Neural Networks:  
How can image recognition model wok so well if pixels are a bed set of features? It’s because they have a really good feature extraction and we can calculate interesting feature from the original pixels.   
Features are just number: imagine having 2 features for pets (tail length and ear pointiness). These 2 numbers can be combined to create a new feature. To combine 2 or more numbers to get a new feature there are lot of way, but simplest one is to add them together. Now we have a new feature: tail length + ears pointiness. Since ears pointiness is a big difference between cat and dogs, we can give a Weight to the 2 values. We can make tail length \* 0.5 + eats pointiness \* 10.   
This is an easy machine learning algorithm, and to perform complex problem you need complex features. Actually no, deep Neural Networks, that had solved many complex AI challenges, works almost exactly like this. These simple calculations can scale up well when it comes to massive data. You may starts with hundreds or even thousands of features, not just 2, and from these thousands Features you can create other Features by adding them with Weights.   
This sum is called Neuron. This result is just one unit of the Neural Network, but with thousands of new features, you can have thousands of Neural Unit.  
The word “deep” means that you’re working with a lot of neurons creating new neurons. This allows to start with simple calculations and arrive manage very complex Features.