**Machine Learning**

Machine learning is used all around us even when we don’t recognize it. Oftentimes thrown in with the popular topics like big data and artificial intelligence, what exactly is machine learning and what can it do? As defined by SAS, machine learning is “a branch of artificial intelligence based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention.” Since the early ideas of computer intelligence in the 1950s, machine learning has evolved to apply complex mathematical calculations to big data at a fast rate, which has greatly expanded the possibilities and future outlook of machine learning.

**How it Works**

According to TechTarget, in the development of machine learning applications, data scientists or other analysts start off by identifying relevant data sets and preparing them for analysis. They then choose the type of algorithm that would best fit the type of machine learning that they are developing for and then create an analytical model based on this algorithm. Next, the analysts test their algorithm on test data sets and revise it as needed. Lastly, the analysts run the model and record their scores and other findings. Generally, machine learning algorithms identify a correlation between two variables, and use the results to make a decision on future points. In other words, the algorithms use statistics and probability of past events to make decisions in the future. One commonly used model is decision trees which find the best and most statistically ideal ways to arrive at a wanted outcome. The probability of each outcome is represented on an output diagram, making it visually clear which paths are favorable. Another commonly used model is K-means clustering which uses grouping of means to draw conclusions based on common characteristics. More complicated algorithms usually deal with neural networks which look at a much larger number of variables and also don’t require input and output from data scientists.

**Why is it Important?**

We live in an age of data-driven decisions, where companies invest money to rely on data to make business predictions. Using this data to make important corporate decisions can be the difference of keeping up with competition or falling behind and missing out on trends.

**How is it Used?**

Machine learning has become integrated in almost every industry, from healthcare and retail to travel and energy. In healthcare, wearable devices and sensors that are used on patients can assess their health in real-time. Doctors or even machine-learning algorithms can analyze the recorded data to recognize trends that can assist with diagnosis and treatment. In transportation, machines can identify the most efficient routes and predict potential problems which can save companies money in the long run. Outside of businesses, machine learning is what curates the Facebook News Feed that millions of users scroll on daily. Facebook’s algorithm collects data from users to predict what content the user would want to see the most.

**Future**

In conclusion, as time advances, so does machine learning. This technology is extremely powerful and has already reformed the way we live. What problem will machine learning solve next?

**Work Cited**

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