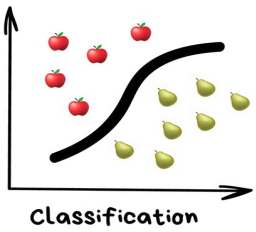
ANN Types

1

- Supervised NN
  - For Classification

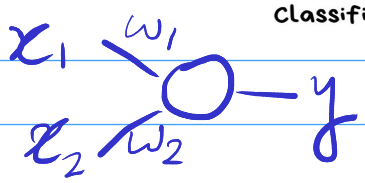


Architectures

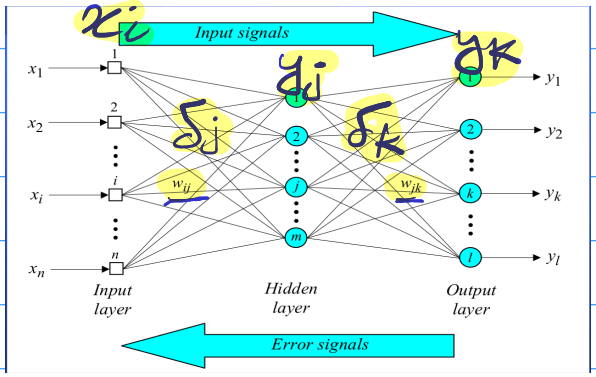
Training examples	
X1, X2	y
2, 4	0
7, 3	1
.....	

Test / Application	
X1, X2	y
7, 6	?

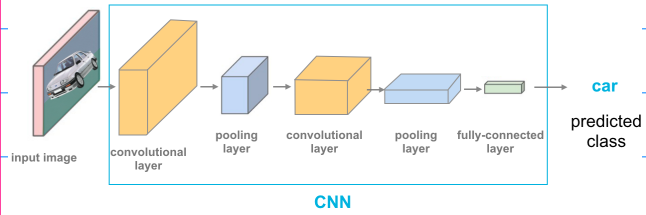
- Perceptron

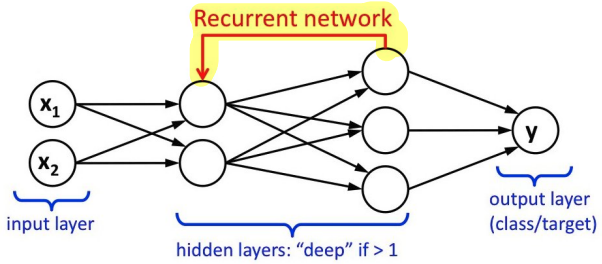


- MLP / MLNN / FFNN / FC

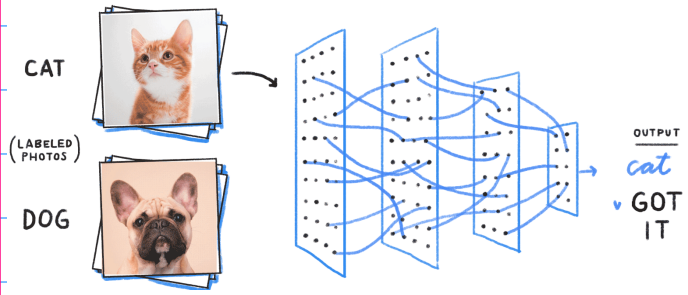


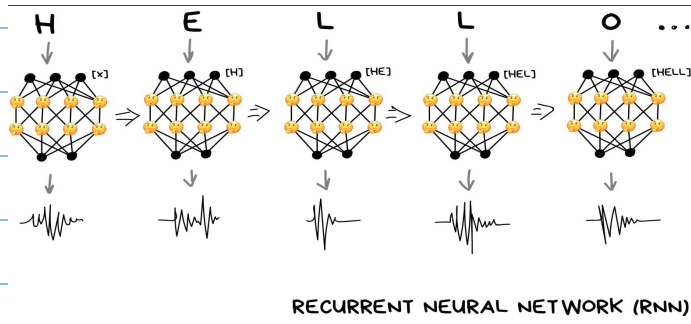
- Deep NN (CNN & RNN)





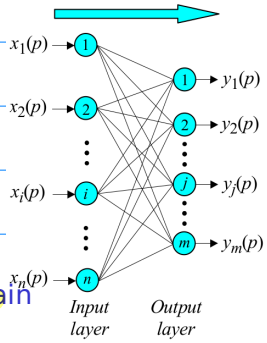
CNN is useful for Computer Vision (CV) (image classification
RNN is useful for Time series analysis and NLP



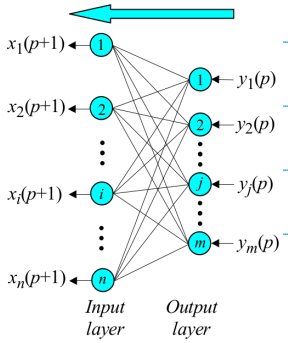


- For Memory
  - Hopfield Network (RNN)
  - Bidirectional Associative Memory (BAM)

The Hopfield network represents an autoassociative type of memory – it can retrieve a corrupted or incomplete memory but cannot associate this memory with another different memory.
Human memory is essentially associative . One thing may remind us of another, and that of another, and so on. We use a chain of mental associations to recover a lost memory. If we forget where we left an umbrella, we try to recall where we last had it, what we were doing, and who we were talking to. We attempt to establish a chain of associations, and thereby to restore a lost memory.

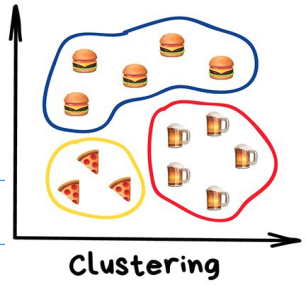


(a) Forward direction.

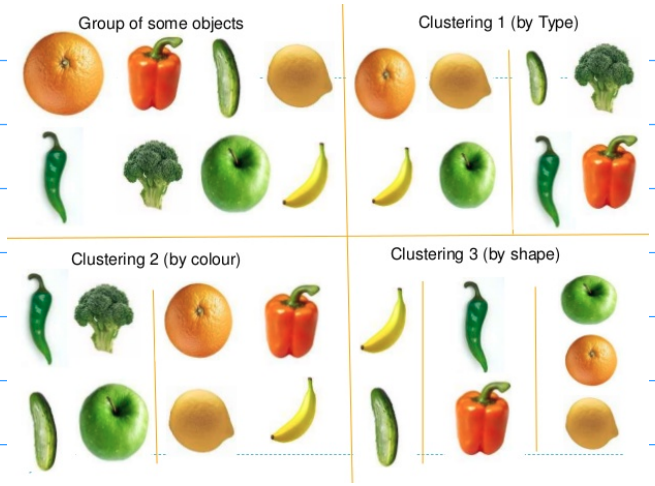


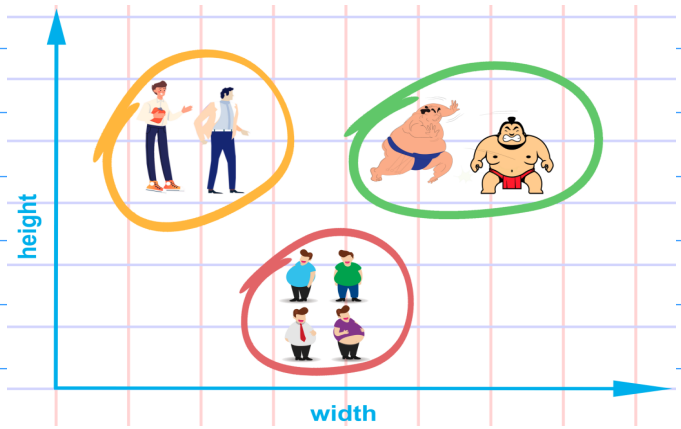
(b) Backward direction.

2 - Unsupervised NN (Clustering)
- SOM, Kohnen Netowrk



X1, X2
2, 4
7, 3
.....





شبكات NN

- supervised
  - Perceptron
  - MLP
  - Deep CNN, RNN
  - Memory (BAM)
- unsupervised
  - SOM
  - Kohonen