

Machine learning is the process of using large amounts of data to train a model for a specific purpose.

Data is important in machine learning because it determines the direction the model is guided towards. If the data is flawed the resulting model will not be effective in solving the problem it was designed for. Pattern recognition is important in machine learning because it gives models the ability to take data and make predictions. Accuracy is important in machine learning because without it the resulting model will not be particularly useful at solving a particular problem, which is the point of machine learning in the first place.

Artificial intelligence is designing programs to be able to solve complex tasks. Artificial intelligence can use problem solving techniques to solve these problems such as bayesian reasoning or knowledge bases. Machine learning always trains a model using data to solve a problem. These problems tend to be complex and difficult as well, so machine learning is thought of as a subset of artificial intelligence.

Machine learning is used in facial recognition algorithms, which is used by the US government to speed up the process of reentry of citizens from international travel. Traditional programming would not be able to quantify and identify the unique characteristics of each person's face and identify it, especially because the way people look can change on a day to day basis. Machine learning powers the TikTok recommendation algorithm. Traditional programming would not be able to make the TikTok recommendation algorithm. The TikTok recommendation algorithm is effective because it makes good use of the data that it collects on user viewing habits, which traditional programming would not be as effective at using.

An observation is a specific row of data that shows an instance of the values of all the relevant data columns that were collected. A feature is another name for a column of data, which shows one of the measurements present in each observation that can be used to predict a specific value or factor. Quantitative data is data that is based on numbers and works with mathematical operations. Qualitative data is factors and all non-numeric data and categorizations. These are the building blocks of data, which is an essential part of machine learning. Without an understanding of these concepts machine learning would not be effective at making predictions based on data sets.

I think machine learning is neat. I like the idea of applying machine learning to solve common abstract strategy board games but I am not eager to understand the data collection process that would be necessary to train the model.

