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Introduction to Machine Learning

Machine learning is a subfield of artificial intelligence which involves a system that learns from a large amount of data and identifies patterns with minimal human intervention. The system must master pattern recognition in order to emulate the learning part of machine learning. It is crucial that the data is collected accurately and tested in large quantities to ensure that accurate models are created. If a good system is developed with good data, the system may be able to recognize unfamiliar objects, recognize objects accurately from various angles, and recover patterns in instances of missing data. A pattern recognition system can discover patterns that are hidden in large collections of data.

Product recommendations on Amazon is an example of a machine learning application. Amazon will track a user's behavior based on their previous purchases, patterns in their search history, and cart history. They will then use this data for recommendations. This is done in machine learning as the system tries to learn patterns from the data to make predictions. Another example is image recognition on an iPhone. This will use pattern recognition to try to remember a face from the camera to unlock the phone.

The discipline of Machine Learning has a number of commonly used terminology that is crucial to know when studying the field. An observation is another term for a row in a data set while a column can be called a feature or an attribute. Quantitative data is data in the form of counts or numbers where each data set has a unique numerical value. Regression is a type of machine learning where the target is a quantitative variable. Qualitative data is defined as the data that approximates and characterizes. Classification is a type of machine learning where the target is a qualitative variable. It is important to understand the data being collected so you can make a model that properly represents the data.

I wanted to study machine learning because I see it as the most interesting subfield of computer science. There are so many complexities of the discipline that I would love to master and fully understand.