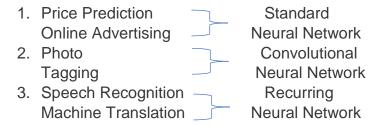# Neural Networks and Deep Learning

Week-1

This is my first step in Deep Learning after a brief introduction of Neural Networks in Andrew Ng's Machine Learning Course by Stanford University.

The course begins with the phrase "AI is the new Electricity", similar to how Electricity has transformed all the industries 100 years back and now AI would bring a similar transformation and Deep Learning is driving these developments.

So, this pretty much answers why I am doing this specialization- I want to be a part of this change rather than seeing the change.

In the 1st week, Andrew Ng starts off with his classic housing prediction example to show how features (parameters) are selected in a Neural Network (NN).

We discuss about different types of Neural Networks and also see what to apply when:

1. Price Prediction   Standard
   Online Advertising   Neural Network
2. Photo   Convolutional
   Tagging   Neural Network
3. Speech Recognition   Recurring
   Machine Translation   Neural Network

We try to understand the fundamental difference between structured and unstructured data and also evaluate the reasons why Deep Learning is suddenly taking off due to 2 primary reasons:

1. More data
   - Size of the Neural Network
   - Training data
2. More computational power

We understand the importance of Vectorisation and how it helps us to remove loops which helps us to iterate through the below diagram quickly: