

In machine learning, training data is a series of examples used to educate a machine learning model how to do a given job.

It is made up of input data (features) and their associated output labels or goal values, from which the model attempts to learn throughout the training phase.

When supplied with fresh, previously unknown data, the fundamental purpose of training a machine learning model is to allow it to make correct predictions or judgements.

For supervised learning,

For supervised learning, the training data includes both the input features and the correct output labels. The model learns to map the input data to the correct output labels by minimizing the error or difference between its predictions and the actual labels.

In unsupervised learning,

In unsupervised learning, the training data contains only the input features without any corresponding output labels. The model's objective is to discover patterns, structures, or relationships within the data, often through techniques like clustering or dimensionality reduction.

In reinforcement learning,

In reinforcement learning, the training data is acquired through interaction with an

environment. The model learns to take actions to maximize a cumulative reward signal, received from the environment as feedback.

The quality and representativeness of training data are critical for a machine learning model's performance and generalisation. Training data that is clean, diversified, and balanced may help the model make better predictions on fresh, unknown data. In contrast, inaccurate or inadequate training data might result in poor performance and possibly biased predictions. To guarantee the usefulness of the training data in machine learning, data preparation, augmentation, and rigorous curation are required.

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