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10th, December 2018

What is Machine Learning

Humans are born into the world without knowledge, with each encounter we continue to learn and improve. This is similar to the concept of Machine Learning. For machine learning, it is given information, but over time it will make the decision itself based on history of data, and analyzing what it already knows. It will see patterns, and recognize a trend. Machine learning is an important part of our lives today through big data, business decisions, and even day to day uses like recommendations on Netflix, spam filters, and voice recognition.

There are three typical processes of Machine Learning, training, validation, and testing.

Training starts off with feeding data to the machine to let it analyze the data set. It is usually filled with both positive and negative data to see what trends and algorithms it will produce. The machine usually goes through several training sets to see which algorithm produced is the best fit. After the training, there is a validation stage. This is where they test it for errors, they start by running the algorithm produced from the training set and see which one produces the least errors and meets their standards. The validation set then becomes part of the training set as well. Lastly they run a test set which is the similar to validation, but just a last measure to check for error.

A form of Machine Learning that we see everyday is Personal Assistants. There are popular ones examples like Alexa and Siri. When you use the Personal Assistant they look at what you asked, saves it and keeps the information to use for your next encounter. If they see that every Friday you ask to set an alarm at a specific time they will know that the time you set is important. It will keep using and analyzing the information that you provided, creating patterns to benefit you.

On Amazon you can see Machine Learning being essential to their business, where they are recommending different products based on what was previously bought. These recommendations are really accurate to what I buy, and it will usually get me to add another item to the cart. What it actually does is look at my purchase history, see what type of ads I look at and based on that, it gives me a recommendation. I could also say it is similar to what we did in class with R, where we looked at the lift value and confidence. They look at overall patterns, see what product can pair with another product and why. It works really well because there are a lot of consumers on Amazon as well. It can use data from all their consumers to see a general trend, but refine itself through my personal data.

Thomas H. Davenport states in a Wall Street Journal post that “Humans can typically create one or two good models a week; machine learning can create thousands of models a week.” The comparison it states is that machines are much more efficient than humans finding algorithms that fit their case. This is really useful in business environments where you have to be competitive in order to stay on top of business. Other than the two uses stated in the previous paragraphs, you could also use these tools for transportation, and healthcare as well. For transportation you can find the most efficient path, critical hours of the day, and different routes to run. For healthcare you can find common traits for a disease or problem which helps diagnose issues quicker. All of these usages are beneficial to everyday life and improves our quality of life. The more data they can get, the better they can analyze patterns and find solutions to our problems.

In conclusion Machine Learning is an Artificial Intelligence that continues to grow through data. It learns by looking through a dataset and find trends and create algorithms. Right now it is being used and implemented to a lot of daily activities such as smartphones, shopping, and entertainment, but it will be implemented all over our lives in the future. There is so much growth and usages of Machine Learning that in the future our lives will be surrounded by it.

**Sources**

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