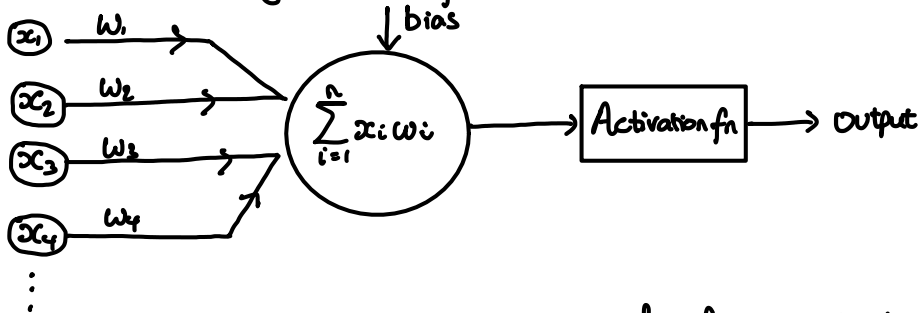# Machine Learning - Architectures
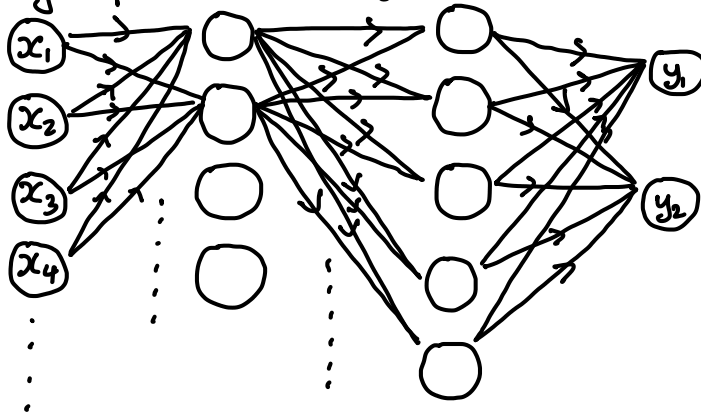
Tuesday 29 October 2024   14:28
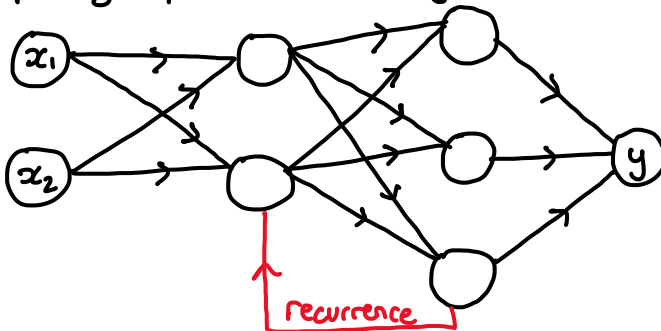
Neuron: A single neuron functions as:

Multi·layer Perceptron: a series of neurons, feedforward network
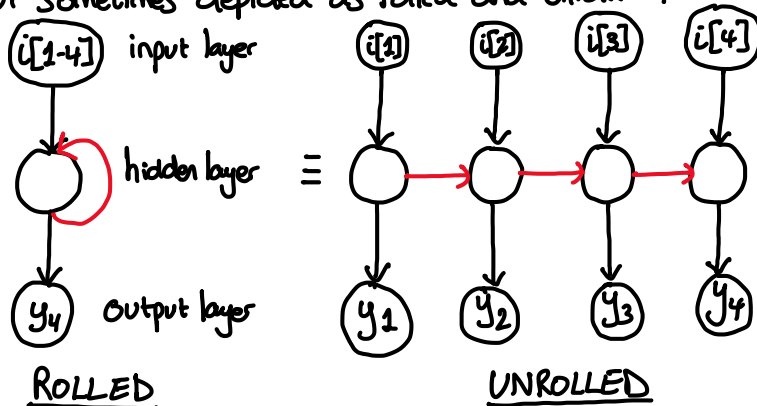
Inner layer/input | Hidden layers | Outer layer/output

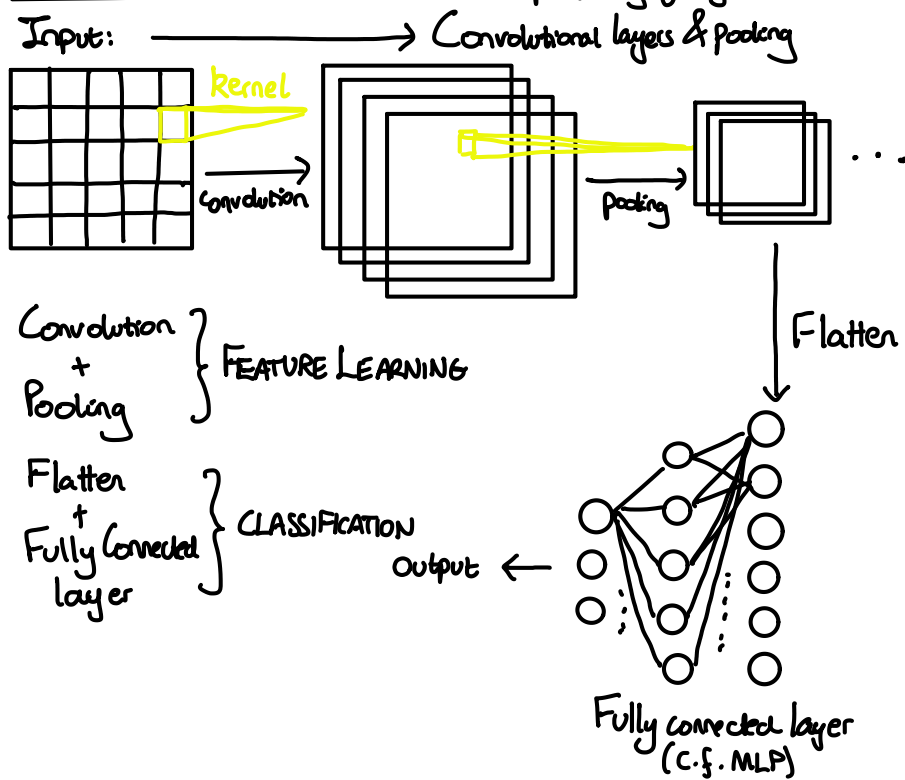**Recurrent Neural Networks**: hidden layers have recurrence

Input layer | Hidden layers | Output

Or sometimes depicted as rolled and unrolled:

ROLLED   UNROLLED

Convolutional Neural Networks: specifically for grid like structures

Input: ⟶⟶⟶⟶⟶ Convolutional layers & pooling

kernel

Convolution

pooling

. . .

Convolution + Pooling } FEATURE LEARNING

Flatten

Flatten + Fully Connected layer } CLASSIFICATION

Output ⟵

Fully connected layer (c.f. MLP)

UNets: Encode then decode

↓ = pooling   ↑ = up convolution
⟶ = convolution

encoder

output

decoder

bottleneck