**Machine learning** (**ML**) is the [scientific study](https://en.wikipedia.org/wiki/Branches_of_science) of [algorithms](https://en.wikipedia.org/wiki/Algorithm) and [statistical models](https://en.wikipedia.org/wiki/Statistical_model) that [computer systems](https://en.wikipedia.org/wiki/Computer_systems) use to perform a specific task without using explicit instructions, relying on patterns and [inference](https://en.wikipedia.org/wiki/Inference) instead. That is we allow the computer to teach itself a set of rules by going through examples, referred as input features. Various algorithms have various learning methods. Before we go any further, let’s look at what Machine Learning is great for,

* Solving problems which require a long list of calculations and has a long list of rules.
* Solving complex problems where traditional methods may not work or the traditional approach gives a not so suitable solution.
* Problems where the environment keeps fluctuating or updating at a regular basis.

For solving any machine learning problem, we need a collection of instances or examples, known as dataset, which contains input features and the output or target feature. This dataset contains two parts, the training data and the testing data. Training data consists of the examples which are used to teach the model, so that it can creates its own rules. The testing data is used to evaluate the performance of the model. The input features are the input variables that we will be giving during tests, and the computer needs to give the predicted output feature for the given input variables. This output feature is also known as a Label. That being said let us look at the available methods to apply Machine Learning to any problem:

On a broad term, Machine Learning can be divided into Supervised Learning, Unsupervised Learning and Reinforcement learning. In this series, we shall only be focusing on supervised learning methods.

Supervised Learning methods, the training data contains the solutions, or the labels along with the input features. While in unsupervised learning methods, the labels or solution are not present in the training data. We shall be looking at various supervised learning methods in the coming videos, but before that, we shall be looking at two very important topics, Data Pre-processing and Data Visualization. Both of these topics will get their series in the coming time, for now we shall only go through the basics of them in the coming videos.