

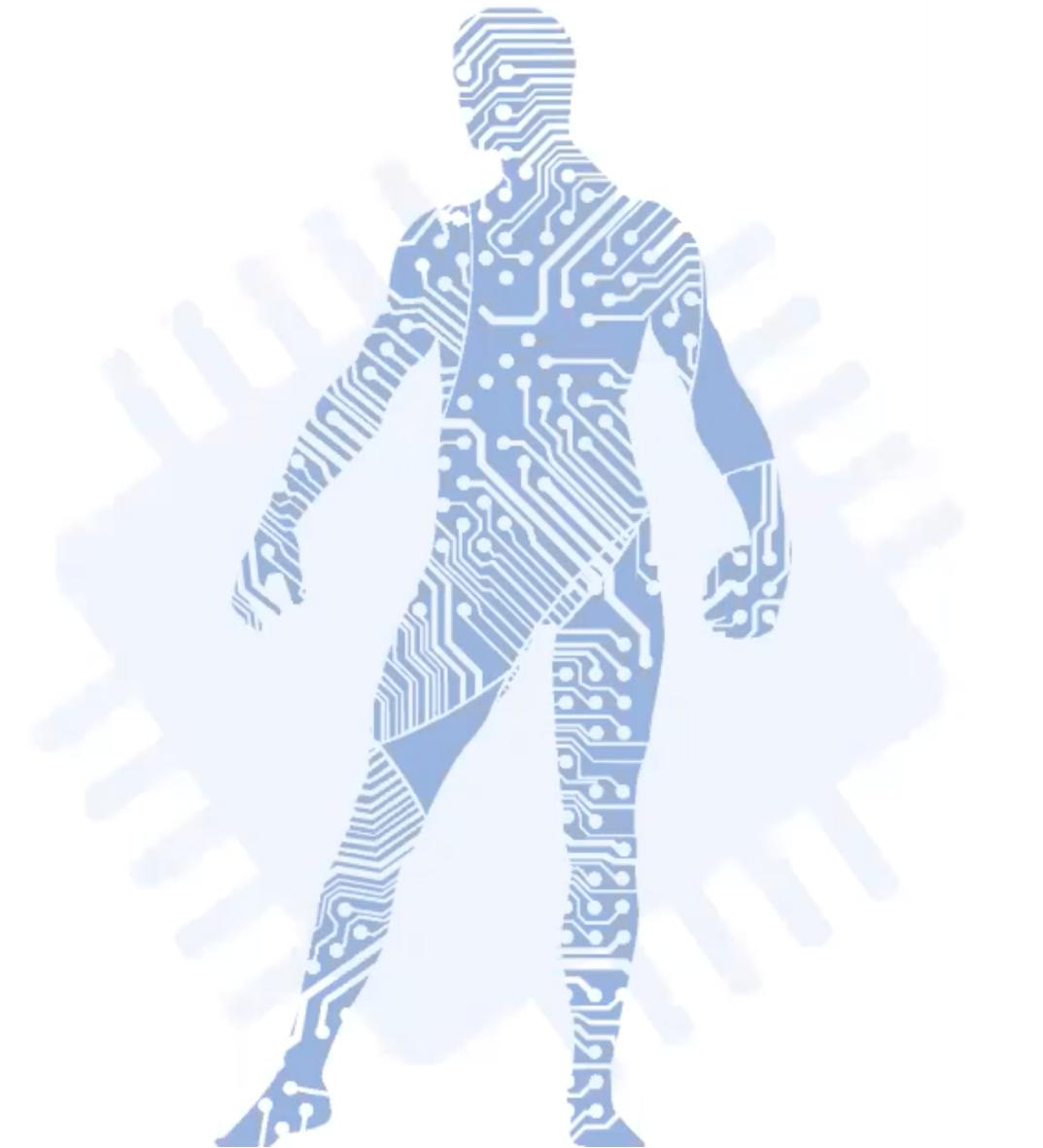


Artificial Intelligence

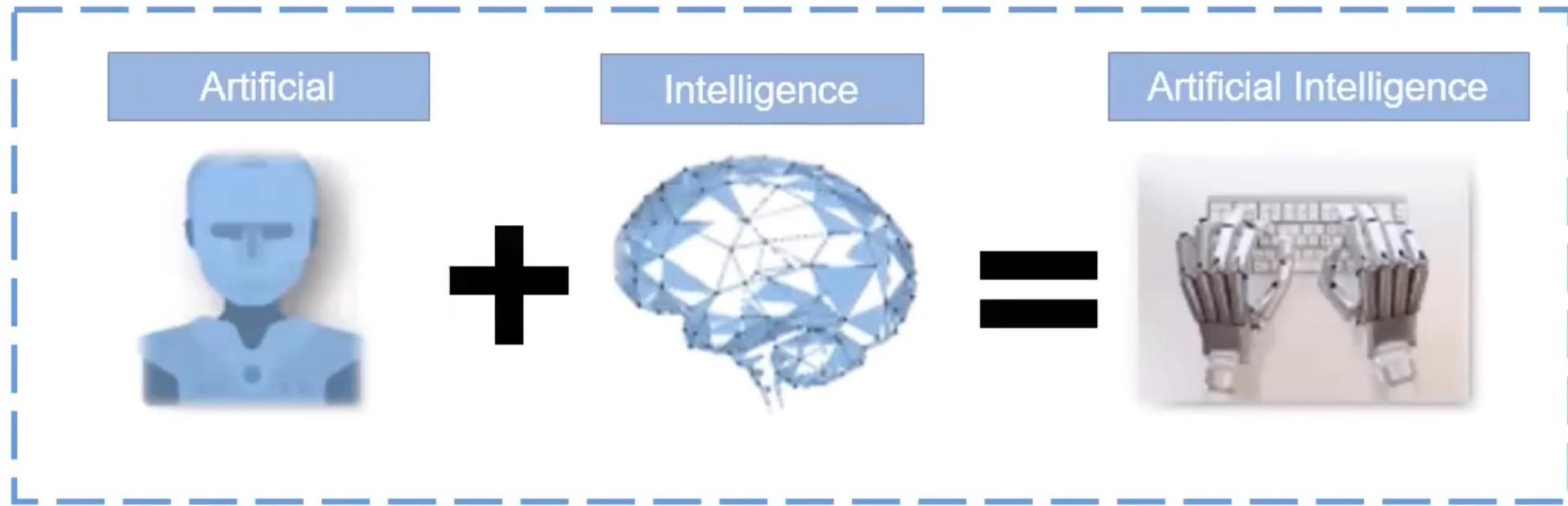
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AI Objectives

- Introduction to Artificial Intelligence
 - History, Demand, Buzzwords, Applications
 - Types of ML Algorithms, Libraries
 - Deep Learning Inspiration, Frameworks
- Python Programming Fundamentals:
 - Basics
 - Conditional Statements, Loops
 - Functions, OOPS
 - Data Structures
- Python Packages for Data Analysis:
 - NumPy
 - Pandas
 - Matplotlib
- Introduction to IBM Cloud



AI What is Artificial Intelligence



Artificial Intelligence is simply the ability of a computer to exhibit “intelligence”. This intelligence can either mimic human intelligence or observe real world problems and intelligently find solutions for it.



History of AI

1950

The Turing Test

It a test of a machine's ability to exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human.

1956

Dartmouth Conference

John McCarthy coined the term artificial intelligence

1966

First Chat-bot

Joseph Weizenbaum created the first chat-bot in 1966, which was named as ELIZA.

1972

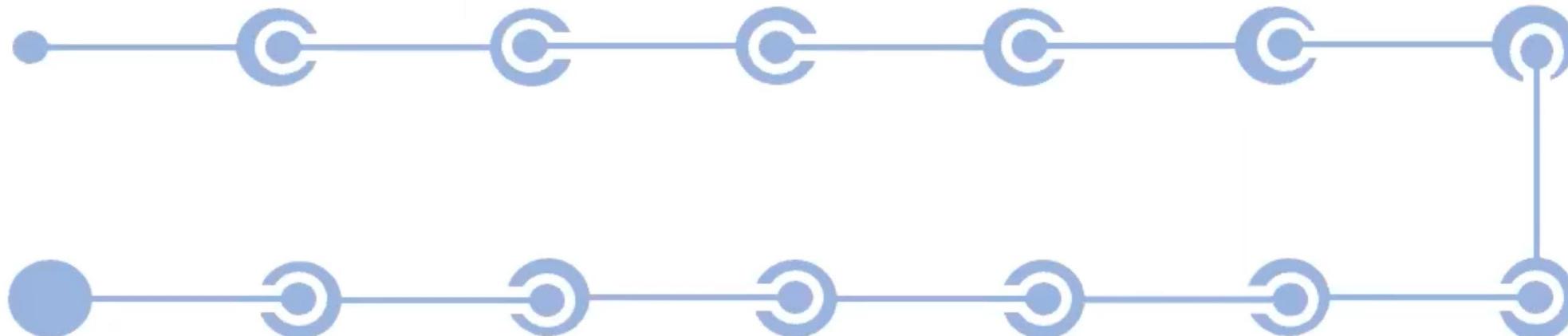
WABOT-1

The first intelligent humanoid robot was built in Japan which was named as WABOT-1.

1997

IBM Deep Blue

became the first computer to beat a world chess champion.



2018

Self driving cars

Get a modern PowerPoint Presentation that is beautifully designed.

2015

Amazon Echo

Get a modern PowerPoint Presentation that is beautifully designed.

2012

Google now

able to provide information to the user as a prediction

2011

IBM's Watson,Siri

IBM's Watson won jeopardy, a quiz show, Apple Introduced Siri

AI Demand For AI

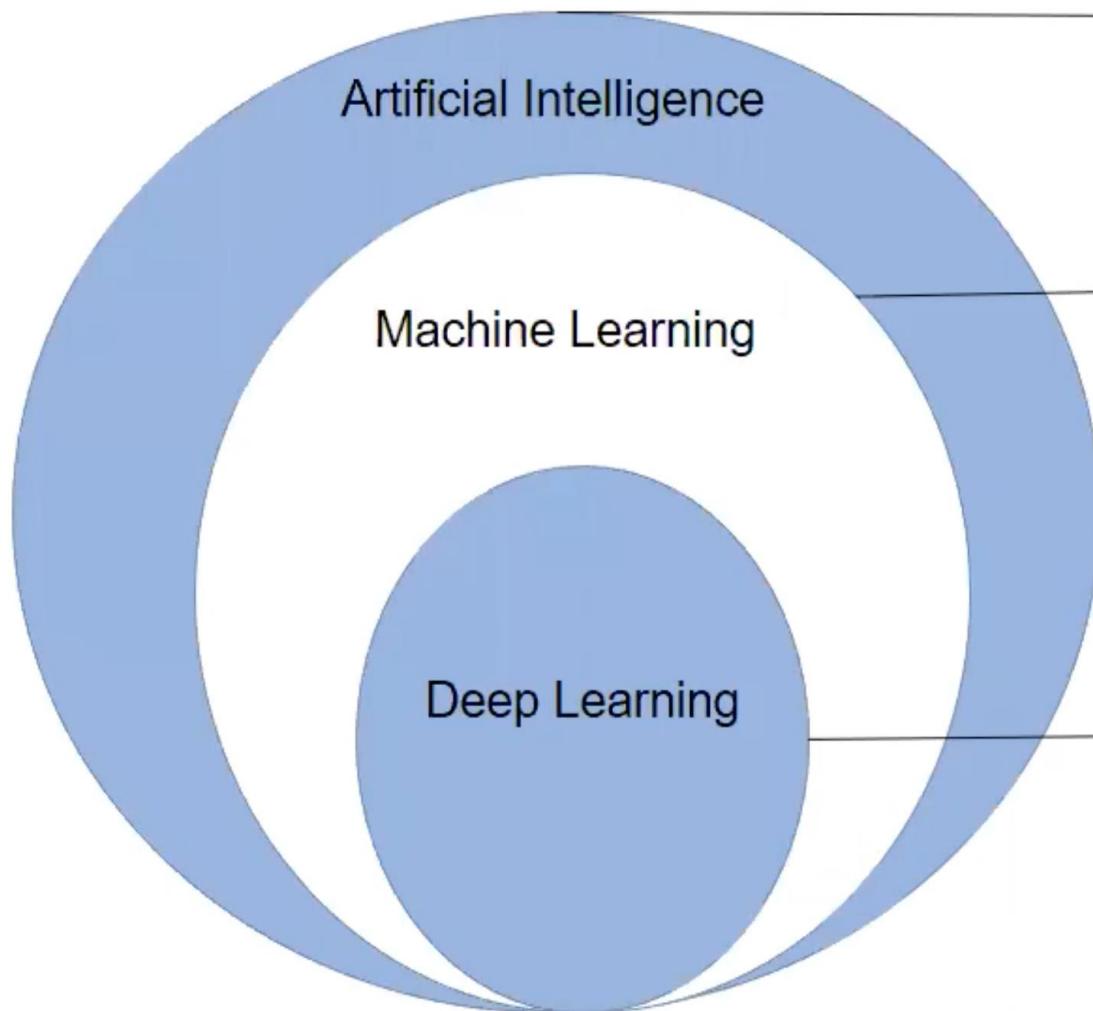
More Computational Power

More data

Better Algorithms

Funding and investment

AI Buzzwords associated with AI

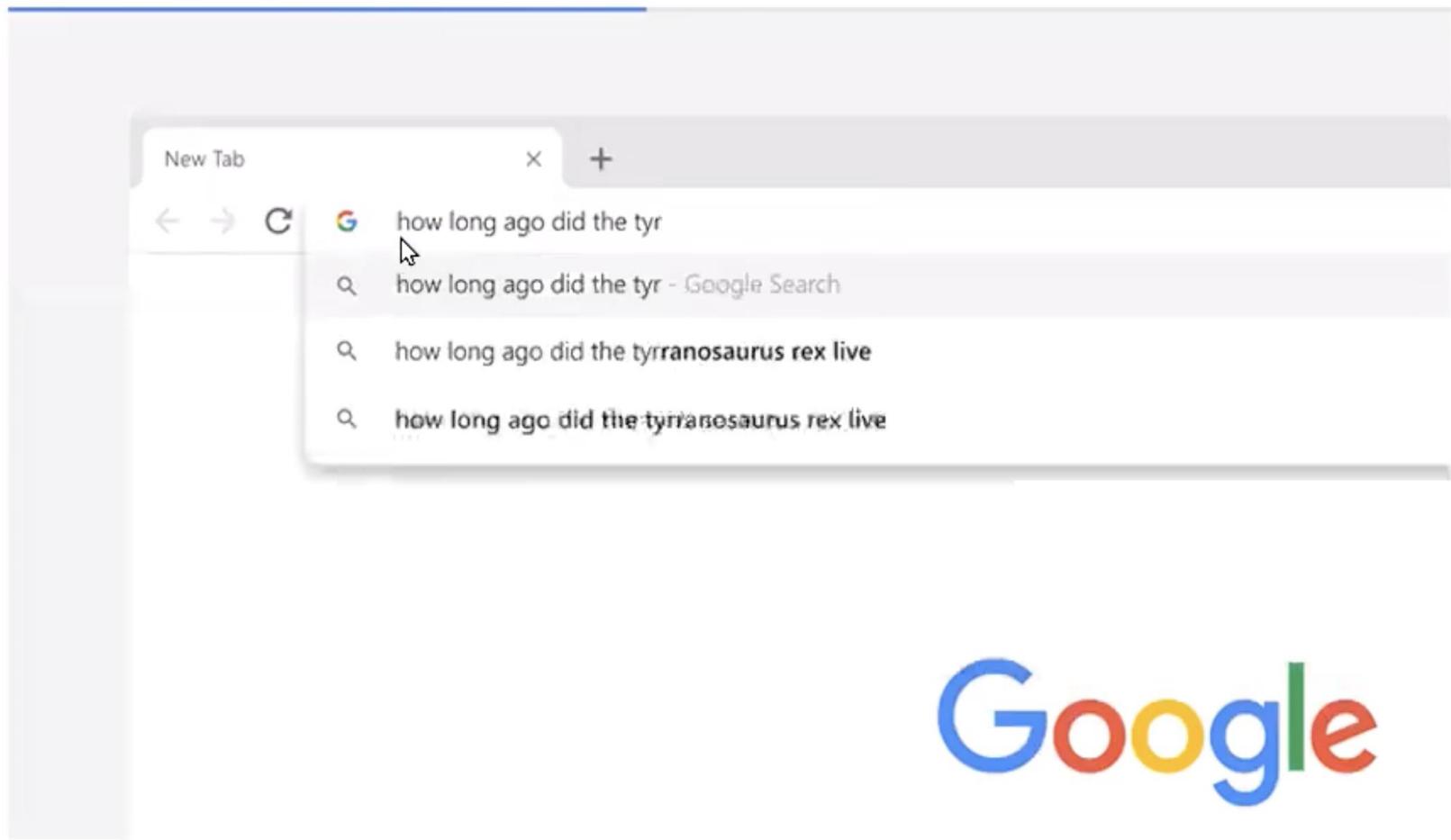


is the simulation of human intelligence by computers.

is a branch of AI where algorithms are used to learn from data to make future decisions or predictions.

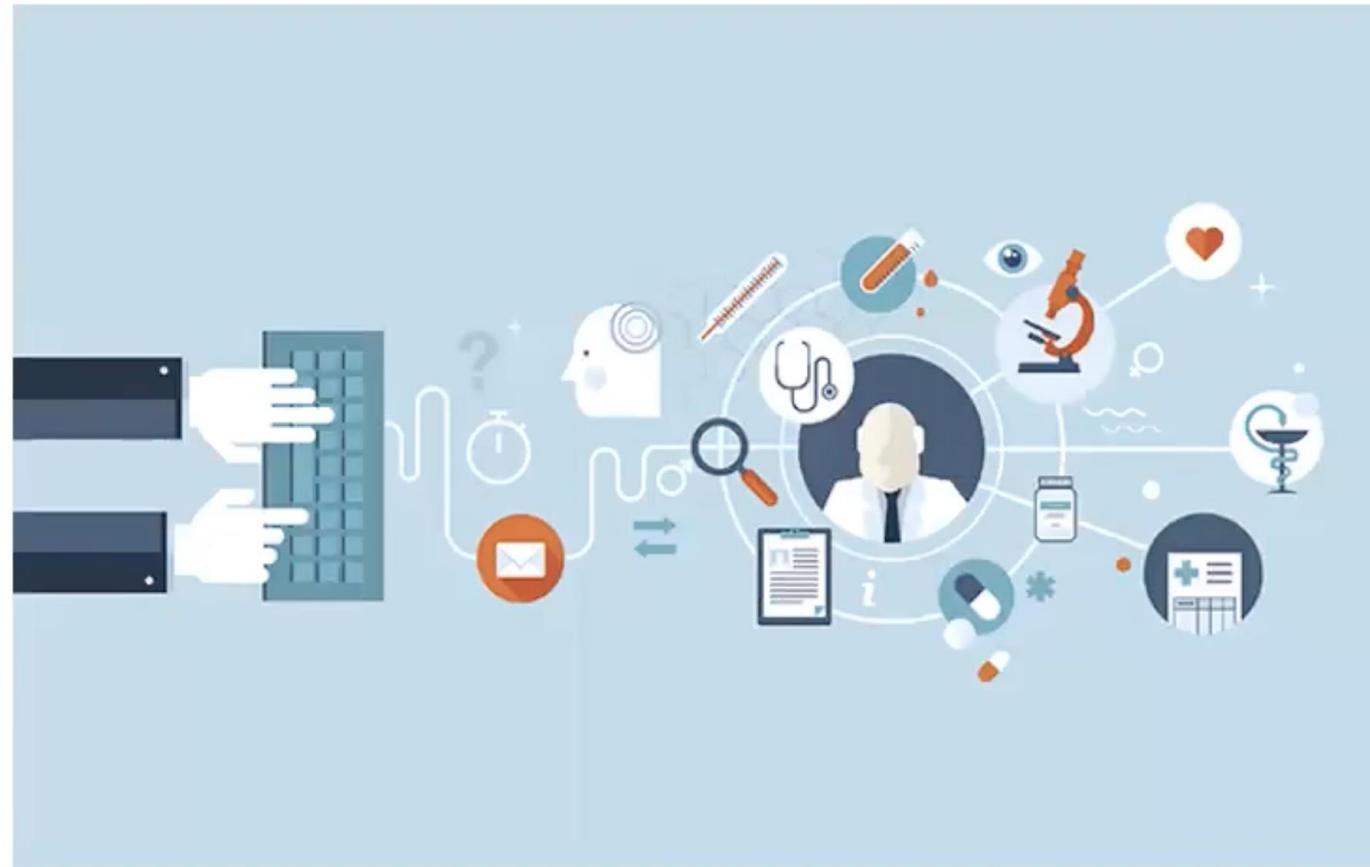
is a specific subset of machine learning using artificial neural networks (ANN) which are layered structures inspired by the human brain.

Ai Applications



Google

IBM Watson in Health care



More than 230 health organization uses IBM AI technology

AI JP morgans Coin Platform

Uses Ai to analyze Legal documents



AI Googles AI Eye Doctor

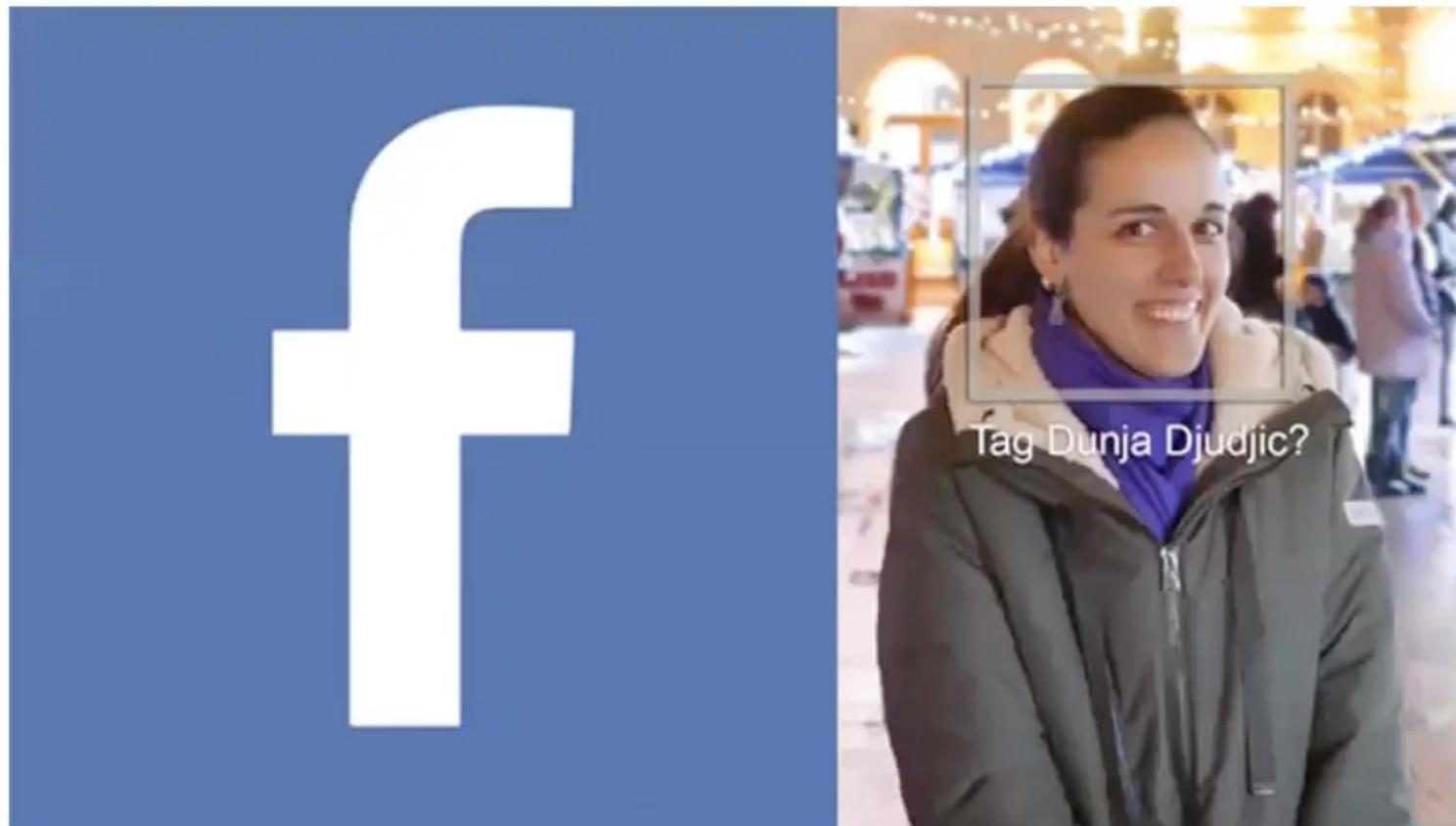
Diagnosing diabetic retinopathy



Image of retina

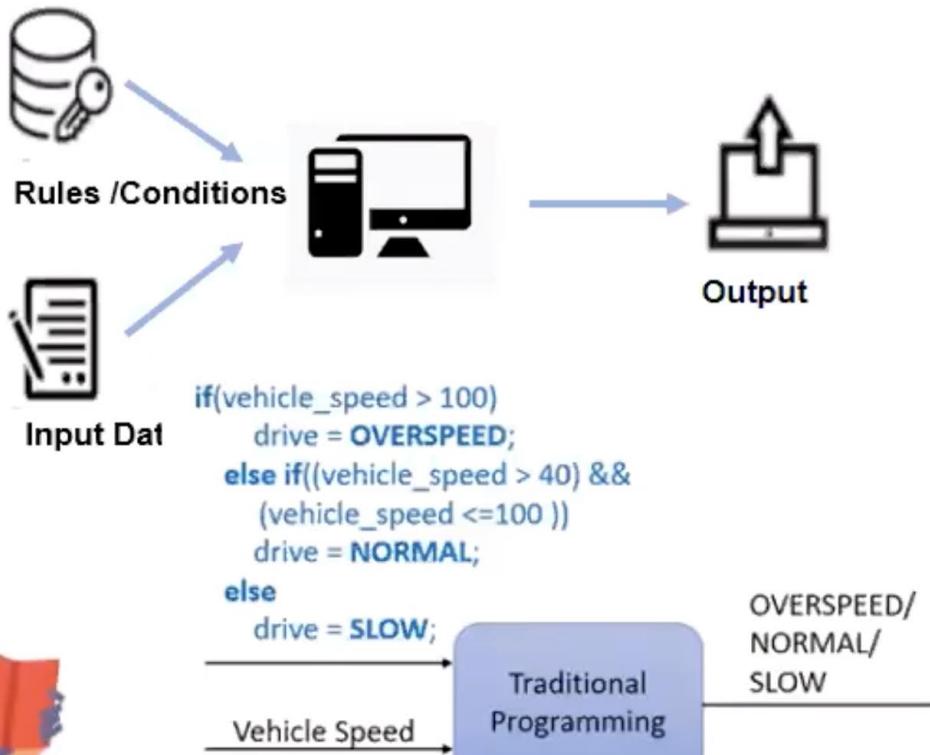
Googles Eye Doctor can Recognize Diabetic Retinopathy which Causes Blindness

AI Face recognition

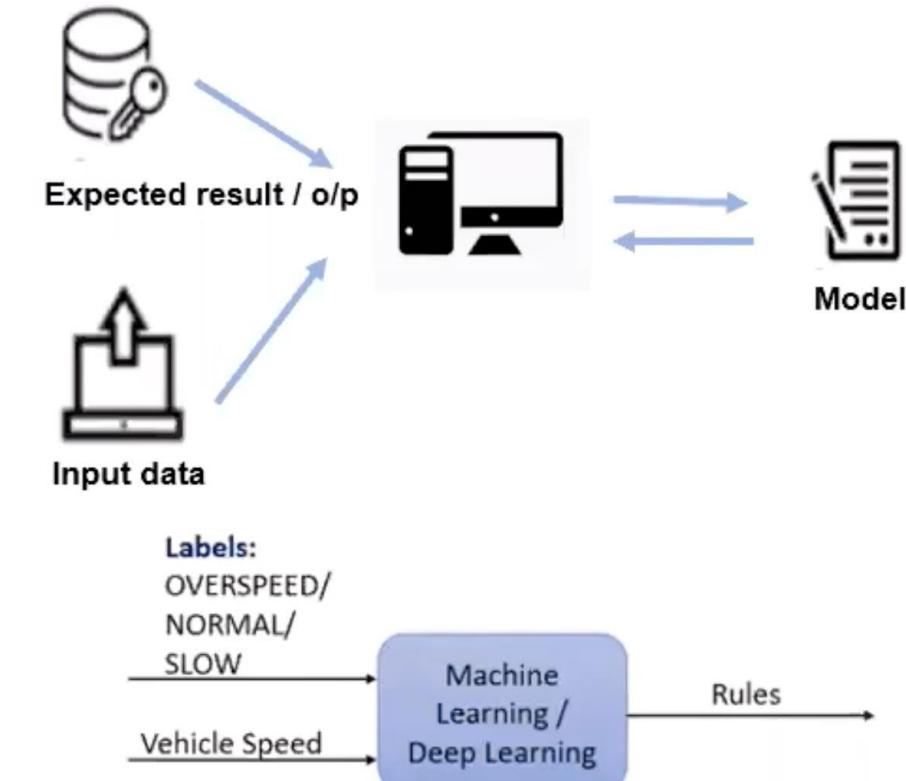


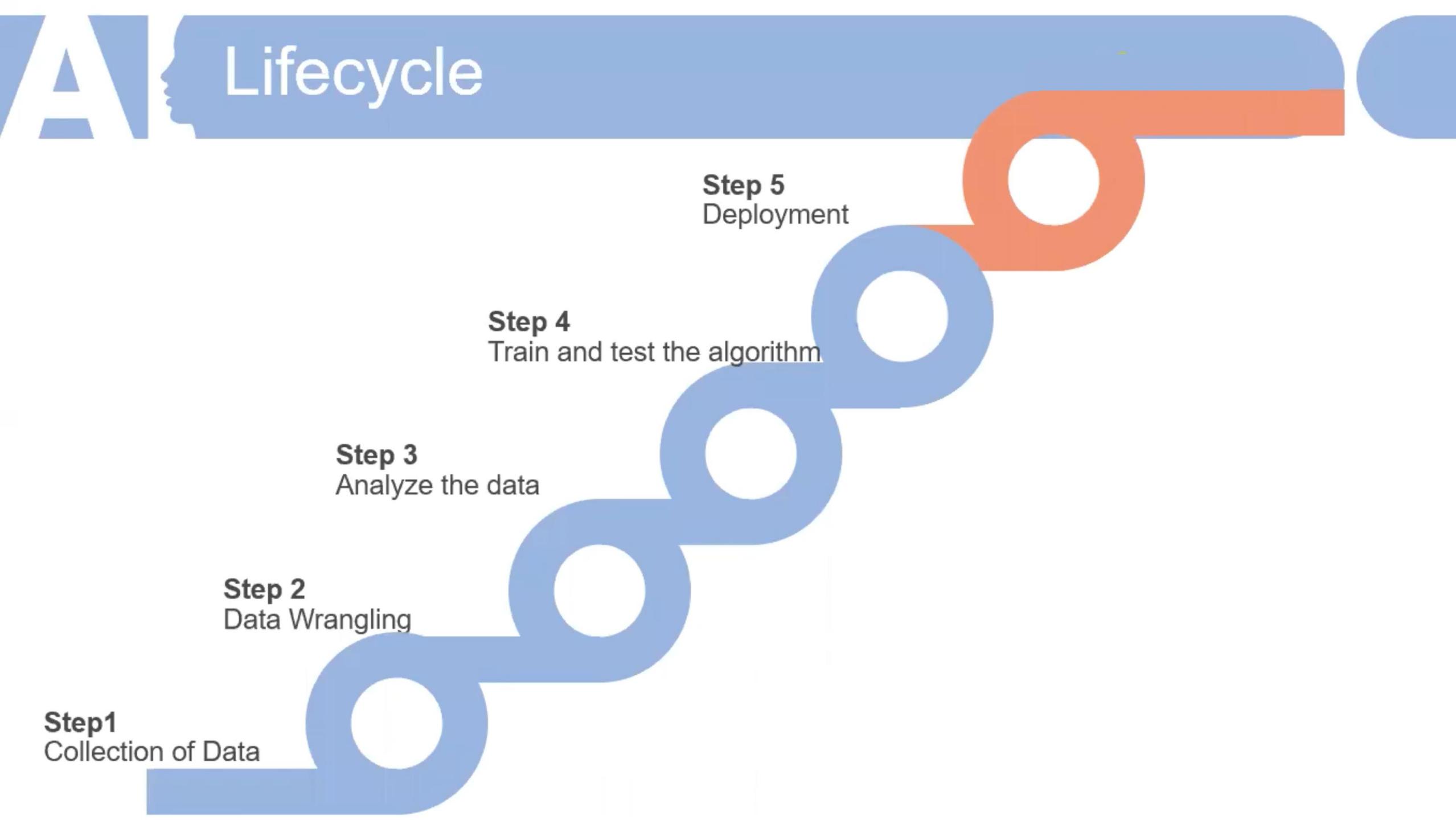
How it Works

Traditional Programming



Machine Learning Programming





AI Types of Machine Learning



Makes machine learns explicitly

Data with Clearly Defined Output is given

Predicts Futures/outcome

Resolves regression and classification problems

Supervised Learning



Machine understands the data

Evaluation is qualitative or indirect

Does not find or predict anything

Unsupervised Learning



An approach to AI

Reward based Learning

Learning from +ve to -ve Reinforcement

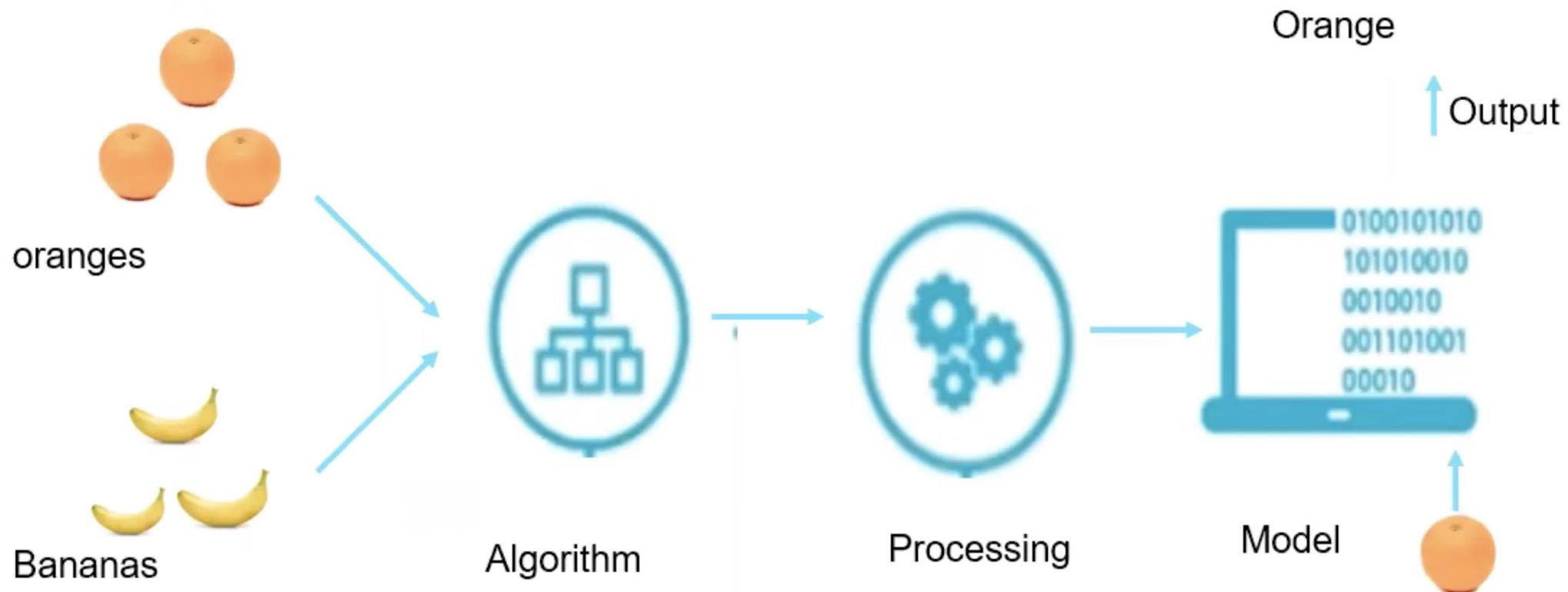
Machine learns how to act according to environment

Reinforcement Learning

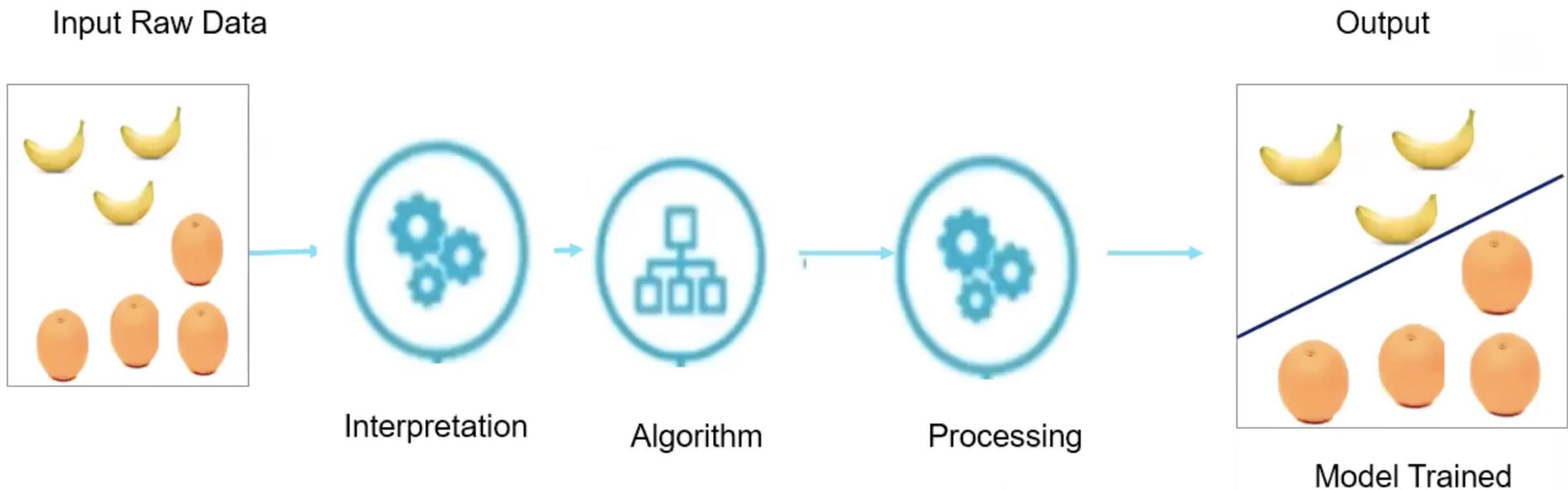


Supervised Learning

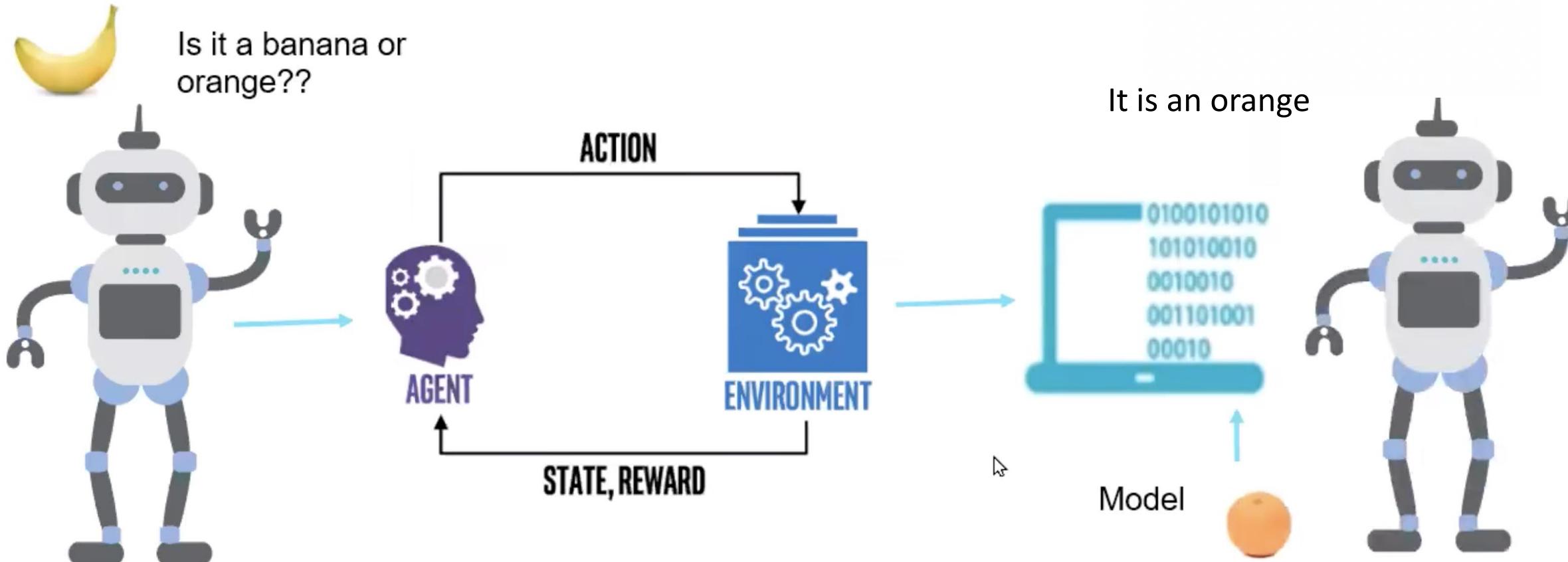
Input data with Annotation



Unsupervised Learning



Reinforcement Learning



AI Machine Learning Techniques



Regression



Predicting a value from a continuous data set.

Classification



classification predicts the category to which a new observation belongs.

clustering



Assigning a set of observations into subsets (i.e. clusters) so that the observations in the same cluster are similar in some sense.

Important Libraries



Pandas

Pandas is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language.



Scikit Learn

Scikit-learn is a library in Python that provides many unsupervised and supervised learning algorithms.



Numpy



NumPy

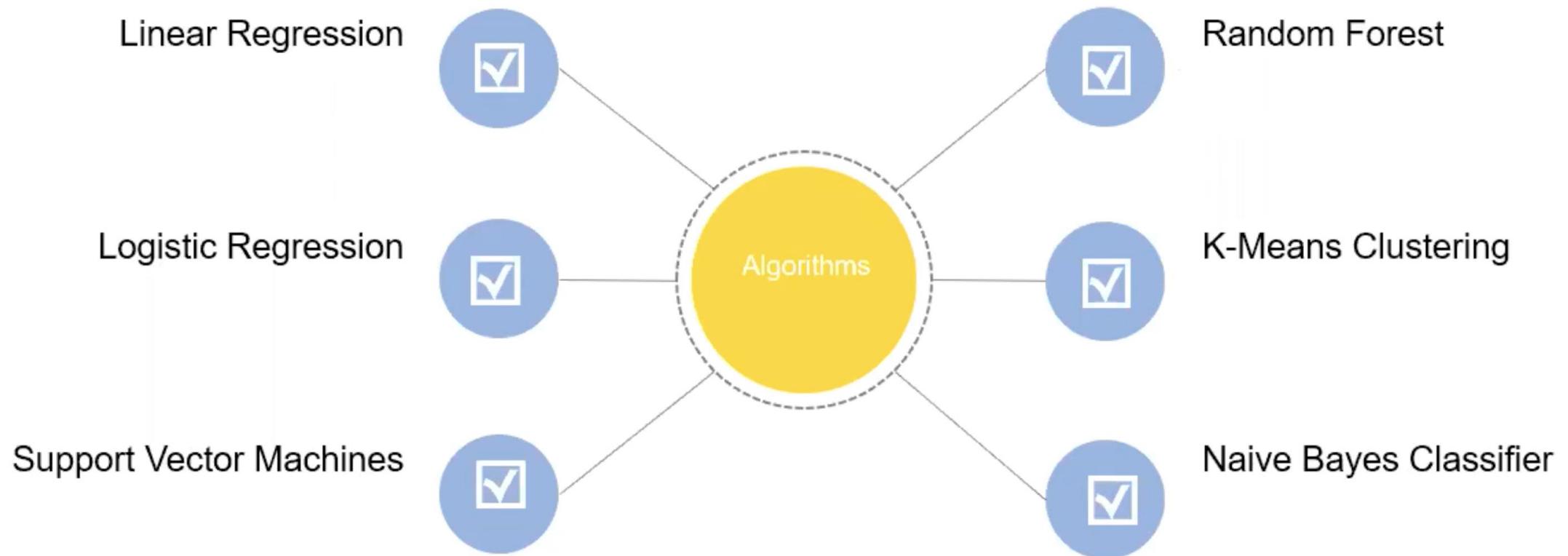
NumPy is a Python package which stands for 'Numerical Python'. It is the core library for scientific computing, which contains a powerful n-dimensional array object

Matplotlib



It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like

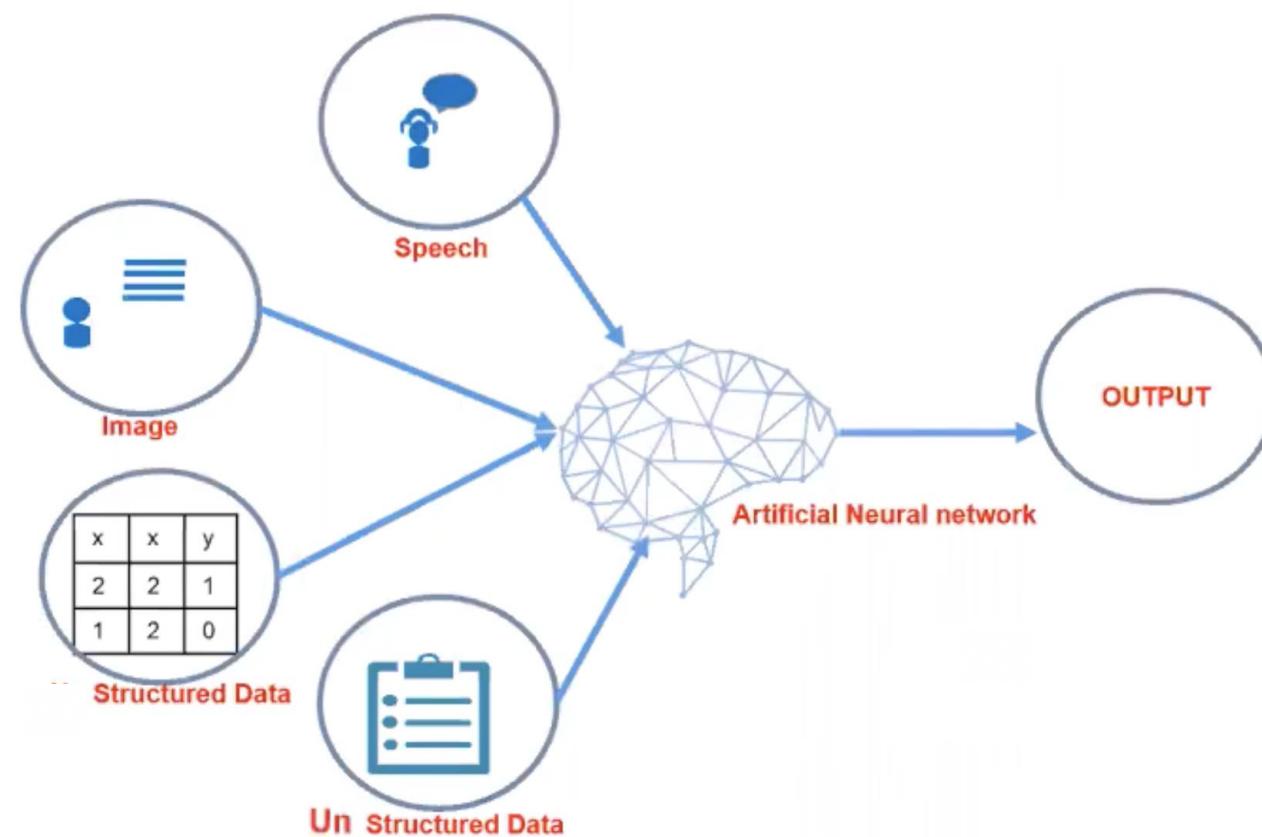
AI Machine Learning Algorithms





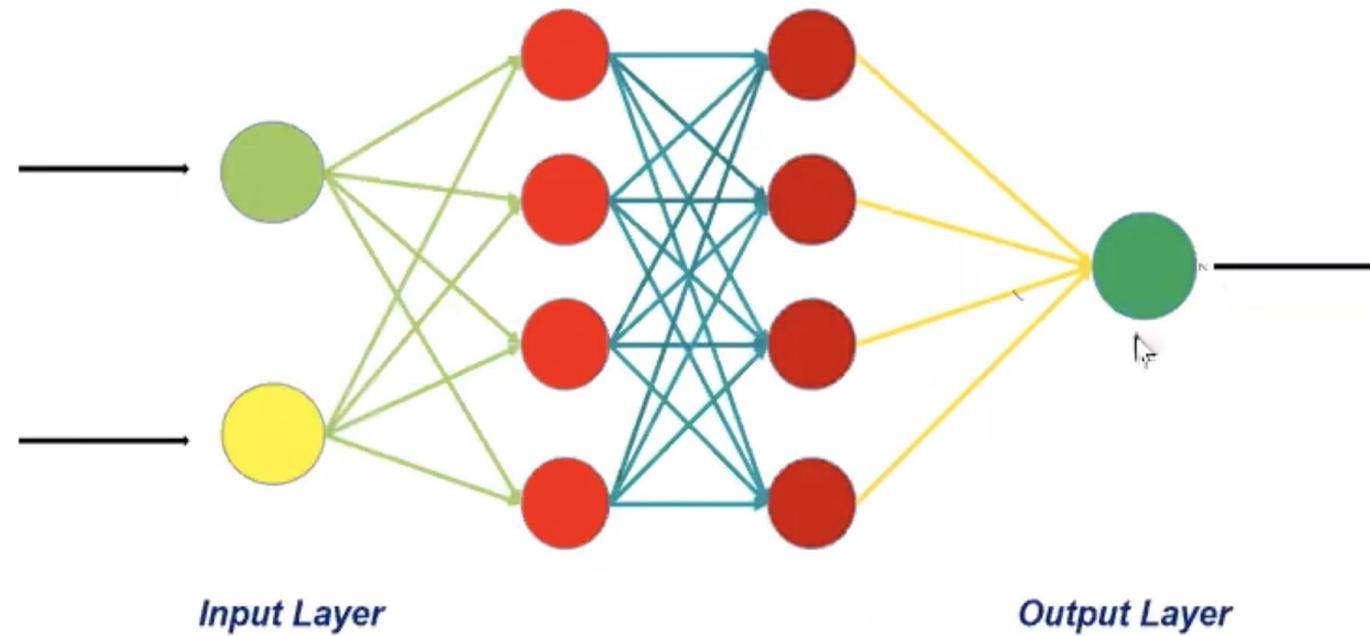
Deep Learning

Deep Learning means neural networks with a large number of hidden layers. It is an attempt to replicate the functioning of a human brain



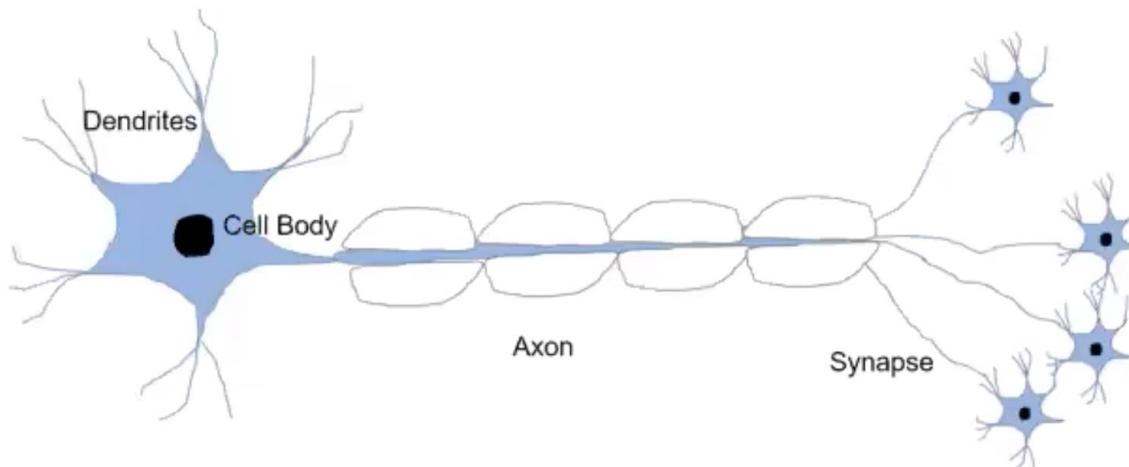


Topology of a Neural network

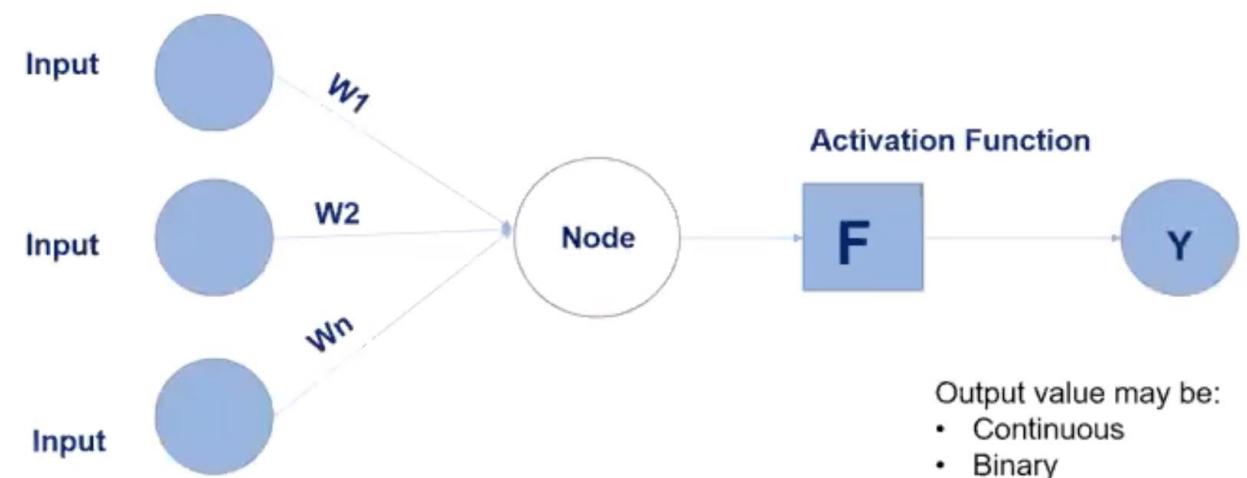


AI How it Works

Biological Neuron



Artificial Neuron



Output value may be:

- Continuous
- Binary
- Categorical

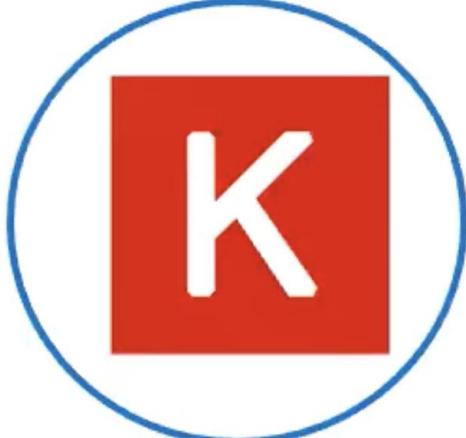


Biological Neural Network BNN	Artificial Neural Network ANN
Soma	Node
Dendrites	Input
Synapse	Weights or Interconnections
Axon	Output

AI Deep Learning Frame works



Pytorch



Keras



Caffe



Tensorflow

Thank You

Let's move to Hands-on ☺