Summarization of   
What is Deep Learning?

Summarizing your article in crisp 20 points

The phrase “deep learning” probably conjures up images of sentient robots staging a hostile takeover.

But in reality, deep learning is just another way to describe large neural networks, a technology you encounter every day when you browse the Internet or use your mobile phone.

Among countless other applications, deep learning generates captions for YouTube videos, serves up appealing food photos on Yelp , and answers iPhone users’ questions via Siri .

And as data scientists and researchers tackle increasingly complex deep learning projects, this type of artificial intelligence will only become more entwined in our daily lives.

The simple answer is that deep learning is larger in scale.

To make sense of observational data (like photos or audio), neural networks pass data through interconnected layers of nodes.

When information passes through a layer, each node in that layer performs simple operations on the data and selectively passes the results to other nodes.

Each subsequent layer focuses on a higher-level feature than the last, until the network creates an output.

And here’s where users typically differentiate between neural nets and deep learning: A basic neural network might have one or two hidden layers, while a deep learning network might have dozens or even hundreds.

For example, a simple neural network with a few hidden layers can solve a common classification problem .

But to identify the names of objects in a photograph, Google’s image recognition model , GoogLeNet, uses a total of 22 layers.

However, more layers means your model will require more parameters and computational resources and is more likely to become overfit.

The more data you train it on, the more accurate your deep learning model will be.

(In 2012, Google used 10 million digital images taken from YouTube videos to train a deep learning model to identify cats.

Simply put, training a deep learning model means that you’re feeding data to the model, getting an output, and then using that output to make adjustments.

If it doesn’t, you can change the way the network’s nodes are weighing certain characteristics of the images (the presence of whiskers and a tail, for instance).

Weight, in this case, is a number that represents the importance of a characteristic.

Typically, a data scientist will engineer features for the model to consider and feed it labeled data during the training process (e.g., a series of labeled photos of cats).

But one of the amazing things about deep learning is that you don’t necessarily have to complete this step.

To continue with our Google example, the company’s cat-identifying model learned to pick out 20,000 distinct object categories , unsupervised .