What is machine learning?

Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.

How machine learning works

1. A Decision Process: In general, machine learning algorithms are used to make a prediction or classification. Based on some input data, which can be labeled or unlabeled, your algorithm will produce an estimate about a pattern in the data.
2. An Error Function: An error function evaluates the prediction of the model. If there are known examples, an error function can make a comparison to assess the accuracy of the model.
1. A Model Optimization Process: If the model can fit better to the data points in the training set, then weights are adjusted to reduce the discrepancy between the known example and the model estimate. The algorithm will repeat this "evaluate and optimize" process, updating weights autonomously until a threshold of accuracy has been met.
2.

Machine learning methods

Supervised machine learning

Supervised learning, also known as supervised machine learning, is defined by its use of labeled datasets to train algorithms to classify data or predict outcomes accurately

Unsupervised machine learning

Unsupervised learning, also known as unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention

Semi-supervised learning

Semi-supervised learning is a machine learning paradigm that combines elements of both supervised and unsupervised learning. In this approach, the model learns from a combination of labeled and unlabeled data to improve predictive performance.

The model initially learns from the small set of labeled data, similar to supervised learning techniques.

It then leverages the unlabeled data, which is often more abundant, to improve its understanding of the underlying structure or patterns in the data.

Reinforcement machine learning

Reinforcement machine learning is a machine learning model that is similar to supervised learning, but the algorithm isn't trained using sample data. This model learns as it goes by using trial and error.

Reinforcement Learning (RL) is a type of machine learning paradigm where an agent learns to make sequences of decisions by interacting with an environment in order to maximize a reward signal.

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