About AI

Artificial Intelligence (AI) is the process of making machine intelligent and capable to do works humans do. It is a technique in which a machine becomes intelligent after experience at some work. It is a booming field in present time as it can be used to automate works humans do.

Supervised Learning is a technique in AI in which the data is labelled and the data is either done classification or regression task. The model is trained until it can detect the underlying patterns and relationships between the input data and the output labels, enabling it to yield accurate labeling results when presented with never-before-seen data. Supervised learning is good at classification and regression problems, such as determining what category a news article belongs to or predicting the volume of sales for a given future date. In supervised learning, the aim is to make sense of data within the context of a specific question.

In contrast to supervised learning is unsupervised learning. In this approach, the algorithm is presented with unlabeled data and is designed to detect patterns or similarities on its own. It can be done by different clustering algorithms.

The chief difference between unsupervised and supervised learning is in how the algorithm learns. In unsupervised learning, the algorithm is given unlabeled data as a training set. Unlike in supervised learning, there are no correct output values; the algorithm determines the patterns and similarities within the data, as opposed to relating it to some external measurement. In other words, algorithms are able to function freely in order to learn more about the data and find interesting or unexpected findings that human beings weren't looking for. Unsupervised learning is popular in applications of clustering (the act of uncovering groups within data) and association (the act of predicting rules that describe the data).

Terms in AI:

Artificial Intelligence, Data Science, NLP, clustering, regression, classification, algorithm, labels, row, column, features, keras, matplotlib, TensorFlow.

AI Frameworks:

- Tensor Flow.

  Hailing from the Google family, Tensor Flow proves to be a robust open-source framework that supports deep learning and which can be accessed even from a mobile device.

  Tensor flow is considered an apt tool for statistic program development. As it offers distributed training, machine models can be trained a lot more effectively at any level of abstraction that the user prefers.

  Features

- A scalable multi programming interface for easy programming

- Strong growth drivers, with a strong open-source community

- Provides extensive and well-documented manuals for people

  Pros

- The language used by tensor flow is Python, which is very popular nowadays.

- This framework is capable of high computational power. Hence, it can be used on any CPU or GPU.

- Uses computational graph abstraction to create machine models

  Cons

- To make a decision or prediction, the framework passes the input data through multiple nodes. This can be time-consuming.

- It also lacks many of the pre-trained models of AI.

- Microsoft CNTK.

  Microsoft CNTK is a faster and more versatile open-source framework that is based on neural networks that support text, message, and voice remodeling.

  It provides an efficient scaling environment due to a faster overall evaluation of the machine models while taking care of accuracy.

  Microsoft CNTK has integrations with major massive datasets, making it the leading choice to be adopted by big players like Skype, Cortana, etc., with a very expressive easy-to-use architecture as well.

  Features

- Highly optimized to provide efficiency, scalability, speed, and high-level integrations

- Has built-in components such as hyperparameter tuning, supervised learning models, reinforcement, CNN, RNN, etc.

- Resources are utilized to provide the best efficiency.

- Own networks that can be expressed efficiently such as full APIs, both high level and low level

  Pros

- As it supports Python and C++, this framework can work with multiple servers at once and hence makes the learning process quicker.

- It has been developed keeping in mind the recent developments in the world of AI. Microsoft CNTK's architecture supports GAN, RNN, and CNN.

- It permits distributed training to train machine models effectively.

  Cons

- It lacks a visualization board and mobile ARM support.

- Caffe.

  Caffe is a deep learning network that comes along with the preloaded set of trained neural networks. This should be your first pick if your deadline is close.

  Known for its image processing capabilities, this framework also has extended support of MATLAB.

  Features

- All of its models are written in plaintext schemas

- It offers massive speed and highly efficient work since it is already preloaded.

- An active open-source community for discussion and collaborative code.

  Pros

- Interlinking C, C++, and Python, it also supports the modeling of CNN(convolutional neural networks)

- Efficient when computing numerical tasks due to its speed.

  Cons

- Caffe is not capable of handling complex data but is comparatively fast while handling the visual processing of images.

- Theano.

- Amazon machine learning.

- Torch.

- Accord.Net.

- Apache Mahout.