clarifai

Ultimate Artificial Intelligence Glossary

2022 Edition

Curated by data scientists and machine learning experts like you.

Introduction

As artificial intelligence's impact on the world continues to grow, more and more business stakeholders will encounter and grapple with the lexicon.

It can seem daunting at first. While some terms are from our everyday vocabulary, AI has given them entirely new meanings. Others are combinations of ordinary words that now refer to altogether new concepts. And a select few are words and terms you may not have ever used, or even heard, before today.

We've put together this glossary to help those who are just learning about the nuances of AI, which can help prepare you for when AI starts to become a part your everyday conversations.

A

A/B Testing

A statistical way of comparing two (or more) techniques, typically an incumbent against a new rival. A/B testing aims to determine not only which technique performs better but also to understand whether the difference is statistically significant. A/B testing usually considers only two techniques using one measurement, but it can be applied to any finite number of techniques and measures.

Accuracy

Refers to the percentage of correct predictions the classifier made.

Activation

The equation of a neural network cell that transforms data as it passes through the network.

Active Learning

A machine learning term that refers to various methods for actively improving the performance of trained models. Clarifai helps users with advanced workflows to collect prediction data from production environments, auto-annotate high-confidence data or pipe lower confidence concept predictions into a dataset annotation task queue.

Adversarial Machine Learning

A research field that lies at the intersection of machine learning and computer security. It enables the safe adoption of machine learning techniques in adversarial settings like spam filtering, malware detection and biometric recognition.

Adversarial Example

A very specific transformation of an image, typically featuring very small, deliberate changes to an image that can completely disrupt a previously tuned classifier.

Algorithms

A set of rules or instructions given to an AI, neural network or other machine to help it learn on its own.

Anchor Box

The archetypal location, size and shape for finding bounding boxes in an object detection problem. For example, small and square anchor boxes are typically used in face detection models.

Annotation

The "answer key" for each image. Annotations are markup placed on an image (bounding boxes for object detection, polygons or a segmentation map for segmentation) to teach the model the ground truth.

Annotation Format

The particular way of encoding an annotation. There are many ways to describe a bounding box's size and position (JSON, XML, TXT, etc) and to delineate which annotation goes with which image.

Annotation Group

Describes what types of objects you are identifying. For example, "chess pieces" or "vehicles". Classes (e.g. "rook", "pawn") are members of an annotation group.

Application Programming Interface (API)

A set of commands, functions, protocols, and objects that programmers can use to create software or interact with an external system.

Architecture

A specific neural network layout (layers, neurons, blocks, etc). These often come in multiple sizes whose design is similar except for the number of parameters.

Artificial General Intelligence

Computational system that can perform any intellectual task a human can. Also called “Strong AI.” At this point, AGI is fictional.

Artificial Intelligence

A computational system that simulates parts of human intelligence but focuses on one narrow task.

Artificial Neural Network

A learning model created to act like a human brain that solves tasks that are too difficult for traditional computer systems to solve.

Augmented Reality

An enhanced version of reality created by the use of technology to overlay digital information on an image of something being viewed through a device (such as a smartphone camera).

AutoML

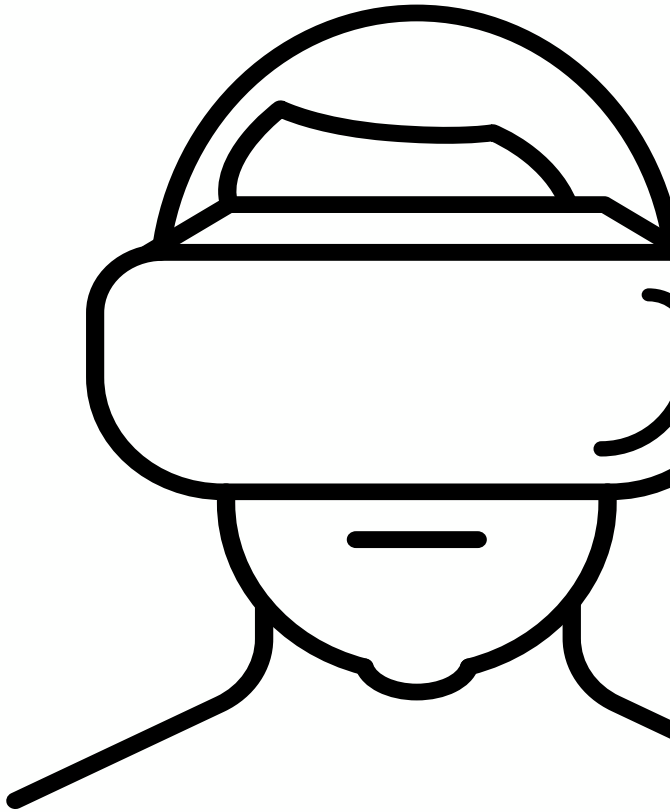
Also known as AutoML. Refers to processes for automating the end-to-end machine learning cycle to help practitioners scale their growing ML efforts efficiently.

Algorithms

A set of rules or instructions given to an AI, neural network, or other machine to help it learn on its own.

Automation Bias

When a human decision maker favors recommendations made by an automated decision-making system over information made without automation, even when the automated decision-making system makes errors.



B

Backward chaining

A method where the model starts with the desired output and works in reverse to find data that might support it.

Baseline

A model used as a reference point for comparing how well another model (typically, a more complex one) is performing. Baseline models help developers quantify the minimal expected performance that a new model must achieve to be useful.

Batch

The set of examples used in one iteration (that is, one gradient update) of model training.

Batch Inference

Asynchronous process that is executing predictions based on existing models and observations, and then stores the output.

Batch Size

The number of training examples utilized in one iteration.

Bayes's Theorem

A famous theorem used by statisticians to describe the probability of an event based on prior knowledge of conditions that might be related to an occurrence.

Bias

When an AI algorithm produces results that are systemically prejudiced due to erroneous assumptions in the machine learning process.

Big Data

Big data refers to data that is so large, fast or complex that it's difficult or impossible to process using traditional methods.

Binary Classification

The task of classifying elements of a set into two groups on the basis of a classification rule i.e. a model that evaluates email messages and outputs either "spam" or "not spam" is a binary classifier.

Black Box AI

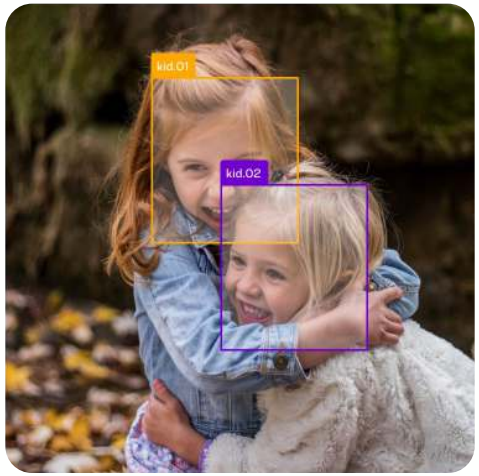
An AI system whose inputs and operations are not visible to the user. A black box, in a general sense, is an impenetrable system.

Boosting

A machine learning technique that iteratively combines a set of simple and not very accurate classifiers (referred to as "weak" classifiers) into a classifier with high accuracy (a "strong" classifier) by upweighting the examples that the model is currently misclassfying.

Bounding Box

In an image, the (x, y) coordinates of a rectangle around an area of interest.



Brute Force Search

A search that isn't limited by clustering/ approximations; it searches across all inputs. Often more time-consuming and expensive but more thorough.

C

Calibration Layer

A post-prediction adjustment, typically to account for prediction bias. The adjusted predictions and probabilities should match the distribution of an observed set of labels.

Chatbot

Simulates human conversation, using response workflows or artificial intelligence to interact with people based on verbal and written cues. Chatbots can be the frontline of communication between brands and their users.

Class

One of a set of enumerated target values for a label. For example, in a binary classification model that detects spam, the two classes are spam and not spam. In a multi-class classification model that identifies dog breeds, the classes would be poodle, beagle, pug, and so on.

Class Balance

The relative distribution between the number of examples of each class. Models perform better if there are a relatively even number of examples for each class. If there are too few of a particular class, that class is under-represented. If there are more instances of a particular class, that class is "over-represented".

Classifier

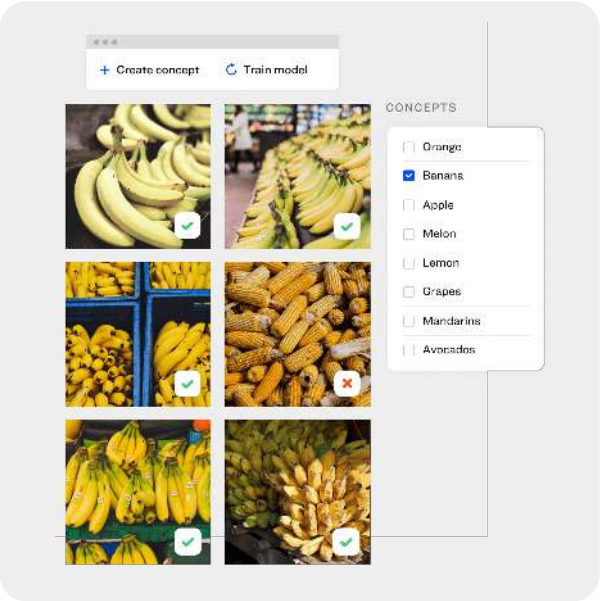
An algorithm that implements classification. It refers to the mathematical function implemented by a classification algorithm that maps input data to a category.

Checkpoint

Data that captures the state of the variables of a model at a particular time. Checkpoints enable exporting model weights, as well as performing training across multiple sessions. They also enable training to continue past errors

Classification Model

A type of machine learning model for distinguishing among two or more discrete classes. For example, a natural language processing classification model could determine whether an input sentence was in French, Spanish, or Italian. Compare with a regression model.



Cluster

A group of observations that show similarities to each other and are organized by similarities.

Clustering

A method of unsupervised learning and common statistical data analysis technique. In this method, observations that show similarities to each other are organized into groups (called clusters).

Cognitive Computing

A computerized model that mimics the way the human brain thinks. It involves self-learning through the use of data mining, natural language processing, and pattern recognition.

Computer Vision

The field of Machine Learning that studies how to gain high-level understanding from images or videos.

Concept

Describes an input, similar to a "tag" or "keyword." There are two types:
those that you specify to train a model and those that a model assigns as a prediction.

Confidence

A model is inherently statistical. Along with its prediction, it also outputs a confidence value that quantifies how "sure" it is that its prediction is correct.

Confidence Threshold

We often discard predictions that fall below a certain bar. This bar is the confidence threshold.

Container

A virtualized environment that packages its dependencies together into a portable environment. Docker is one common way to create containers.

Convolutional Filter

A convolution is a type of block that helps a model learn information about relationships between nearby pixels.

Convolutional Neural Network

Convolutional neural networks are deep artificial neural networks that are used primarily to classify images (e.g. name what they see), cluster them by similarity (photo search), and perform object recognition within scenes.

CoreML

A proprietary format used to encode weights for Apple devices that takes advantage of the hardware accelerated neural engine present on iPhone and iPad devices.

CreateML

A no-code training tool created by Apple that will train machine learning models and export to CoreML. It supports classification and object detection along with several types of non computer-vision models (such as sound, activity, and text classification).

Custom Dataset

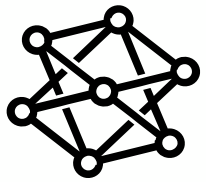
A set of images and annotations pertaining to a domain specific problem. In contrast to a research benchmark dataset like COCO or Pascal VOC.

Custom Model

An algorithm that implements classification, especially in a concrete implementation. The term often refers to the mathematical function implemented by a classification algorithm that maps input data to a category.

Custom Training

The process of teaching a model to make certain predictions.



D

Data

Any collection of information converted into a digital form.

Data Annotation

The process of labeling datasets to be used as inputs for machine learning models.

Data Minning

The process by which patterns are discovered within large sets of data with the goal of extracting useful information from it.

Dataset

A collection of data and a ground truth of outputs that you use to train machine learning models by example.

Deep Learning

The general term for to machine learning using layered (or deep) algorithms to learn patterns in data. It is most often used for supervised learning problems.

Deep Neural Network

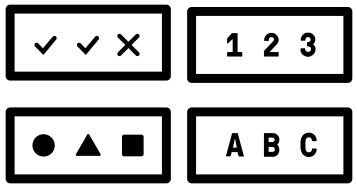
An artificial neural network (ANN) with multiple layers between the input and output layers.[15] It uses sophisticated mathematical modeling to process data in complex ways.[16]

Deploy

Taking the results of a trained model and using them to do inference on real world data. This could mean hosting a model on a server or installing it to an edge device.

Detection Mode

Also known as object detection. A model that identifies the presence, location and type of objects within images or video frames.



Domain Adaptation

Learning a discriminative classifier or other predictor in the presence of a shift between training and test distributions.

E

Edge Computing

A distributed computing framework that brings enterprise applications closer to data sources such as IoT devices or local edge servers.

Embeddings

A categorical feature represented as a continuous-valued feature. Typically, an embedding is a translation of a high-dimensional vector into a low-dimensional space.

Embedding Space

The d-dimensional vector space that features from a higher-dimensional vector space are mapped to. Ideally, the embedding space contains a structure that yields meaningful mathematical results,

Extensible Markup Language (XML)

A markup language and file format for storing, transmitting, and reconstructing arbitrary data. It defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.

F

F Score

A weighted average of the true positive rate of recall and precision.

Facial Recognition

A computer application capable of identifying or verifying a person from a digital image or a video frame from a video source. One of the ways to do this is by comparing selected facial features from the image and a face database.

False Positives

An error where a model falsely predicts the presence of the desired outcome in an input, when in reality it is not present (Actual No, Predicted Yes).

False Negatives

An error where a model false predicts an input as not having a desired outcome, when one is actually present. (Actual Yes, Predicted No).

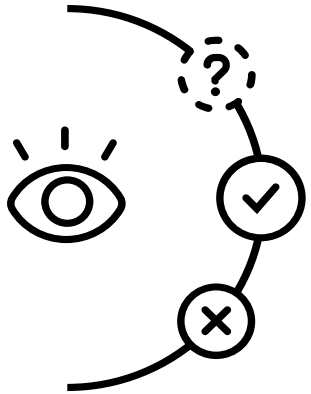
FastAI

A library built on top of PyTorch for rapid prototyping and experimentation. There is a companion course that teaches the fundamentals of machine learning.

Feature Extraction

1) When image features at various levels of complexity are extracted from the image data. Typical examples of such features are: Lines, edges, and ridges. Localized interest points such as corners, blobs, or points.More complex features may be related to texture, shape, or motion.

2) The process by which data that is too large to be processed is transformed into a reduced representation set of features such as texture, shape, lines, and edges.



Framework

Deep learning frameworks implement neural network concepts. Some are designed for training and inference - TensorFlow, PyTorch, FastAI, etc. And others are designed particularly for speedy inference - OpenVino, TensorRT, etc.

G

Generalization

Refers to a model's ability to make correct predictions on new, previously unseen data as opposed to the data used to train the model.

Generative Adversarial Networks (GANs)

A class of artificial intelligence algorithms used in unsupervised machine learning, implemented by a system of two neural networks contesting with each other in a zero-sum game framework. This technique can generate photographs that look at least superficially authentic to human observers, having many realistic characteristics (though in tests people can tell real from generated in many cases).

GPU Memory

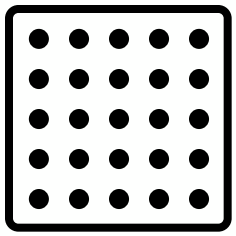
The amount of information your GPU can fit on it. A bigger GPU will be able to process more information in parallel which means it can support bigger models (or bigger batch sizes) without running out of memory. If you run out of GPU memory it will crash your program.

Graphics Processing Unit (GPU)

A specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display device. GPUs are used in embedded systems, mobile phones, personal computers, and more.

Grid Search

Grid search is a tuning technique that attempts to compute the optimal values of hyperparameters for training models by performing an exhaustive search through a subset of hyperpameters.



Ground Truth

The “answer key” for your dataset. This is how you judge how well your model is doing and calculate the loss function we use for gradient descent. It’s also what we use to calculate our metrics. Having a good ground truth is extremely important. Your model will learn to predict based on the ground truth you give it to replicate.

H

Hashing

In machine learning, a mechanism for bucketing categorical data, particularly when the number of categories is large, but the number of categories actually appearing in the dataset is comparatively small.

Hidden Layer

A synthetic layer in a neural network between the input layer (that is, the features) and the output layer (the prediction). Hidden layers typically contain an activation function (such as ReLU) for training. A deep neural network contains more than one hidden layer.

Holdout Data

Examples intentionally not used during training. The validation dataset and test dataset are examples of holdout data. It helps evaluate your model's ability to generalize to data other than the data it was trained on.

Hosted Model

A set of trained weights located in the cloud that you can receive predictions from via an API. (As opposed to an edge-deployed model.)

Human Workforce (“Labelers”)

Workers who can help to complete work on an as-needed basis, which for purposes usually means labeling data (images).

Hyperparameter

The levers by which you can tune your model during training. These include things like learning rate and batch size. You can experiment with changing hyperparameters to see which ones perform best with a given model for your dataset.

I

ImageNet

A large visual database designed for use in visual object recognition software research.

Image Recognition

The ability of software to identify objects, places, people, writing and actions in images.

Image Segmentation

The process of dividing a digital image into multiple segments with the goal of simplifying the representation of an image into something that is easier to analyze. Segmentation divides whole images into pixel groupings, which can then be labelled and classified.

Implicit Bias

Automatically making an association or assumption based on one's mental models and memories. Implicit bias can affect how data is collected and classified, and how machine learning systems are designed and developed.

Inference

Making predictions using the weights you save after training your model.

Information Retrieval

The area of Computer Science studying the process of searching for information in a document, searching for documents themselves, and also searching for metadata that describes data and for databases of texts, images or sounds.

Input

Any information or data sent to a computer for processing is considered input.

Input Layer

The first layer (the one that receives the input data) in a neural network.

Intelligent Character Recognition (ICR)

Related technology to OCR designed to recognize handwritten characters.

IoT

The interconnection via the internet of computing devices embedded in everyday objects, enabling them to send and receive data.

J

Jetson

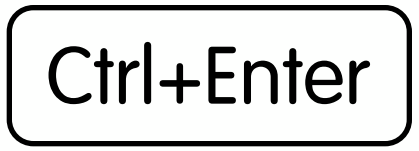
An edge computing device created by NVIDIA that includes an onboard GPU.

JSON

A freeform data serialization format originally created as part of JavaScript but now used much more broadly. Many **annotation formats** use JSON to encode their bounding boxes.

Jupyter Notebook

A common data science tool that enables you to execute Python code visually. Each "cell" in the notebook is a block of code that you can execute by hitting "Ctrl+Enter". The results of the execution are displayed below the cell.



L

Label

The class of a specific object in your dataset. In classification, this is the entirety of the prediction. In object detection, it is the non-spatial component of the bounding box.

Labeling

The process of annotating datasets to train machine learning models.

Labeler

AI-automated tool using end-to-end workflows to label images and video at scale to create high-quality training data.

M

Machine Intelligence

An umbrella term that encompasses machine learning, deep learning and classical learning algorithms.

Machine Learning (ML)

A general term for algorithms that can learn patterns from existing data and use these patterns to make predictions or decisions with new data.

Masked Language Model

A language model that predicts the probability of candidate tokens to fill in blanks in a sequence.

Metadata

Information about an analog or digital object, a component of an object, or a coherent collection of objects. Metadata describing digital content is often structured (e.g., with tagging or markup).

Misclassification Rate

Rate used to gauge how often a model's predictions are wrong.

MLOps

Also known as Machine Learning Operations. Best practices for organizations to operationalize machine learning. Often involves collaboration between data scientists and devops professionals to manage production ML.

Modality

A high-level data category. For example, numbers, text, images, video and audio are five different modalities.

Model

The representation of what a machine learning system has learned from the training data.

Model Size

The number of parameters (or neurons) a model has. This can also be measured in terms of the size of the weights file on disk.

Model Training

The process of determining the best model.

Multi-class Classification

Classification problems that distinguish among more than two classes. For example, there are approximately 53 species of maple trees, so a model that categorized maple tree species would be multi-class.

Multimodal Model

A model whose inputs and/or outputs include more than one modality. For example, consider a model that takes both an image and a text caption (two modalities) as features, and outputs a score indicating how appropriate the text caption is for the image.

N

Named Entity Recognition

A subtask of Information Extraction that seeks to identify and classify named entities in text into predetermined categories such as the names, locations, parts-of-speech, etc.

Natural Language Processing

A branch of AI that helps computers understand, interpret, and manipulate human language. This field of study focuses on helping machines understand human language in order to improve human-computer interfaces.

Natural Language Understanding

Determining a user's intentions based on what the user typed or said. For example, a search engine uses natural language understanding to determine what the user is searching for based on what the user typed or said.

Neural Architecture Search

Automatically trying many variations of model layouts and hyperparameters to find the optimal configuration.

Neuron

A unit in an Artificial Neural Network processing multiple input values to generate a single output value.

Neural Network

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.

Noise

Signals with no causal relation to the target function.

Normalization

The process of converting an actual range of values into a standard range of values, typically -1 to +1 or 0 to 1.

Not Suitable For Work (NSFW)

Shorthand tag used to mark certain content as being profane, offensive, and/or otherwise potentially disturbing, which a platform may not wish to have posted on their site or may want to mark as mature.

O

Object Detection

A computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos. This technique also involves localizing the object in question, which differentiates it from classification, which only tells the type of object.

Object Recognition

Also known object classification. A computer vision technique for identifying objects in images or videos.

Object Tracking

The process of following a specific object of interest, or multiple objects, in a given scene. It traditionally has applications in video and real-world interactions where observations are made following an initial object detection.

On-premise Software

Software that is installed and runs on computers located on the premises of the organization using that software versus at a remote facility such as a server farm or on the cloud.

One Shot Classification

A model that only requires that you have one training example of each class you want to predict on. The model is still trained on several instances, but they only have to be in a similar domain as your training example.

Open Neural Network Exchange (ONNX)

ONNX is an open format to represent machine learning models.

OpenAI

Mission is to ensure that artificial general intelligence benefits all humanity.

Optical Character Recognition (OCR)

A computer system that takes images of typed, handwritten, or printed text and converts them into machine-readable text.

Optimization

The selection of the best element (with regard to some criterion) from some set of available alternatives.

Output

Predictions made after the input uploaded to or fed into a model are processed by the model.

Outsourced Labeling

Paying people to annotate and/or label your images. Its effectiveness can depend on domain expertise of annotators, but companies provide custom education/ training sessions prior to starting high-volume annotation.

Overfitting

A machine learning problem where an algorithm is unable to discern information that is relevant to its assigned task from information which is irrelevant within training data. Overfitting inhibits the algorithm's predictive performance when dealing with new data.

P

Parameter

Any characteristic that can be used to help define or classify a system. In AI, they are used to clarify exactly what an algorithm should be seeking to identify as important data when performing its target function.

Pattern Recognition

A branch of machine learning that focuses on the recognition of patterns and regularities in data, although it is in some cases considered to be nearly synonymous with machine learning.

Pipeline

The process of going from raw images to a prediction. Usually this encompasses collecting images, annotation, data inspection and quality assurance, transformation, preprocessing and augmentation, training, evaluation, deployment, inference (and then repeating the cycle to improve the predictions).

Polygon

A (usually non-rectangular) region defining an object with more detail than a rectangular bounding box. Polygon annotations can be used to train segmentation models or to enhance performance of object-detection models by enabling a more accurate bounding box to be maintained after augmentation.

Positive Predictive Value (PPV)

Very similar to precision, except that it takes prevalence into account. In the case where the classes are perfectly balanced (meaning the prevalence is 50%), the positive predictive value is equivalent to precision.

Precision (Recognition)

A rate that measures how often a model is correct when it predicts 'yes.'

Prediction

An attempt by a model to replicate the ground truth. A prediction usually contains a confidence value for each class.

Predictive Model

A model that uses observations measured in a sample to gauge the probability that a different sample or remainder of the population will exhibit the same behavior or have the same outcome.

Pre-trained Model

A model, or the component of a model, that have been preliminary trained, generally using another data set. (for example, finding lines, corners, and patterns of colors). Pre-training on a large dataset like COCO can reduce the number of custom images you need to obtain satisfactory results.

Prevalence

The rate of how often the "yes" condition actually occurs in a sample.

Production

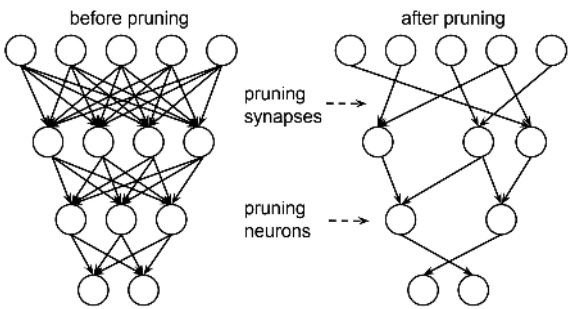
The deployment environment where the model will run in the wild on real-world images (as opposed to the testing environment where the model is developed).

Pruning

The use of a search algorithm to cut off undesirable solutions to a problem in an AI system. It reduces the number of decisions that can be made by the AI system.

PyTorch

A popular open source deep learning framework developed by Facebook. It has a focus on accelerating the path from research prototyping to production deployment.



R

Recall (Sensitivity)

The fraction of relevant instances that have been retrieved over the total amount of relevant instances.

Receiver Operating Characteristic (ROC) Curve

This is a commonly used graph that summarizes the performance of a classifier over all possible thresholds. It is generated by plotting the True Positive Rate (y-axis) against the False Positive Rate (x-axis) as you vary the threshold for assigning observations to a given class.

Recurrent Neural Network

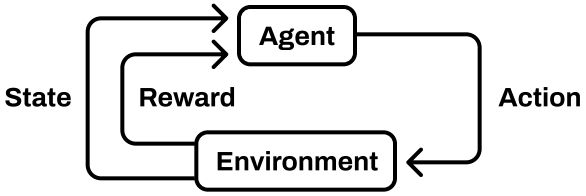
A type of artificial network with loops in them, allowing recorded information, like data and outcomes, to persist by being passed from one step of the network to the next. They can be thought of as multiple copies of the same network with each passing information to its successor.

Regression

A statistical measure used to determine the strength of the relationships between dependent and independent variables.

Reinforcement Learning

A type of machine learning in which machines are “taught” to achieve their target function through a process of experimentation and reward receiving positive reinforcement when its processes produce the desired result and negative reinforcement when they do not. This is differentiated from supervised learning, which would require an annotation for every individual action the algorithm would take.



S

Search Query

A query that a user feeds into a search engine to satisfy his or her information needs. If the query itself is a piece of visual content then that is what is known as a “visual search query.”

Segmentation Model

Models help identify objects or boundaries by segmenting images into distinct regions based on pixel characteristics.

Selective Filtering

When a model ignores “noise” to focus on valuable information.

Siamese Networks

A different way of classifying image where instead of training one model to learn to classify image inputs it trains two neural network that learns simultaneously to find similarity between images.

Signal

Inputs, information, data.

Software Development Kit (SDK)

A set of software development tools that allows for the creation of applications on a specific platform.

Specificity

The rate of how often a model predicts “no,” when it’s actually “no.”

Standard Classification

The process by which an input is assigned to one of a fixed set of categories. In machine learning, this is often achieved by learning a function that maps an input to a score for each potential category.

Strong AI

An area of AI development that is working toward the goal of making AI systems that are as useful and skilled as the human mind.

Structured Data

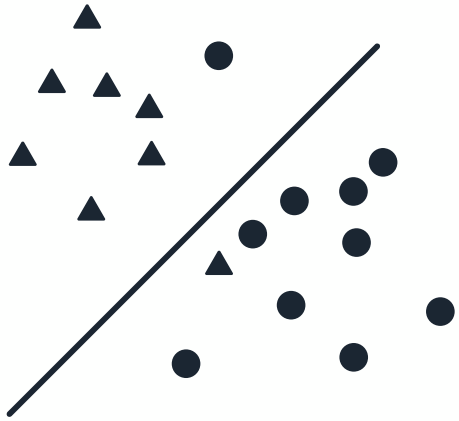
Data that resides in a fixed field within a file or record. Structured data is typically stored in a relational database. It can consist of numbers and text, and sourcing can happen automatically or manually, as long as it's within an RDBMS structure.

Supervised Learning

A machine learning approach that’s defined by its use of labeled datasets. These datasets are designed to train or “supervise” algorithms into classifying data or predicting outcomes accurately. Using labeled inputs and outputs, the model can measure its accuracy and learn over time.

Synthetic Data

Images that are created rather than collected.



T

Target Function
The end goal of an algorithm.

Taxonomy
Is a scheme of classification, especially a hierarchical classification, in which things are organized into groups or types. A taxonomy can be used to organize and index knowledge (stored as documents, articles, videos, etc.).

Temporal Data
Data recorded at different points in time.

TensorFlow
An open-source software library also used for machine learning applications such as neural networks. It is used for both research and production at Google and was released under the Apache 2.0 open source license in 2015.

Test Dataset
The sample of data used to provide an unbiased evaluation of a final model fit on the training dataset.

Torch
A scientific computing framework with wide support for machine learning algorithms, written in C and lua.

Train
The process iteratively adjusts your model's parameters to converge on the weights that optimally mimic the training data.

Training Datset
Training data is the initial dataset used to train machine learning algorithms. Models create and refine their rules using this data. It's a set of data samples used to fit the parameters of a machine learning model to training it by example.

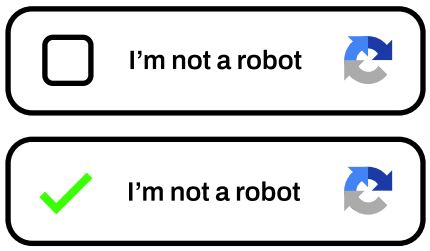
Transfer Learning
Transferring information from one machine learning task to another. Transfer learning might involve transferring knowledge from the solution of a simpler task to a more complex one, or involve transferring knowledge from a task where there is more data to one where there is less data.

Transformer
A neural network that transforms a sequence of elements (like words in a sentence) into another sequence to solve sequence-to-sequence tasks.

True Positives
Actual positives that are correctly identified as such (Actual Yes, Predicted Yes).

True Negatives
Actual negatives that are correctly identified as such (Actual No, Predicted No).

Turing Test
A test developed by Alan Turing 1950, used to identify true artificial intelligence. It tested a machine's ability to exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human.



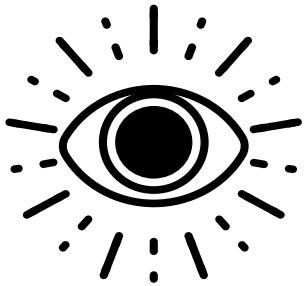
U

Unstructured Data

Unstructured data is information that either does not have a pre-defined data model or is not organized in a pre-defined manner. Unstructured data may include documents, images, video and audio.

Unsupervised Learning

Uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention. Its ability to discover similarities and differences in information make it the ideal solution for exploratory data analysis, cross-selling strategies, customer segmentation, and image recognition.



V

Validate

During the training process of a neural network, the validation set is used to assess how well the model is generalizing. These examples are not used to calculate the gradient; they are the ones used to calculate your metrics and see how well they are improving over time.

Validation Data Set

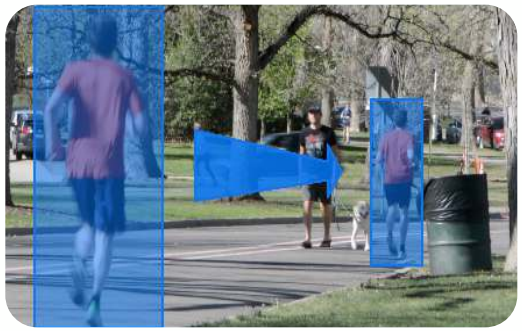
The sample of data used to provide an unbiased evaluation of a model fit on the training dataset while tuning model hyperparameters. The evaluation becomes more biased as skill on the validation dataset is incorporated into the model configuration.

Variance

An error due to sensitivity to small fluctuations in the training set computed as the expectation of the squared deviation of a random variable from its mean.

Video Frame Interpolation

Is to synthesize several frames in the middle of two adjacent frames of video. Video Frame Interpolation can be applied to generate slow motion video, increase video frame rate, and frame recovery in video streaming.



Visual Recognition

The ability of software to identify objects, places, people, writing, and actions in images and videos.

Visual Search

The ability of software to find visually similar content based on an image or video query.

W

Weak AI

Also known as narrow AI, weak AI refers to a non-sentient computer system that operates within a predetermined range of skills and usually focuses on a singular task or small set of tasks. Most AI in use today is weak AI.

Weight

A coefficient for a feature in a linear model, or an edge in a deep network. The goal of training a linear model is to determine the ideal weight for each feature. If a weight is 0, then its corresponding feature does not contribute to the model.

Width

The number of neurons in a particular layer of a neural network.

Workflows

Workflows enable users to make predictions on a graph that combines one or more pre-trained, custom models and fixed function model operators using a single API call.

Y

YAML

A markup language originally invented by Yahoo that is now commonly used as a format for configuration files.

About Clarifai

Clarifai is the leading deep learning AI platform for computer vision, natural language processing and automatic speech recognition. We help enterprises and public sector organizations transform unstructured images, video, text and audio data into structured data, significantly faster and more accurately than humans would be able to do on their own. Founded in 2013 by Matt Zeiler, Ph.D., Clarifai has been a market leader in computer vision AI since winning the top five places in image classification at the 2013 ImageNet Challenge. Clarifai, headquartered in Wilmington, DE and is continuing to grow with more than 90 employees in North America and Europe. For more information, please visit: www.clarifai.com.