Table S1

Term	Definition
ALGORITHM	A formula or set of step-by-step instructions (or rules, procedures, or processes) which teaches the machine to execute a task or solve an issue, in order answer the request. Machine learning employs different kinds of algorithms, including clustering algorithms, classification algorithms, or regression algorithms.
ARTIFICIAL INTELLIGENCE (AI)	A non-human system (model or program) which can achieve specific goals by analyzing data and taking actions with various degrees of autonomy. AI systems can be based on softwares (such as image analysis software) or hardware devices (for example advanced robots). Recently, in scientific literature, the terms "AI" and "machine learning" have been used interchangeably.
ARTIFICIAL NEURAL NETWORK (ANN)	In machine learning, it is a human brain inspired computational model. It is composed of layers (at least one of which is hidden) in which multiple units (called artificial neurons) are connected to each other in order to transmit information: task learning is thus progressive and automatic and a specific programing for every single tasks is not required.
BACKPROPAGATION	This approach is employed in the deep neural network training process in order to reduce errors: through the calculation of the difference between their output and the desired output, it allows the machine to learn algorithm to adjust itself.
COMPUTER-AIDED DETECTION/DIAGNOSIS (CAD)	The terms refer to the employment of computer programs to process digital images in order to assist medical specialists in the detection of suspicious regions, supporting their clinical decisions.
CONVOLUTIONAL NEURAL NETWORK (CNN).	Also known as ConvNet, it is a specific kind of ANN employing *perceptrons* for automatic learning. CNNs are formed by an input and an output layer as well as by multiple hidden layers (convolutional layers, pooling layers and dense layers). They are applied in imaging recognition, natural language processing and other cognitive tasks.
DATA WAREHOUSE	It gathers structured data in order to support the decision making process. It is generally an offline copy of production database.
DEEP LEARNING (DL)	A subfield of automatic learning that exploits human brain inspired algorithms, working in a hierarchical way. It includes many layers, typically 5–100 (many of which are hidden), consequently becoming sensitive to progressively more abstract patterns; it differs from shallow network, which includes only a few layers. DL systems are mostly based on ANN and are applied in speech recognition, computer vision and natural language processing.

Term	Definition
FULLY CONNECTED LAYER	Also called "dense layer", it is made up of on a hidden layer in which each neuron is connected to *every* neuron in the following hidden layer.
LAYER	As in convolutional layer, it consists of a group of neurons of a neural network which processes a set of input features, or the output of those neurons.
LEARNING ALGORITHM (LA)	It is an algorithm which assists machine learning to imitate the human learning process; when combined with other technologies (like neural networks), they create involved, sophisticated learning programs. Some examples are: logic regression, linear regression and decision trees.
MACHINE LEARNING	Conventionally, machine learning is a subfield of AI: through the employment of algorithms, this system finds patterns in given data without explicit instruction. It uses the learned model to make predictions from new data drawn from the same distribution; it should learn how to combine features of inputs (such as images) with outputs (such as labels). In recent scientific literature, ML and AI are usually used interchangeably.
MULTILAYER NEURAL NETWORK	A neural network containing more than one layer of artificial neurons or nodes. They have typically at least one input layer emitting inputs to hidden layers, and a final output layer. Comparing to single-layer neural networks, they are characterized by a more sophisticated design. CNN, recurrent neural networks and deep networks are all examples of multilayer neural networks.
MULTILAYER PERCEPTRON (MLP)	A type of feedforward artificial neural network consisting of at least three layers of neurons which use a nonlinear activation function (except for the input nodes). It employs a supervised backpropagation technique for training. It differs from a linear perceptron for its multiple layers and nonlinear activation.
NATURAL LANGUAGE PROCESSING (NLP)	A method of human spoken and written language's translation which helps communication between computer and human: the traditional methods of choice for interpreting phrases have been Feeding Statistics and models; voice recognition software, human language translation, information retrieval, and AI represent new strategies in this area. Machine learning is also involved in this process. NLP method also assists translation between one human language and another.
NEURAL NETWORK	A brain-inspiring model used in automatic learning made of layers of which at least one is hidden, consisting of simple connected units or neurons followed by non linearities. A set of neurons takes in an input (e.g. pixels in a photo), performs simple computations on them, and transfers them to the next layer of units; the last layer represents the output (answer).
PATTERN RECOGNITION	A subfield of machine learning whose role is to recognize data patterns or data

Term	Definition
	regularities in a given scenario. It can be either supervised (which can find previously known patterns in a given data) or unsupervised (which can discover new patterns). The purpose of pattern recognition is to give a reasonable answer for all data and to classify input data in classes depending on certain features.
PERCEPTRON	A system (node, neuron) which formulates a single output from multiple inputs by running a function on the weighted sum of the inputs and establishing a linear combination. A multilayered perceptron is a network of perceptrons.
RECURRENT NEURAL NETWORK (RNN)	RNN is a type of neural network characterized by a recurrent loop in the architecture: the neural network is intentionally processed multiple times, where parts of each performance are transferred into the next run. This system is particularly useful in sequences evaluation.
SUPPORT VECTOR MACHINE (SVM)	A supervised AI system for data classification and regression analysis which reduces the gap between the points of separate categories in feature space.

Table 1. Artificial intelligence related glossary of common terms.