

Machine learning:

Machine learning (ML) is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks.^[1] It is seen as a part of [artificial intelligence](#). Machine learning algorithms build a model based on sample data, known as [training data](#), in order to make predictions or decisions without being explicitly programmed to do so.^[2] Machine learning algorithms are used in a wide variety of applications, such as in medicine, [email filtering](#), [speech recognition](#), [agriculture](#), and [computer vision](#), where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

Supervised learning and unsupervised learning:

Supervised machine learning is generally used to classify data or make predictions, whereas unsupervised learning is generally used to understand relationships within datasets. Supervised machine learning is much more resource-intensive because of the need for labelled data. As machine learning becomes more and more common, it's important to understand the core differences in supervised vs unsupervised learning. If an organisation is looking to [deploy a machine learning model](#), the choice will be made by understanding the data that's available and the problem that needs to be solved. This guide explores supervised vs unsupervised machine learning, including the main differences in approach, how they are utilised, and examples of both types. The Seldon Deploy platform supports both kinds of ML. If you are curious and want to see this blog post in action, we recommend getting a free demo from our solutions engineers [here](#).

Neural network:

A neural network is a series of algorithms that endeavors to recognize underlying relationships in a set of data through a process that mimics the way the human brain operates. In this sense, neural networks refer to systems of neurons, either organic or artificial in nature.

Neural networks can adapt to changing input; so the network generates the best possible result without needing to redesign the output criteria. The concept of neural networks, which has its roots in [artificial intelligence](#), is swiftly gaining popularity in the development of [trading systems](#).

Convolutional neural network :

A **convolutional neural network (CNN, or ConvNet)** is a class of [artificial neural network \(ANN\)](#), most commonly applied to analyze visual imagery.^[1] CNNs are also known as **Shift Invariant** or **Space Invariant Artificial Neural Networks (SIANN)**, based on the shared-weight architecture of the convolution kernels or filters that slide along input features and provide translation-[equivariant](#) responses known as feature maps.^{[2][3]} Counter-intuitively, most convolutional neural networks are not [invariant](#) to translation, due to the downsampling operation they apply to the input.^[4] They have applications in [image and video recognition](#), [recommender systems](#),^[5] [image classification](#), [image segmentation](#), [medical image analysis](#), [natural language processing](#),^[6] [brain-computer interfaces](#),^[7] and financial [time series](#).^[8]

CNNs are [regularized](#) versions of [multilayer perceptrons](#). Multilayer perceptrons usually mean fully connected networks, that is, each neuron in one [layer](#) is connected to all neurons in the next [layer](#). The "full connectivity" of these networks make them prone to [overfitting](#) data. Typical ways of regularization, or preventing overfitting, include: penalizing parameters during training (such as weight decay) or trimming connectivity (skipped connections, dropout, etc.) CNNs take a different approach towards regularization: they take advantage of the hierarchical pattern in data and assemble patterns of increasing complexity using smaller and simpler patterns embossed in their filters. Therefore, on a scale of connectivity and complexity, CNNs are on the lower extreme.

Python Flash:

Flask is used for **developing web applications** using python, implemented on Werkzeug and Jinja2. Advantages of using Flask framework are: There is a built-in development server and a fast debugger provided.

Flask is a web application framework written in Python. It was developed by Armin Ronacher, who led a team of international Python enthusiasts called Pocco. Flask is based on the Werkzeug WSGI toolkit and the Jinja2 template engine. Both are Pocco projects

Reference Link:

https://www.youtube.com/watch?v=kE5QZ8G_78c&feature=emb_imp_woyt

https://youtu.be/6za9_mh3uTE

<https://youtu.be/DKSZHN7jftI>

<https://youtu.be/cleLMnmNMpY>

https://youtu.be/lj4I_CvBnt0