**Deep Learning**

### What Is Deep Learning?

Deep learning is an [artificial intelligence](https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp) function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of [machine learning](https://www.investopedia.com/terms/m/machine-learning.asp) in artificial intelligence (AI) that has networks capable of learning unsupervised from data that is unstructured or unlabeled. Also known as deep neural learning or deep neural network.

In other definition it is a class of [machine learning](https://en.wikipedia.org/wiki/Machine_learning) [algorithms](https://en.wikipedia.org/wiki/Algorithm) that uses multiple layers to progressively extract higher level features from the raw input. For example, in image processing, lower layers may identify edges, while higher layers may identify the concepts relevant to a human such as digits or letters or faces. Deep learning learns from vast amounts of unstructured data that could normally take humans decades to understand and process.

### How Deep Learning Works

Deep learning has evolved hand-in-hand with the digital era, which has brought about an explosion of data in all forms and from every region of the world. This data, known simply as big data, is drawn from sources like social media, internet search engines, e-commerce platforms, and online cinemas, among others. This enormous amount of data is readily accessible and can be shared through fintech applications like cloud computing.

However, the data, which normally is unstructured, is so vast that it could take decades for humans to comprehend it and extract relevant information. Companies realize the incredible potential that can result from unraveling this wealth of information and are increasingly adapting to AI systems for automated support.

* Deep learning is an AI function that mimics the workings of the human brain in processing data for use in decision making.
* Deep learning AI is able to learn from data that is both unstructured and unlabeled.
* Deep learning, a machine learning subset, can be used to help detect fraud or money laundering.

### An Example of Deep Learning

Using the fraud detection system mentioned above with machine learning, one can create a deep learning example. If the machine learning system created a model with parameters built around the number of dollars a user sends or receives, the deep-learning method can start building on the results offered by machine learning.

Each layer of its neural network builds on its previous layer with added data like a retailer, sender, user, social media event, credit score, IP address, and a host of other features that may take years to connect together if processed by a human being. Deep learning algorithms are trained to not just create patterns from all transactions, but also know when a pattern is signaling the need for a fraudulent investigation. The final layer relays a signal to an analyst who may freeze the user’s account until all pending investigations are finalized.

Deep learning is used across all industries for a number of different tasks. Commercial apps that use image recognition, [open source](https://www.investopedia.com/terms/o/open-source.asp) platforms with consumer recommendation apps and medical research tools that explore the possibility of reusing drugs for new ailments are a few of the examples of deep learning incorporation.

Sources:

<https://www.investopedia.com/terms/d/deep-learning.asp>

<https://en.wikipedia.org/wiki/Deep_learning>