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Robótica Computacional

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Semana 4 – Detecção e Tracking

Leitura sugerida: Russel & Norvig, Cap. 20, seção 20.5

Tracking de objetos

https://www.youtube.com/watch?v=WyDcXtVb8_U

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Detecção e tracking

Vídeo em: https://www.pyimagesearch.com/2018/07/30/opencv-object-tracking/

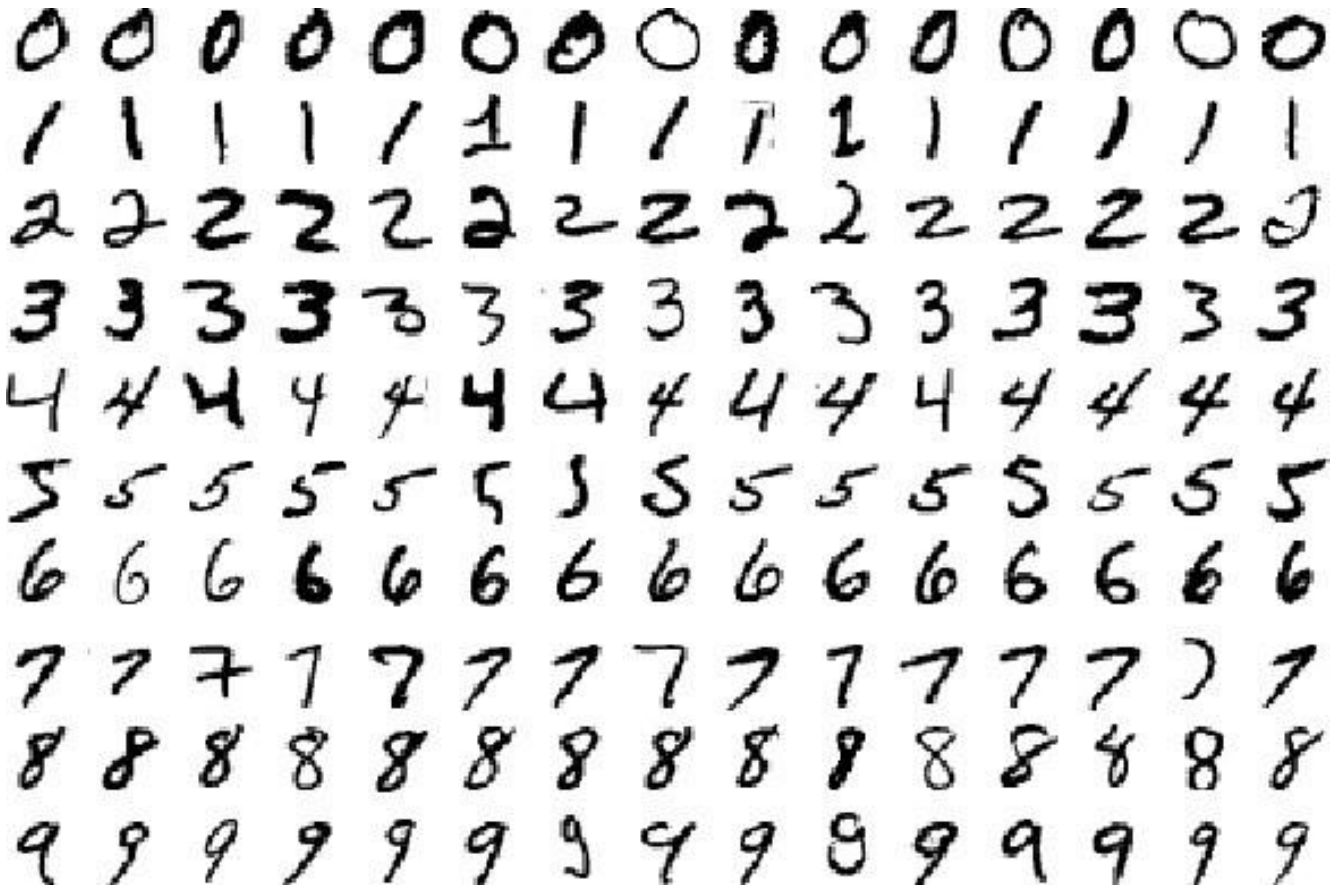
Problemas do tracking:

- Oclusão
- Duplicidade
- Mudança de perspectiva
- Movimento rápido

A detecção costuma ser mais lenta, mas é onde começa

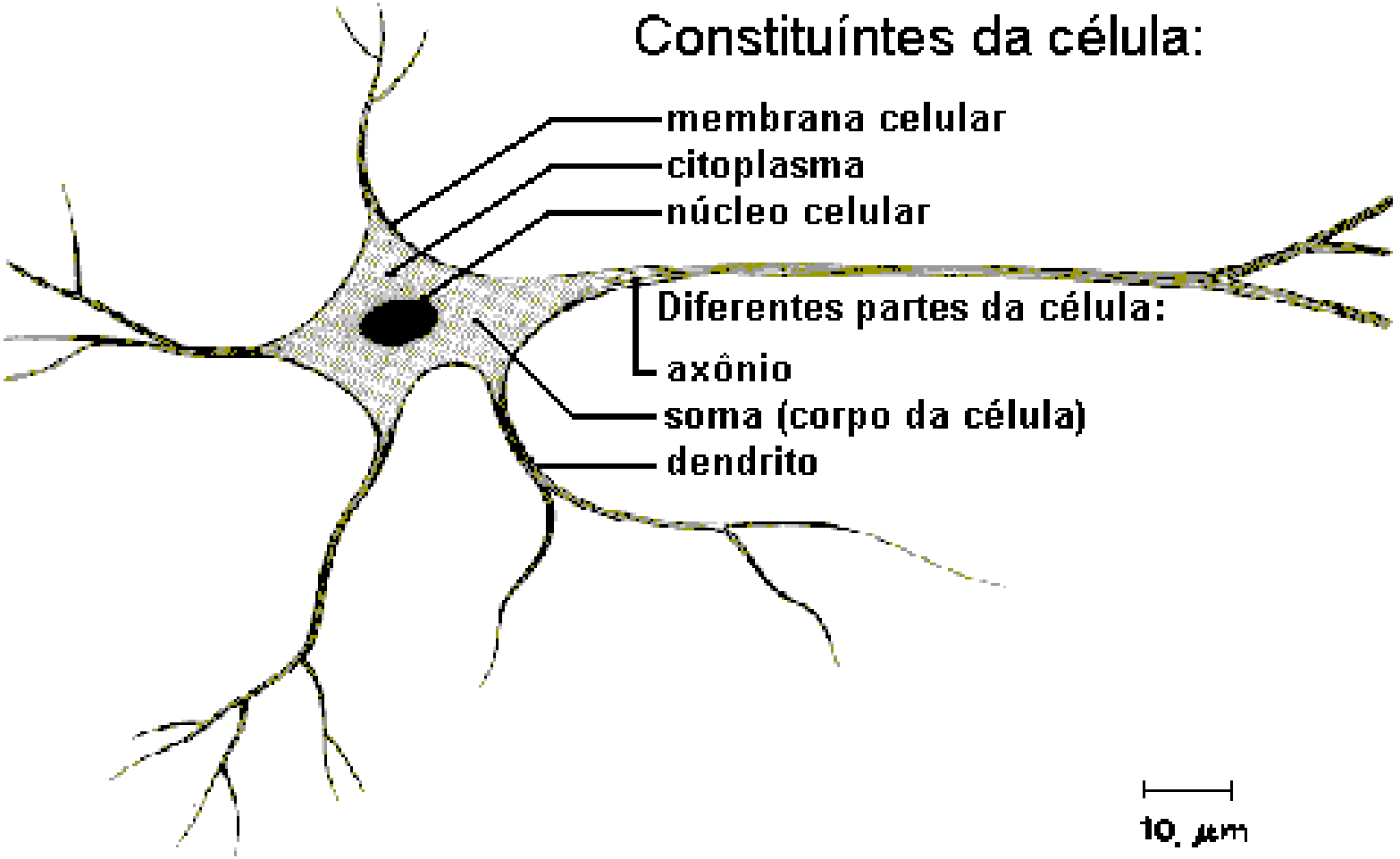
Detecção hoje em dia -> Deep Learning

Detecção de dígitos – MNIST

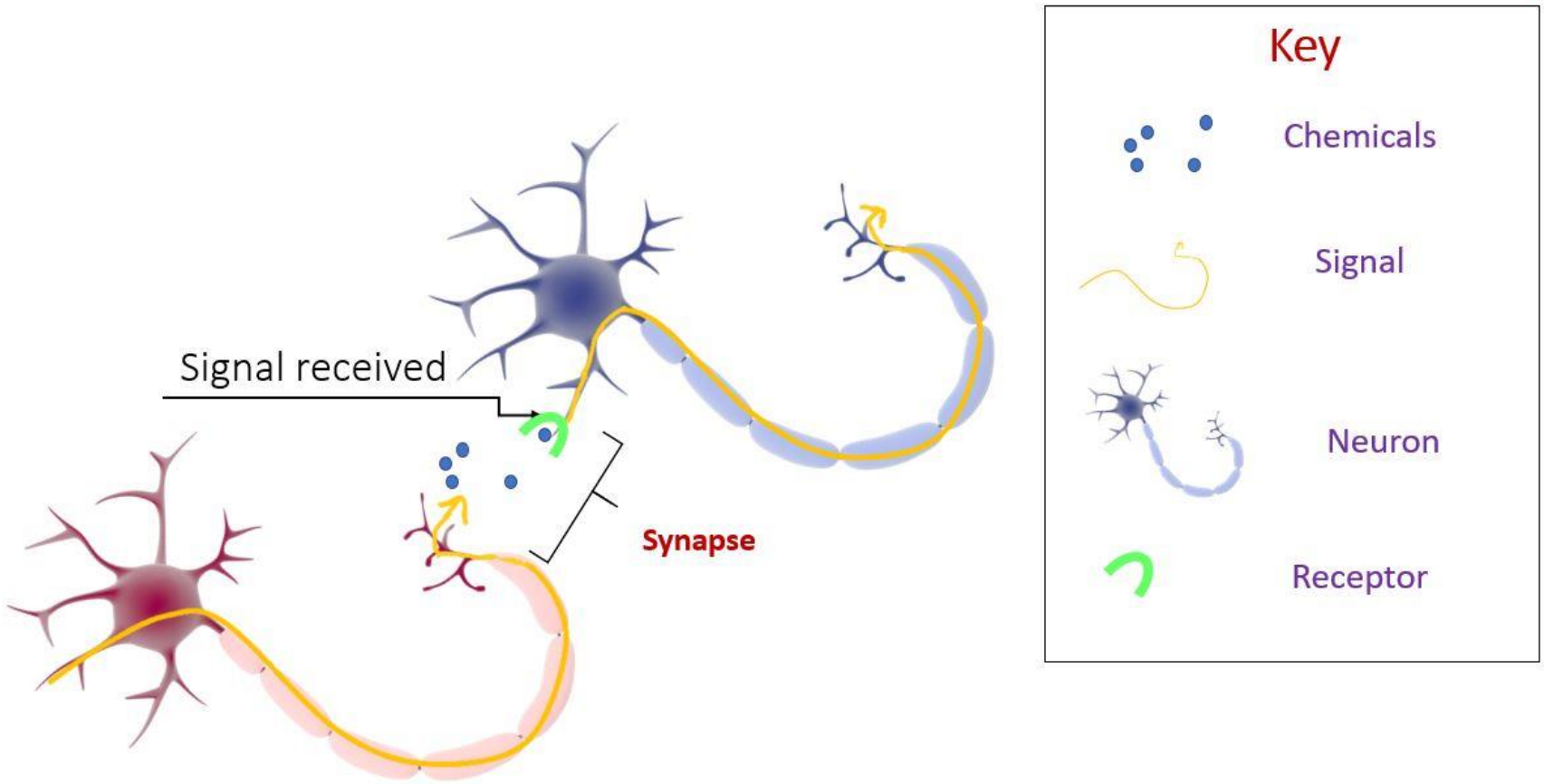


https://twoearth.tistory.com/31

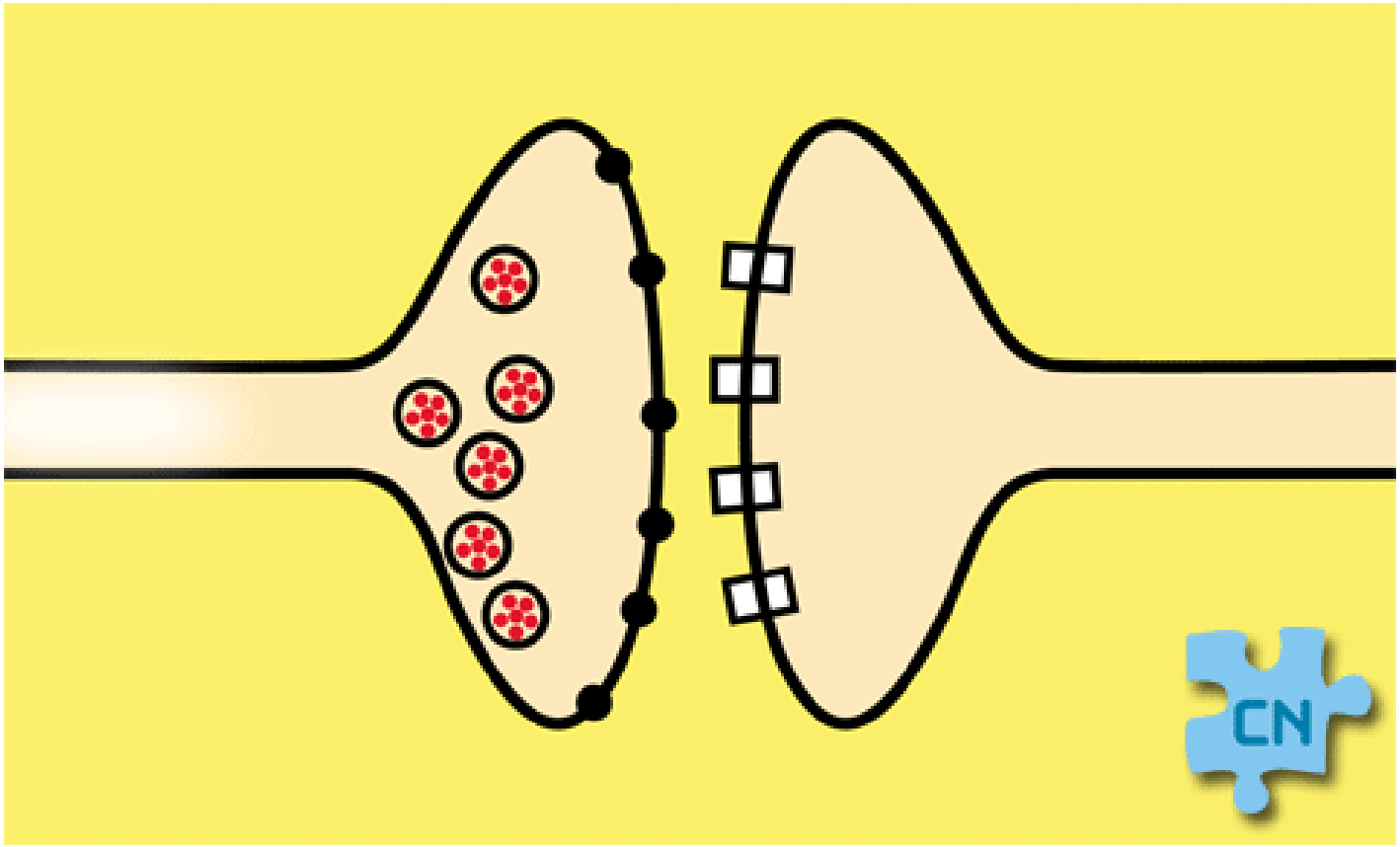
O neurônio biológico



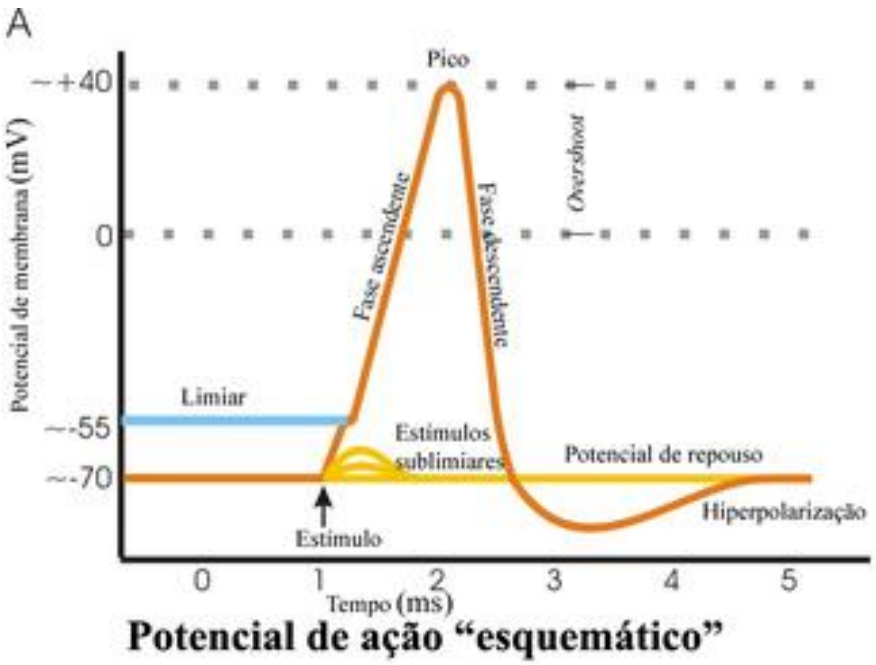
Conexão entre neurônios



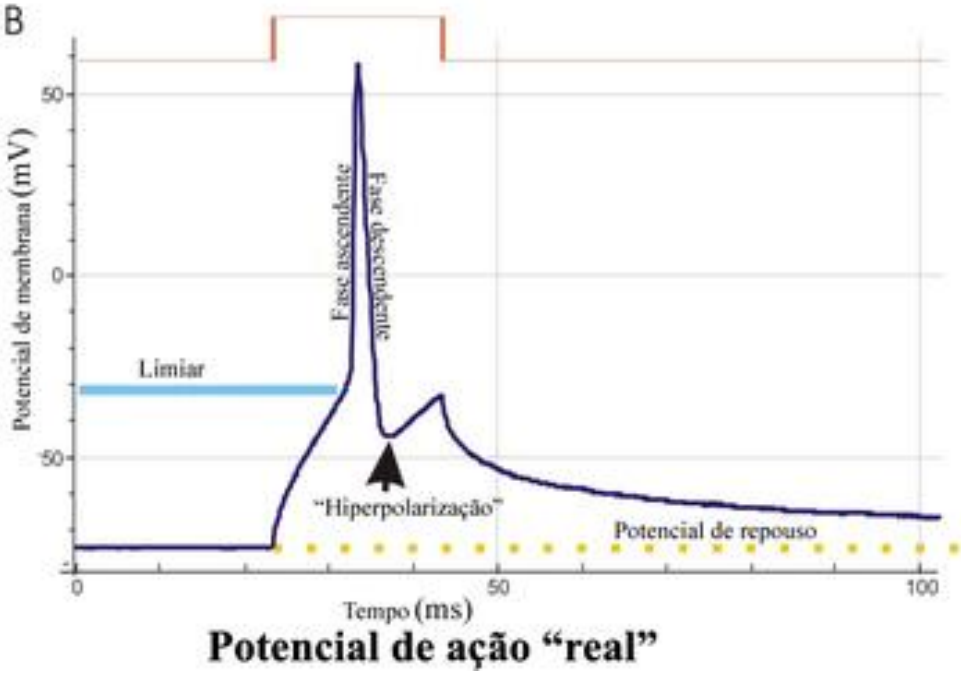
Fonte: British Neurosciense Association



http://www.cerebronosso.bio.br/sinapses/



Potencial de ação "esquemático"



Potencial de ação "real"

https://pt.wikipedia.org/wiki/Potencial_de_a%C3%A7%C3%A3o

Neurônios de camundongo disparando:
https://www.youtube.com/watch?v=W0gwrCIXx40

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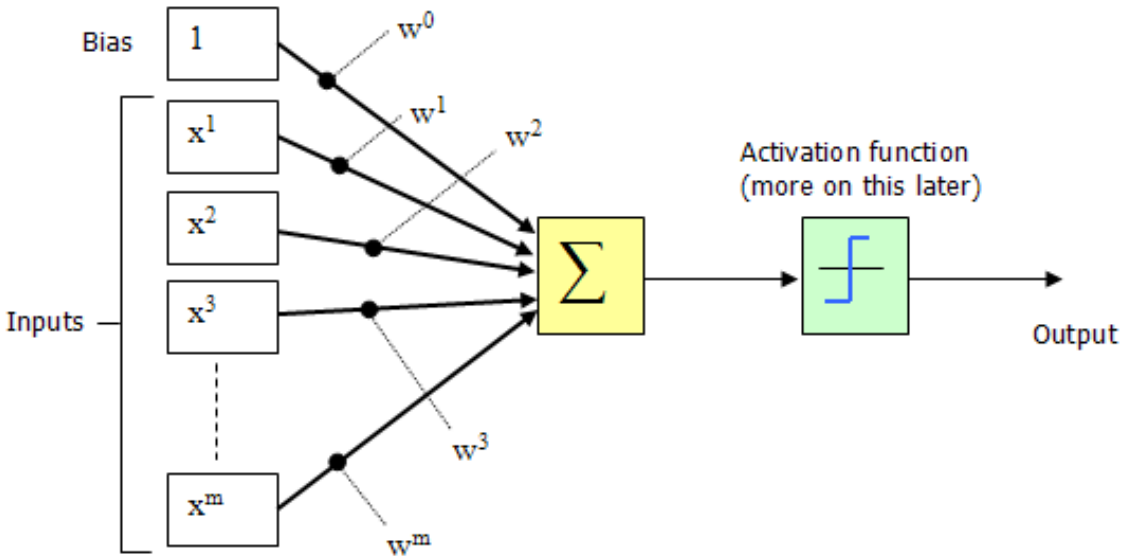
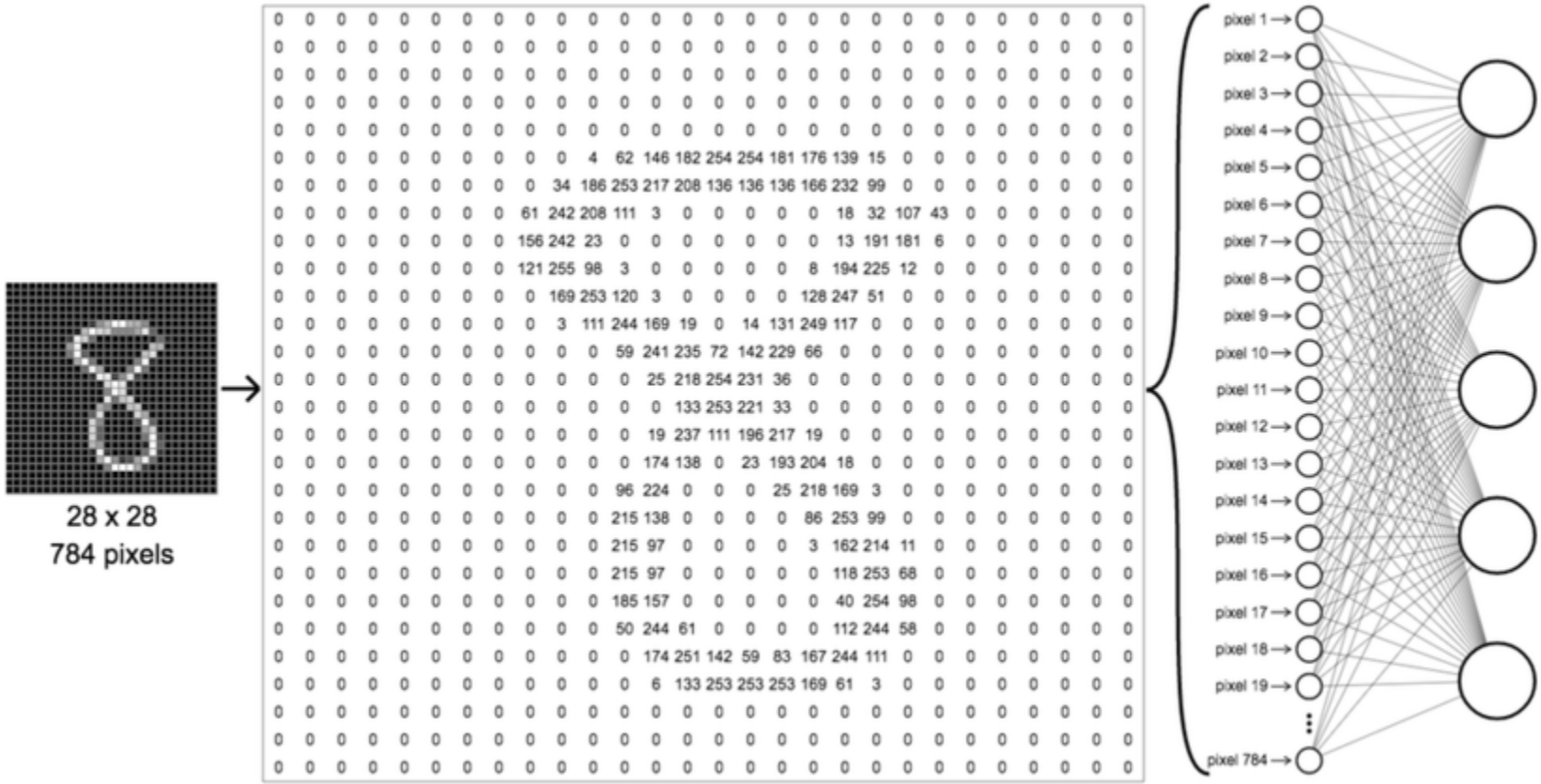
Neurônio Artificial (McCulloch & Pitts)



http://www.codeproject.com/Articles/16419/AI-Neural-Network-for-beginners-Part-of

Múltiplas classes



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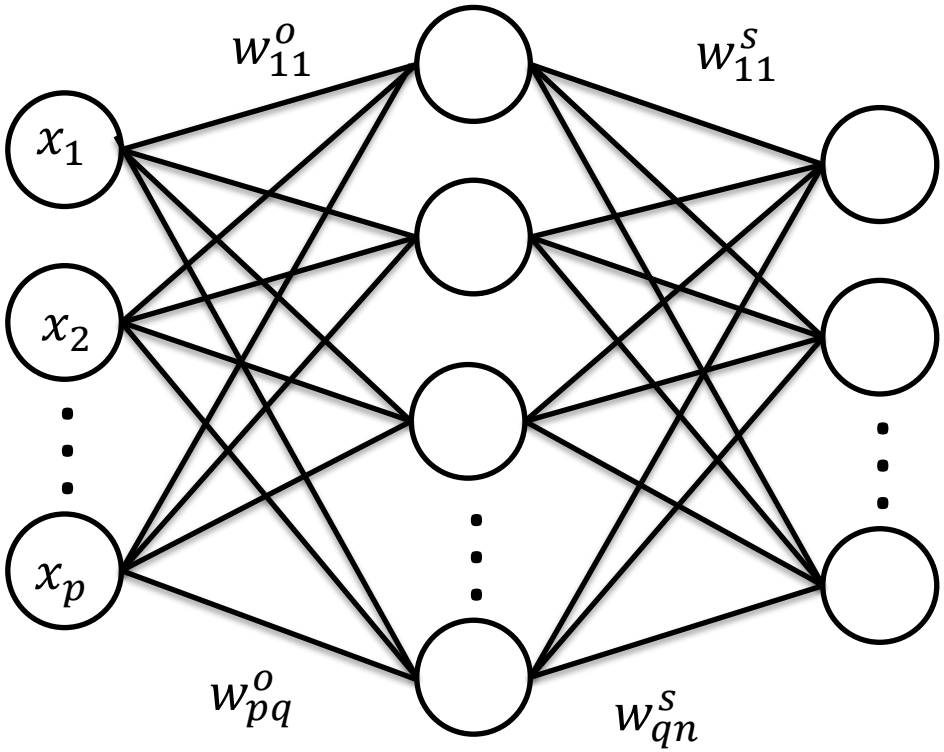
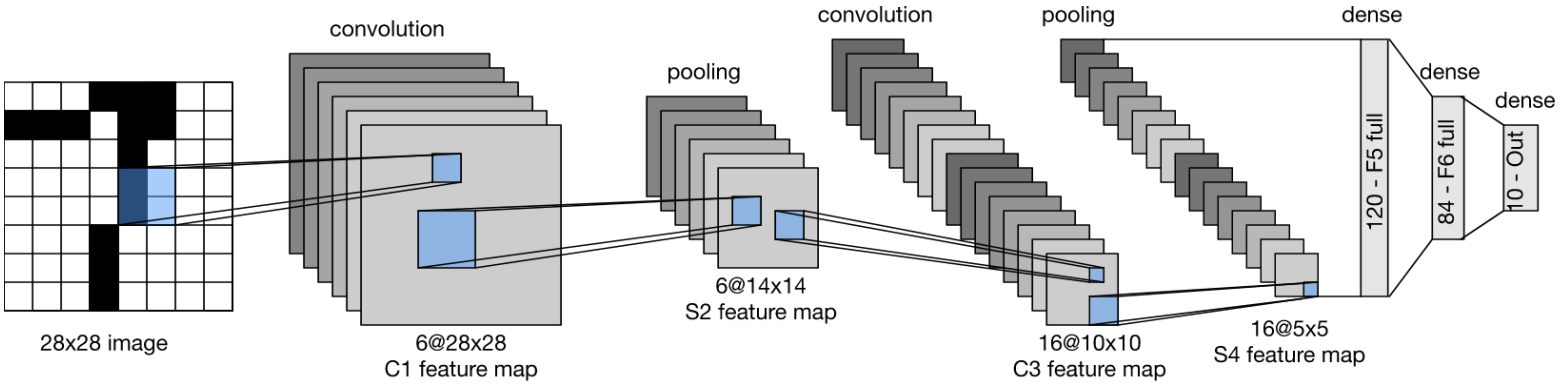
Múltiplas camadas - MLP



Redes convolutivas



https://d2l.ai/chapter_convolutional-neural-networks/lenet.html

Visualização:

https://www.cs.ryerson.ca/~aharley/vis/conv/