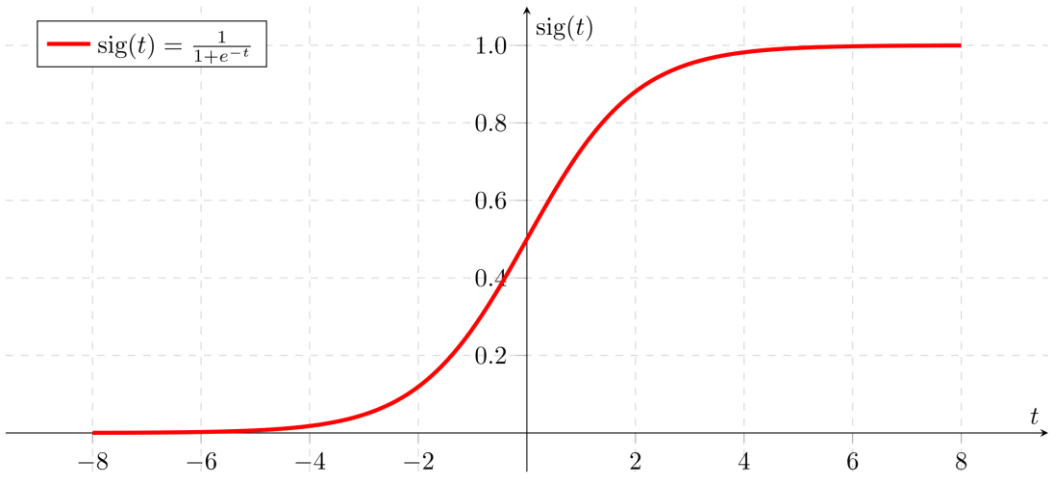


HIDDEN

Comment fonctionne un réseau de neurones?





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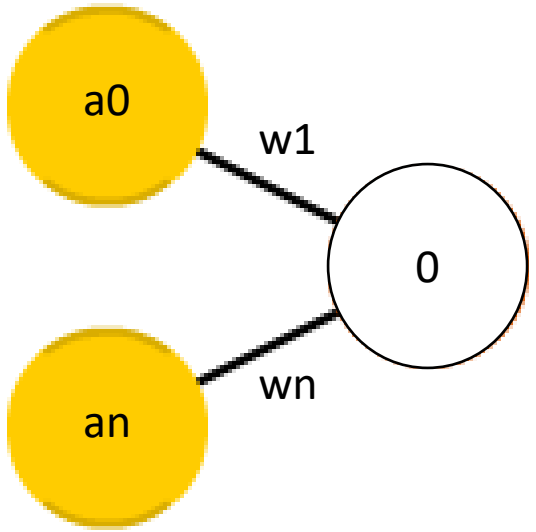
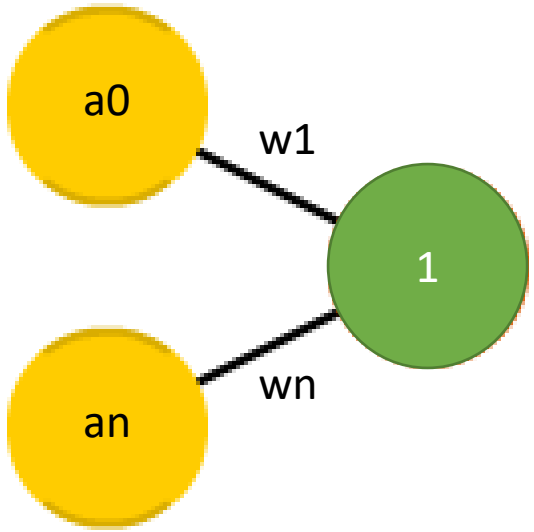
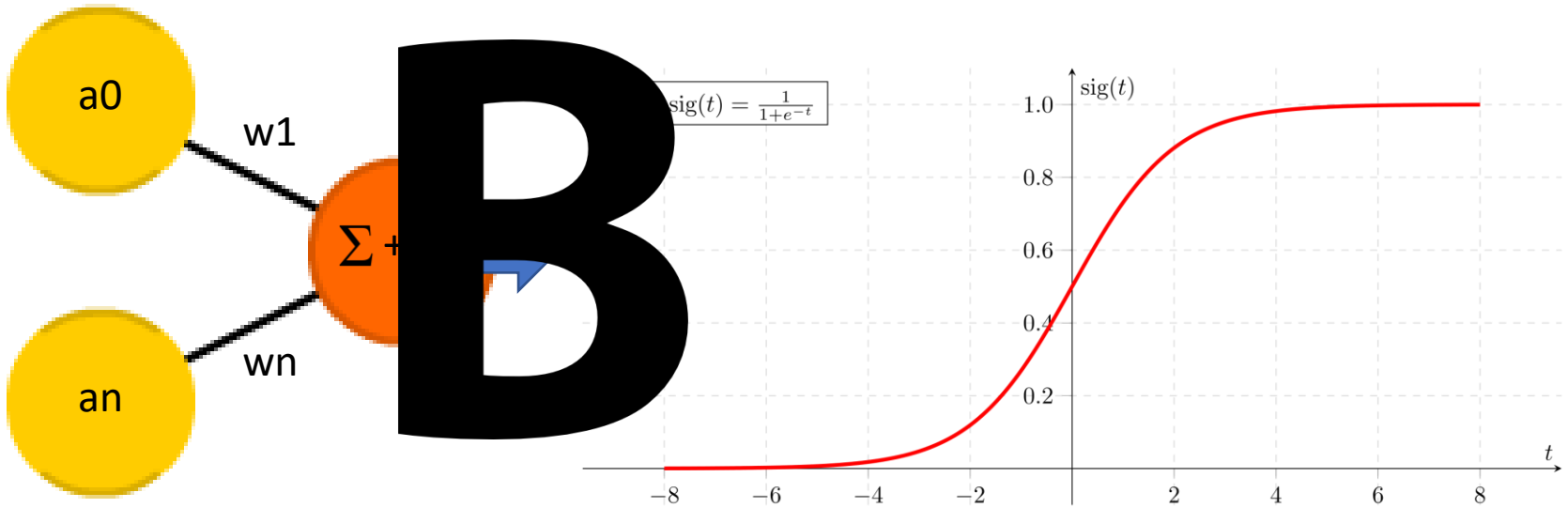


Comment fonctionne un réseau de neurones?



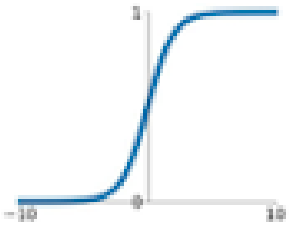
Comment fonctionne un réseau de neurones?



Comment fonctionne un réseau de neurones?

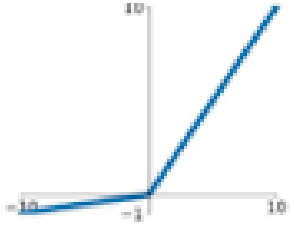
Sigmoid

$$\sigma(x) = \frac{1}{1+e^{-x}}$$



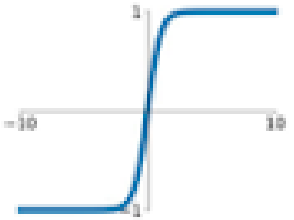
Leaky ReLU

$$\max(0.1x, x)$$



tanh

$$\tanh(x)$$

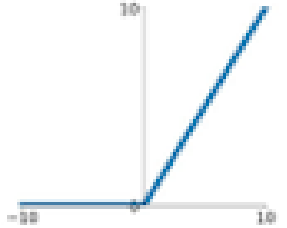


Maxout

$$\max(w_1^T x + b_1, w_2^T x + b_2)$$

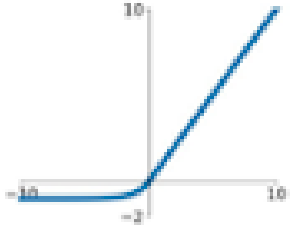
ReLU

$$\max(0, x)$$

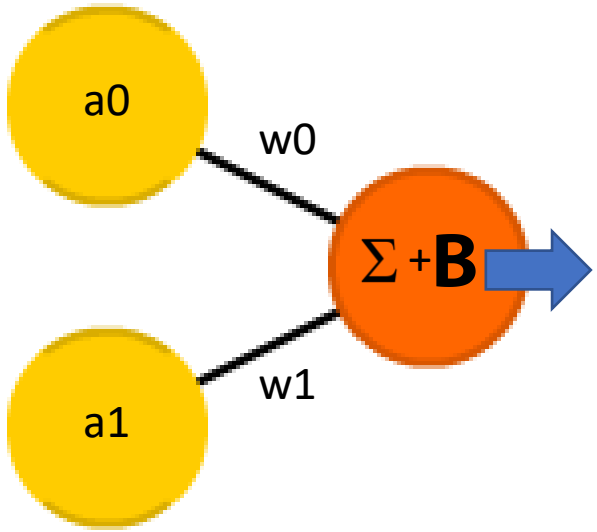


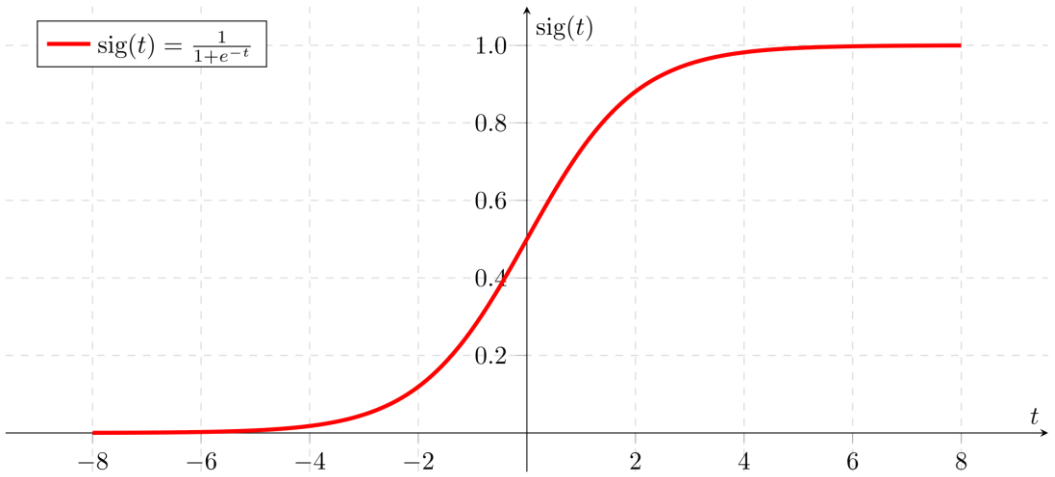
ELU

$$\begin{cases} x & x \geq 0 \\ \alpha(e^x - 1) & x < 0 \end{cases}$$



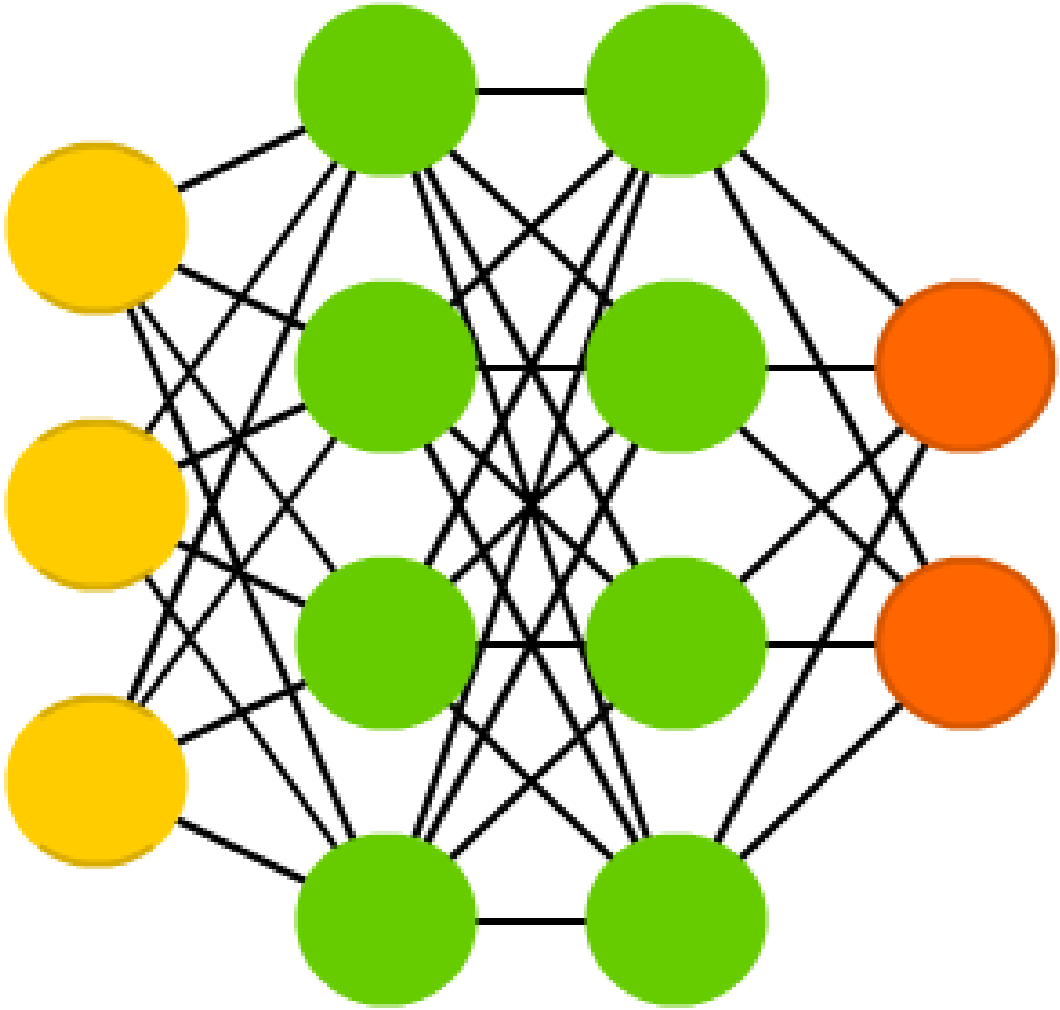
Comment fonctionne un réseau de neurones?





σ (a0 x w0 + a1 x w1 + b)

Comment fonctionne un réseau de neurones?



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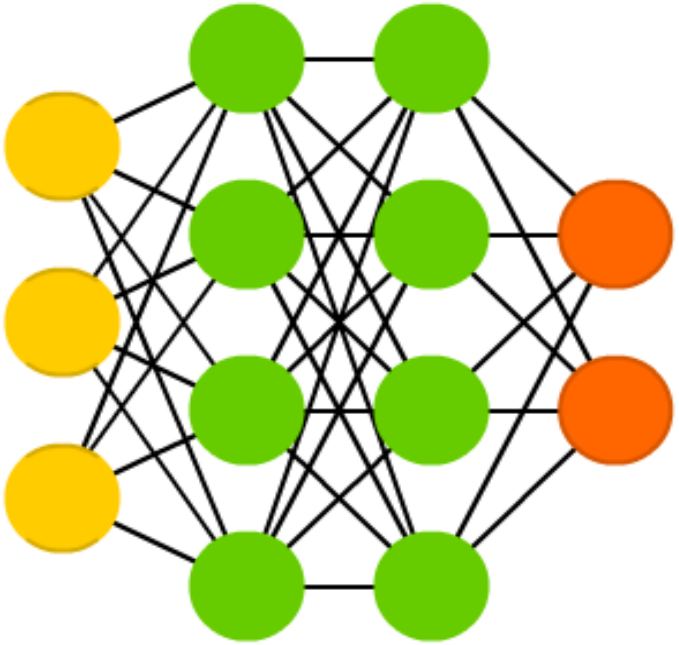
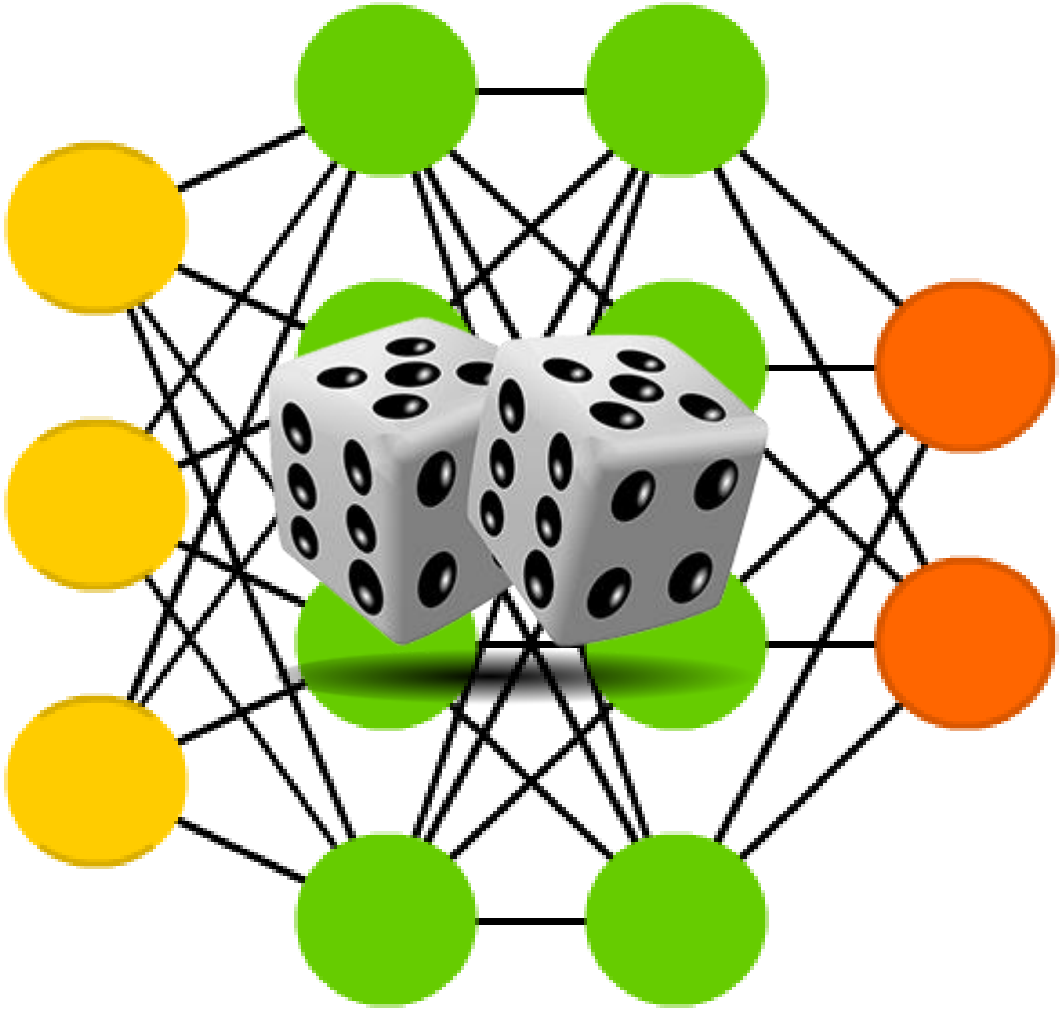


$$\begin{bmatrix} a_0 \\ a_1 \\ \vdots \\ a_k \end{bmatrix} = \sigma\left(\begin{bmatrix} W_{0,0} & w_{0,1} & \dots & w_{0,n} \\ W_{1,0} & w_{1,1} & \dots & w_{1,n} \\ & & \vdots & \\ W_{k0} & w_{k1} & \dots & w_{kn} \end{bmatrix} \begin{bmatrix} a_0 \\ a_1 \\ \vdots \\ a_k \end{bmatrix} + \begin{bmatrix} b_0 \\ b_1 \\ \vdots \\ b_k \end{bmatrix} \right)$$

$$a^{(1)} = \sigma\left(W\, a^{(0)} + b\right)$$

Comment fonctionne un réseau de neurones?



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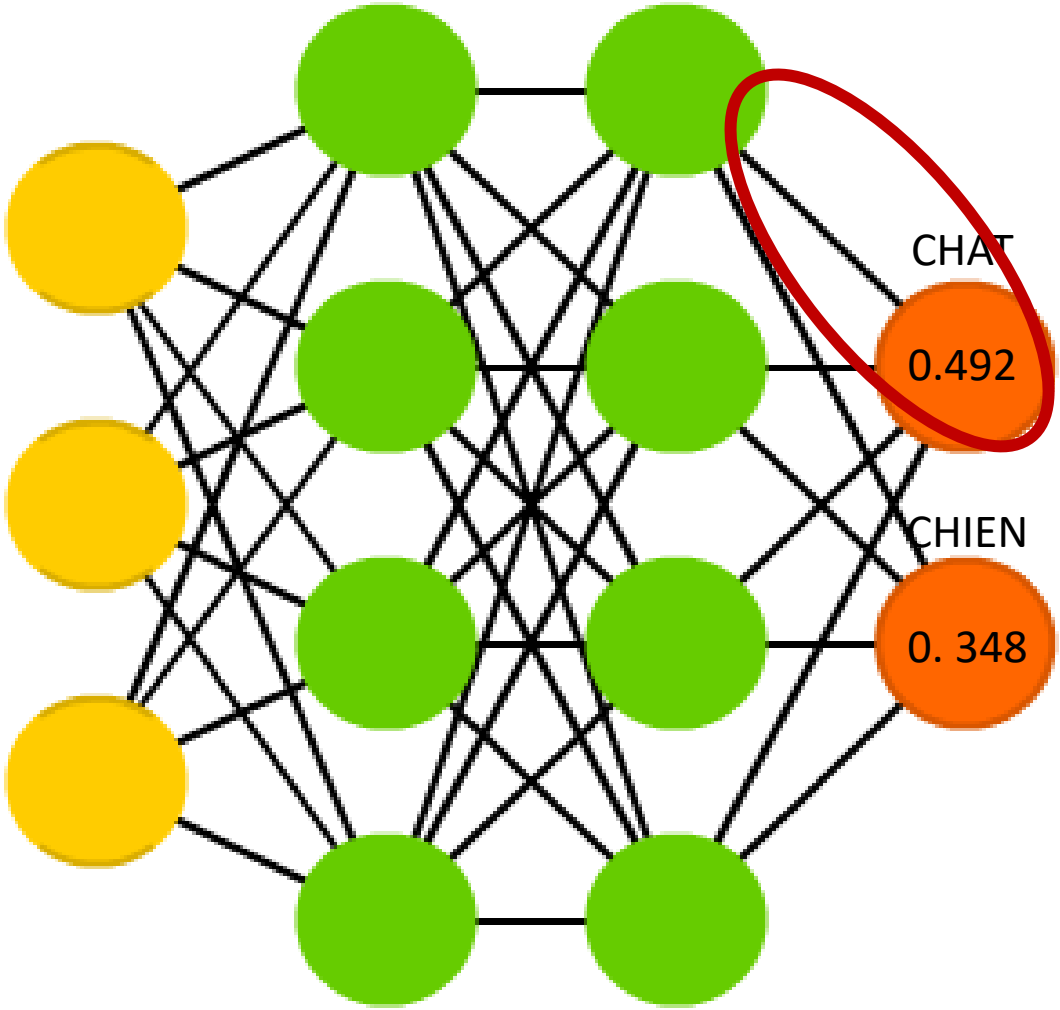
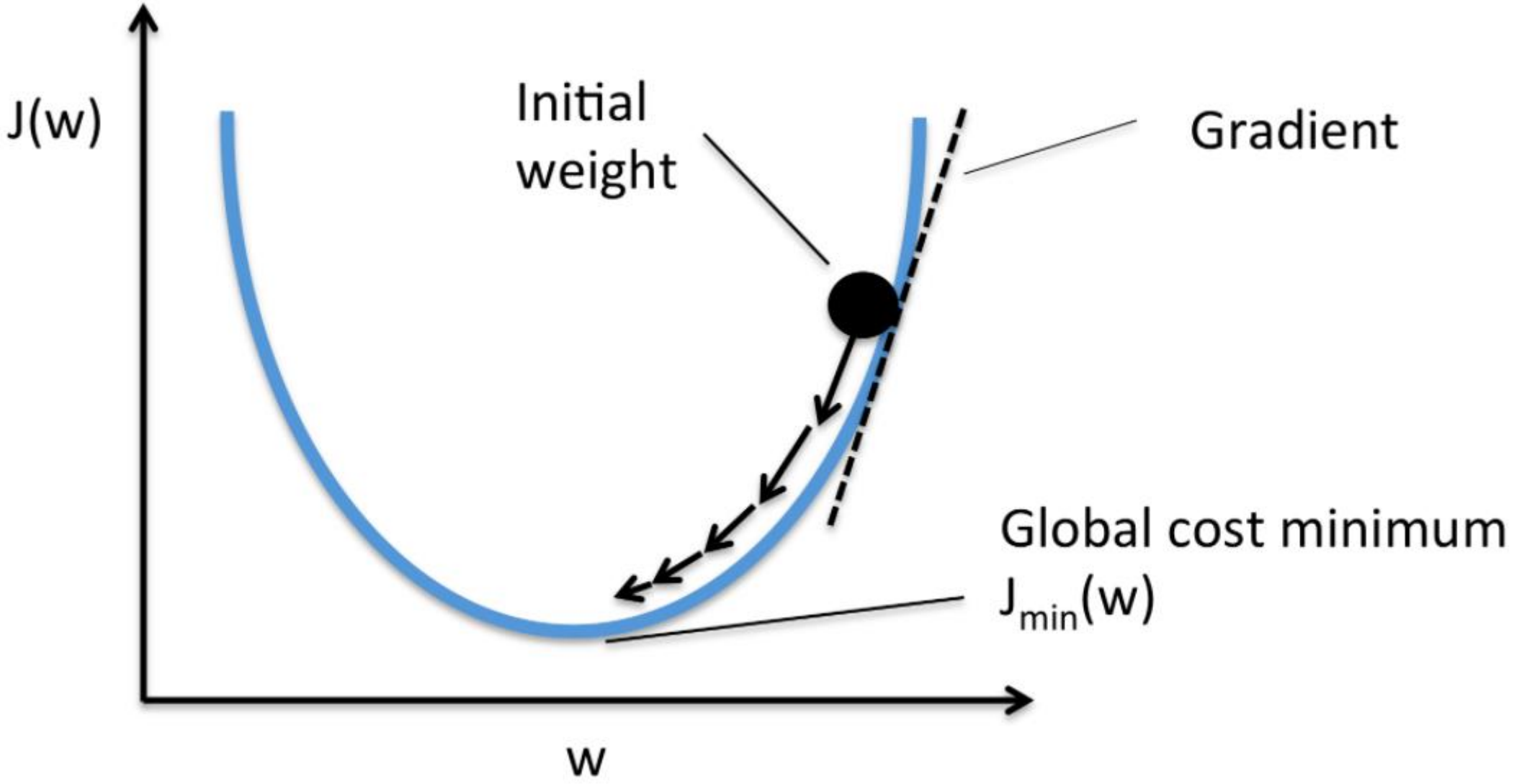
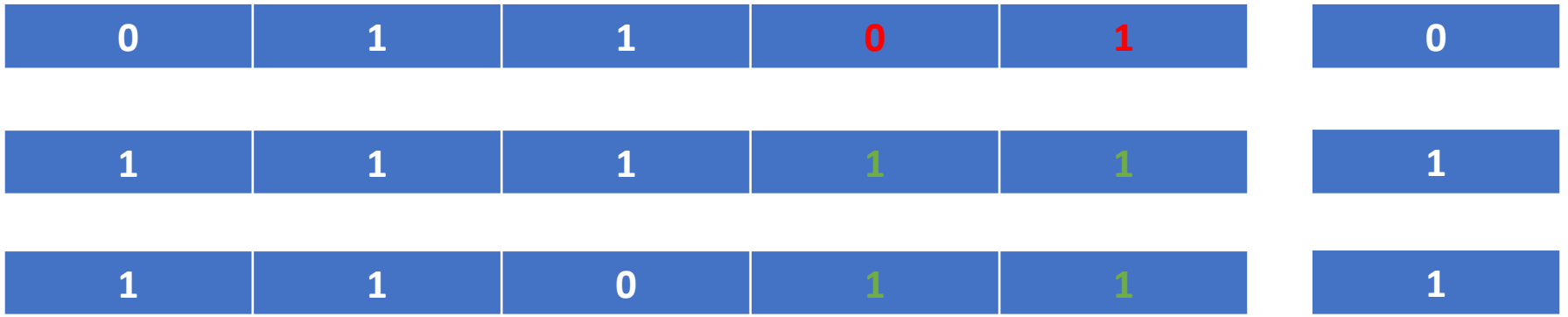


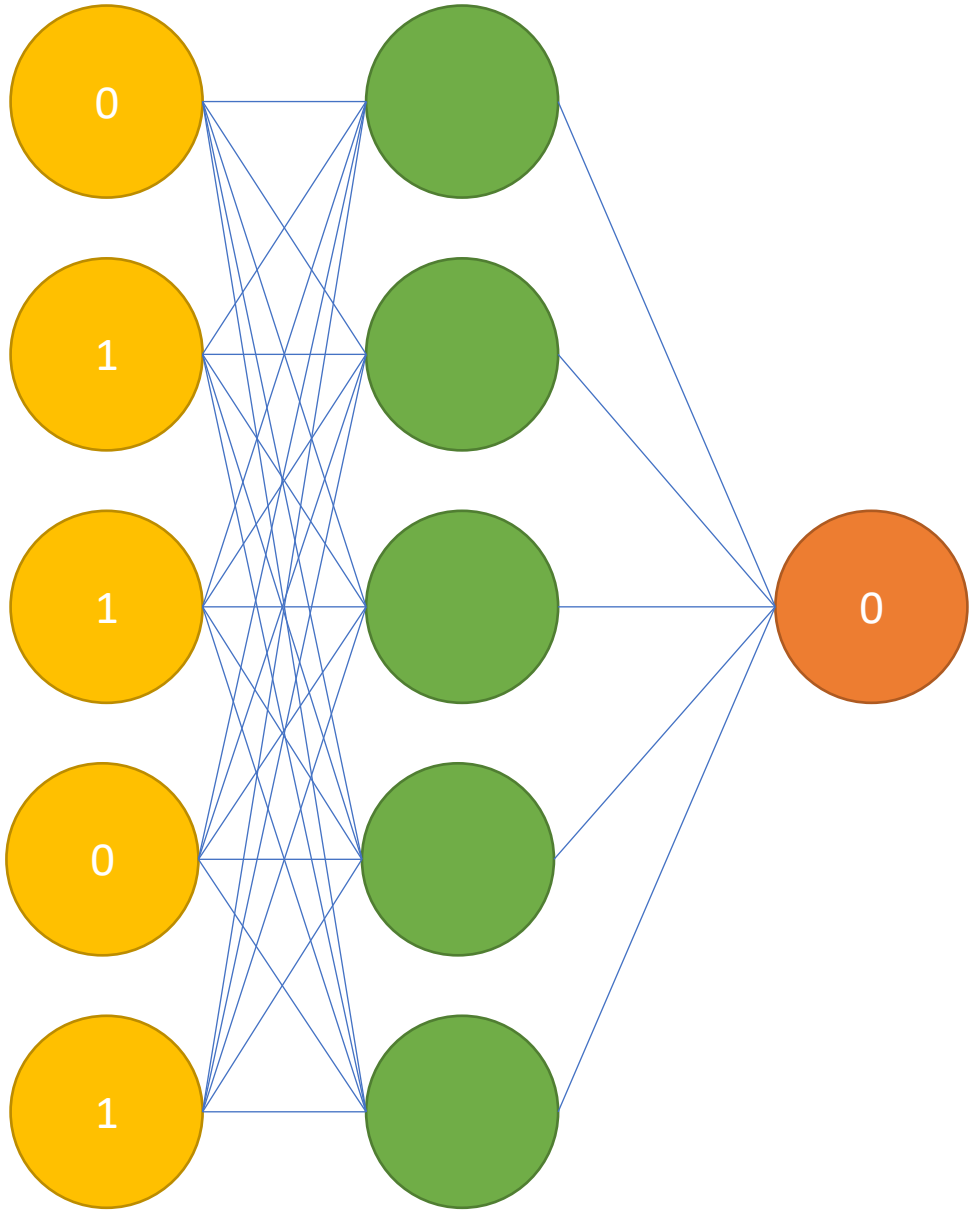
Comment fonctionne un réseau de neurones?



Let's Code – Objectif



Let's Code – Le réseau




<letsCode/>