Deep neural networks: introduction (1)

-From image analysis to autonomous cars and speech recognition, most of the recent advances in machine learning (**ML)** highlighted by the mainstream press are based on Deep **Neural** Networks **(DNN)**.

-The field of **Deep** Learning (**DL**) is interested in a number of neural network architectures, such as Recurrent **or Recursive Neural Networks** (**RNN**), and in particular **Long Short-Term Memory (LSTM) networks** for modeling sequential data (such as text or temporal data), and Convolutional **Neural Networks (CNN)** for image processing.

● The choice of the type of activation function to be used, both in the convolution layers and in the FCL output layer, is very important when building a CNN network. In general, the **Relu** activation function is often used in the convolution layers in a CNN network, but this function is not zero-centered. As the sigmoid activation function (hyperbolic tangent, for example) is a zero-centered function, and learning CNNs with this type of activation function makes learning very fast and efficient, this sigmoid activation function is often preferable for building high-performance CNNs. Note that the CNN is often used as a classifier, but it can also be used to predict numerical values.