1 Limitations of traditional Neural Networks

A traditional Neural Network is a simple feedforward neural net that maps a feature vector of given dimension to an appropriate output. Typically it is a Multilayered Perceptron which allows a unidirectional flow of the signal, i.e from input to output with the optional usage of one or more non-linear hidden units. They are extensively used in pattern recognition with either a top-down or bottom-up organization. However, they suffer from one major limitation : they cannot use the previously established reasoning about past information(events) to concur about future ones i.e. they cannot use internal memory to process sequence of inputs.

2 Recurrent Neural Networks

The Recurrent Neural Network address the issue of *information persistence* in memory-less Feedforward neural networks due to the presence of internal loops.Such loops help pass the information from one step of network to another.
They are considered to be very powerful because of two main properties: their distributed hidden states allow them to efficiently store past information as well as the non-linear dynamics to update these states.
Consider the example of a neural net classifying the event happening at every point of motion picture. This may require the network to be able to connect information of previous video frames to the present frame.
RNNs also find typical use cases in language modeling