**Deep Learning**

Deep learning is a subfield of machine learning concerned with algorithm inspired by the structure and function of the brain called artificial neural networks. It allows computing model that are composed of multiple processing layers representing of data with multiple levels of abstraction. Deep learning has aided image classification, language translation, speech recognition. It can be used to solve any pattern recognition problem without the interference of a human.

Speech recognition is one of the first successful case of deep learning. The factors that were responsible for the importance of high-quality sound model are making the network deeper makes them more powerful, initializing the weight wisely and using much faster hardware makes it possible to train deep neural network. And using a larger number of output units greatly improves their performance. The new types of deep neural network models and learning techniques hold promise for creating better technologies in the future to develop speech recognition and the application.

Image classification is a tough task as it depends on large amount of intra class variability. Several efforts have been made to counter the intra class variability by designing low level features for classification task at hand. For example, Gabor feature and local pattern is used for texture and face classification and SIFT and HOG feature for object recognition. Low level features can be hand crafted with great success for some specific data and tasks. Deep learning approaches can be found in the literature for performing forecasting task ai it is used to work along with RBM. It is also used to predict the temperature of an indoor environment. It is also used for time series forecasting which uses stacked auto encoders to predict the flow of traffic from a big data set.

In conclusion, deep learning is important in today’s world as it is used for image classification, language translation, speech recognition and many other things. While applying deep learning a lot of independent network layers are required to work together and produce better result.