The difference between AI and machine learning

Artificial intelligence and machine learning are very closely related and connected. Because of this relationship, when you look into AI vs. machine learning, you are really looking into their interconnection.

What is artificial intelligence (AI)?

Artificial intelligence is the capability of a computer system to mimic human cognitive functions such as learning and problem-solving. Through AI, a computer system uses maths and logic to simulate the reasoning that people use to learn from new information and make decisions. While AI and machine learning are very closely connected, they are not the same. Machine learning is considered a subset of AI.

What is Machine Learning?

Machine learning is an application of AI. It's the process of using mathematical models of data to help a computer learn without direct instruction. This enables a computer system to continue learning and improving on its own, based on experience.

How are AI and machine learning connected?

An "intelligent" computer uses AI to think like a human and perform tasks on its own. Machine learning is how a computer system develops its intelligence.

One way to train a computer to mimic human reasoning is to use a neural network, which is a series of algorithms that are modeled after the human brain. The neural network helps the computer system achieve AI through deep learning. This close connection is why the idea of AI vs. machine learning is really about the ways that AI and machine learning work together.

When you are looking into the difference between artificial intelligence and machine learning, it is helpful to see how they interact through their close connection. This is how AI and machine learning work together:

Step 1: An AI system is built using machine learning and other techniques.

Step 2: Machine learning models are created by studying patterns in the data.

Step 3: Data scientists optimise the machine learning models based on patterns in the data.

Step 4: The process repeats and is refined until the models' accuracy is high enough for the tasks that need to be done.

Companies in almost every industry are discovering new opportunities through the connection between AI and machine learning. These are just a few capabilities that have become valuable in helping companies transform their processes and products:

Predictive analytics

This capability helps companies predict trends and behavioural patterns by discovering cause-and-effect relationships in data.

Recommendation engines

With recommendation engines, companies use data analysis to recommend products that someone might be interested in.

Speech recognition and natural language understanding

Speech recognition enables a computer system to identify words in spoken language and natural language understanding recognises meaning in written or spoken language.

Image and video processing

These capabilities make it possible to recognise faces, objects and actions in images and videos and implement functionalities such as visual search.

Sentiment analysis

A computer system uses sentiment analysis to identify and categorise positive, neutral and negative attitudes that are expressed in text.