

What Is Machine Learning? How it Related to Artificial Intelligence

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In brief

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Machine Learning and Artificial Intelligence are considered as some of the best technologies in this advanced and changing digital IT world where modern challenges are high-dimensional in nature. ML and AI are important because they help in building models that solve problems in high-dimensional space with rich data sources. Models can be integrated into working software through AI and ML that support the kind of products that are being demanded by the industry. Machine Learning and artificial intelligence are gaining popularity day by day as they can sort unstructured and prolific data. Because of the huge availability of information, it is impossible to manage every data or information coming from social media, email, blogs, podcasts, or any other source. Machine learning helps to keep that information in a structured manner and keep up with the trend and gain a competitive edge. Machine learning has made everything so efficient and affordable that it can actively design systems to siphon cycles away from core activities. So we can say that Machine Learning is the future because powerful methods have been developed and the principles are well understood in probabilistic and statistical frameworks. In this article, you can learn Machine Learning basics, its types, and why it is beneficial to start a career in this domain.

What is Machine Learning?

Machine learning is the study of computer algorithms that improves automatically through experience and by the use of data. It is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve without being programmed. Basically, machine learning focuses on the development of computer programs that can access data and use it to learn for themselves. So the primary aim is to allow the computers to learn automatically without any human assistance and adjust actions accordingly. ML algorithms create a model based on sample data that is known as "training data" to make decisions and predictions and improve over time. The machine learning process starts with observation or data like direct experience, examples, instructions to find patterns in data to make better and improved decisions in the future. Several examples of machine learning are all around us such as digital assistants (Siri and Alexa) search the web and play music in response to our voice commands, robots vacuum our floors while we can do something better with our time. Spam detectors restrict unwanted emails from arriving in our inboxes, medical image analysis systems help doctors find tumors they might have missed, and more advanced self-driving cars are hitting the road. So machine learning drives greater efficiency in our personal and official work lives.

Types of Machine Learning

Machine learning is a large field and there are many different types of learning that you may face as a practitioner in this domain. There are three main types of machine learning mentioned below.

Supervised Learning- It is the most popular type of machine learning wherein we have labeled data. Supervised learning describes a class of problems that involves using a model to learn the mapping between the target variable and input examples. It is easy to understand and simple to implement. It is often described as task-oriented learning. Supervised learning involves two types of learning problems - Classification (it involves predicting a class label), and Regression (it involves predicting a numerical label). Supervised learning is exhibited in many common applications such as Advertisement Popularity, Spam Classification, Face recognition, and many more.

Unsupervised learning- As the name shows it is much the opposite of supervised learning. It shows no labels so our algorithm would be fed a lot of data and given the tools to understand the properties of the data. This learning helps to learn groups, cluster, organize the data in a way such that a human can come in and make sense of the organized data. It also can boost productivity in a number of fields through intelligent algorithms which can take terabytes of unlabeled data and make sense of it is a huge source of profit for many industries. Unsupervised learning is data-driven as it is based upon the data and its properties where the outcomes are controlled by the data and the way it's formatted. Some areas where we might see unsupervised learning are Recommender Systems, Buying Habits, Grouping User Logs, etc.

Reinforcement Learning- Reinforcement learning is a way of learning where we can easily see the relationship between supervised and unsupervised learning (the presence or absence of labels). The relationship of reinforcement learning is murkier where learning relies on a time-dependent sequence of labels. This type of learning is behavior-driven that has influences from the fields of psychology and neuroscience. We can see examples of reinforcement learning among Video Games, Industrial Simulation, Resource Management, etc.

Benefits of Building a Career in Machine Learning

today everyone in the field of technology is talking about machine learning. This advanced technology is being used almost everywhere right from our smartphones to industrial automation as it is a specialized tech of artificial intelligence. So machine learning is becoming a good career option for beginners as well as professionals because it is the tech of the future and will stay here for many years to come. The broad range and wide scope of ML services will definitely increase in the near future. In this changing field of learning one can get to work with real challenges that help to identify the problem and find technological solutions to the problems. Machine learning is a new field so there is a lot to learn and explore. There are several algorithms to be coded, applications to be designed, challenges to be addressed that can help find plenty of career opportunities. One can also explore other domains in data science and choose to work as a data scientist or learn deep learning to become a DL engineer. A machine learning career provides you the great salary packages where certified ML professionals can expect higher salaries. So it is quite beneficial to choose a career in machine learning. Opt for any reputed machine learning course and explore your technological abilities in this dynamic field.

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