National Science Day, 2023

Theme :Global Science for Global Wellbeing

Organised by

IQAC, Sir Gurudas Mahavidyalaya

&

Science Faculty

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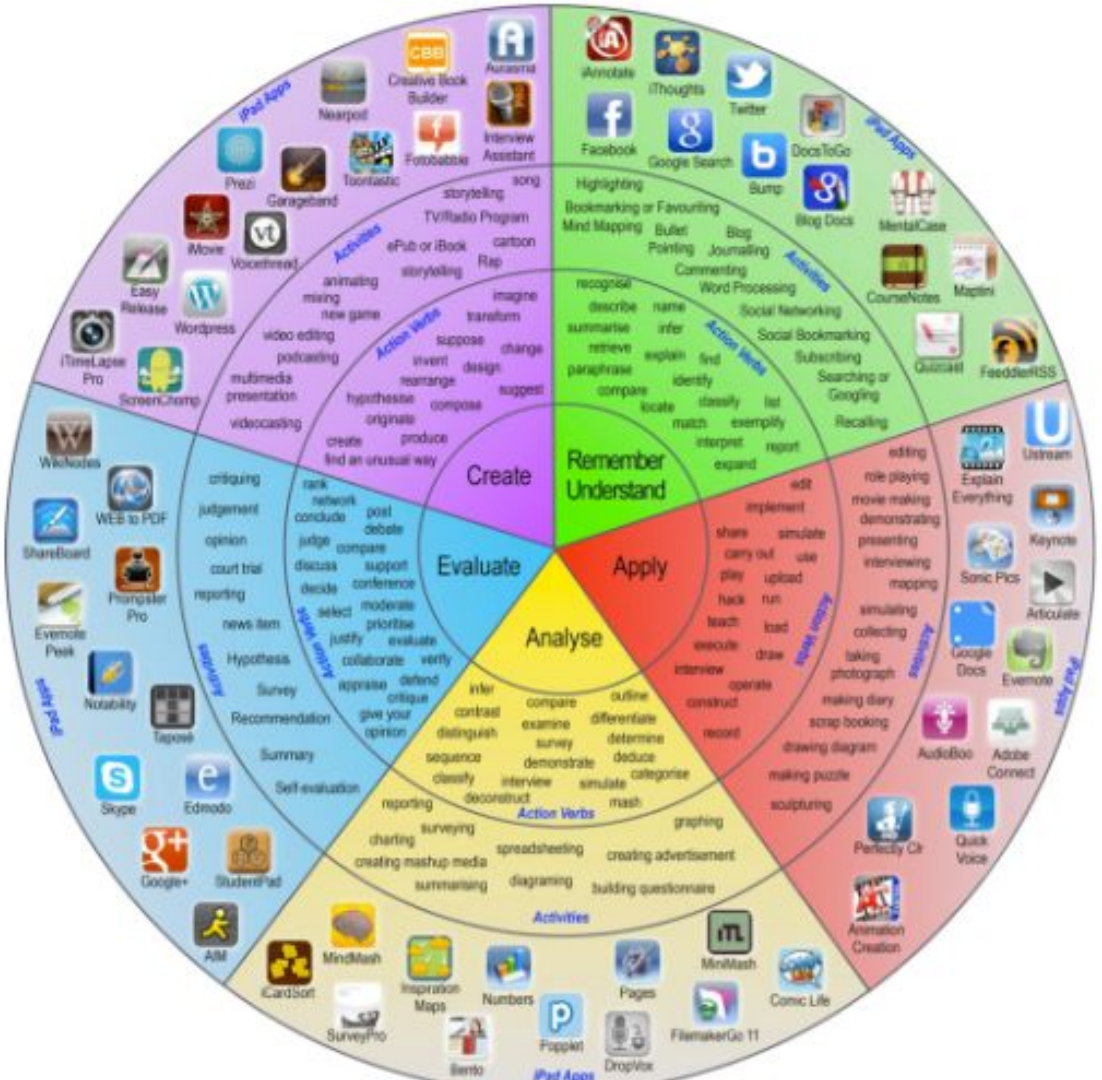
“ChatGPT - A Digital Tool for Human Being”

ChatGPT

ChatGPT- A digital Tool for Human Being.

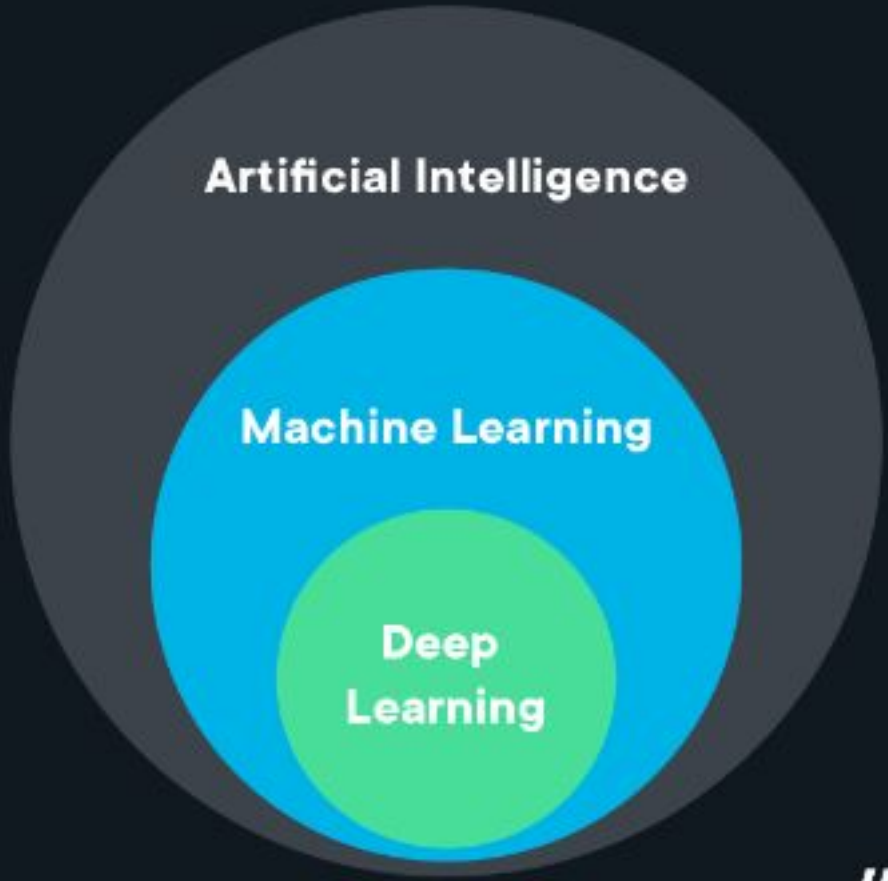
Digital Tools



Artificial Intelligence
A science devoted to making machines think and act like humans.

Machine Learning
Focuses on enabling computers to perform tasks without explicit programming.

Deep Learning
A subset of machine learning based on artificial neural networks.



In 2015, former Y Combinator CEO Sam Altman and business “magnet” Elon Musk spearheaded an initiative for safe and open AI development. And that’s where the history of OpenAI began.

By Altman “the greatest threat to humanity.”

OpenAI is a research company that aims to promote and develop “friendly” AI. Last year’s ChatGPT and DALLE-2 managed to take AI mainstream, and now the company is looking to make a few new friends, with Microsoft reportedly planning to pump $10 billion into the business.

Sam Altman and Elon Musk during a conversation at a Tesla plant.
Image credit: Y Combinator[4]

How to use ?

2015

Focus on video games and other applications

2016

Released its first tools, an open-source toolkit for reinforcement

learning (RI) OpenAI

2018

Released a paper “Improving Language Understanding by Generative Pre-Training”—introducing the concept of a Generative Pre-trained Transformer (GPT).

How to use ?

2018

Released DALL-E, an AI using a similar architecture to GPT-2, Instead of generating text, DALL-E—a could create photorealistic images as per text instruction.

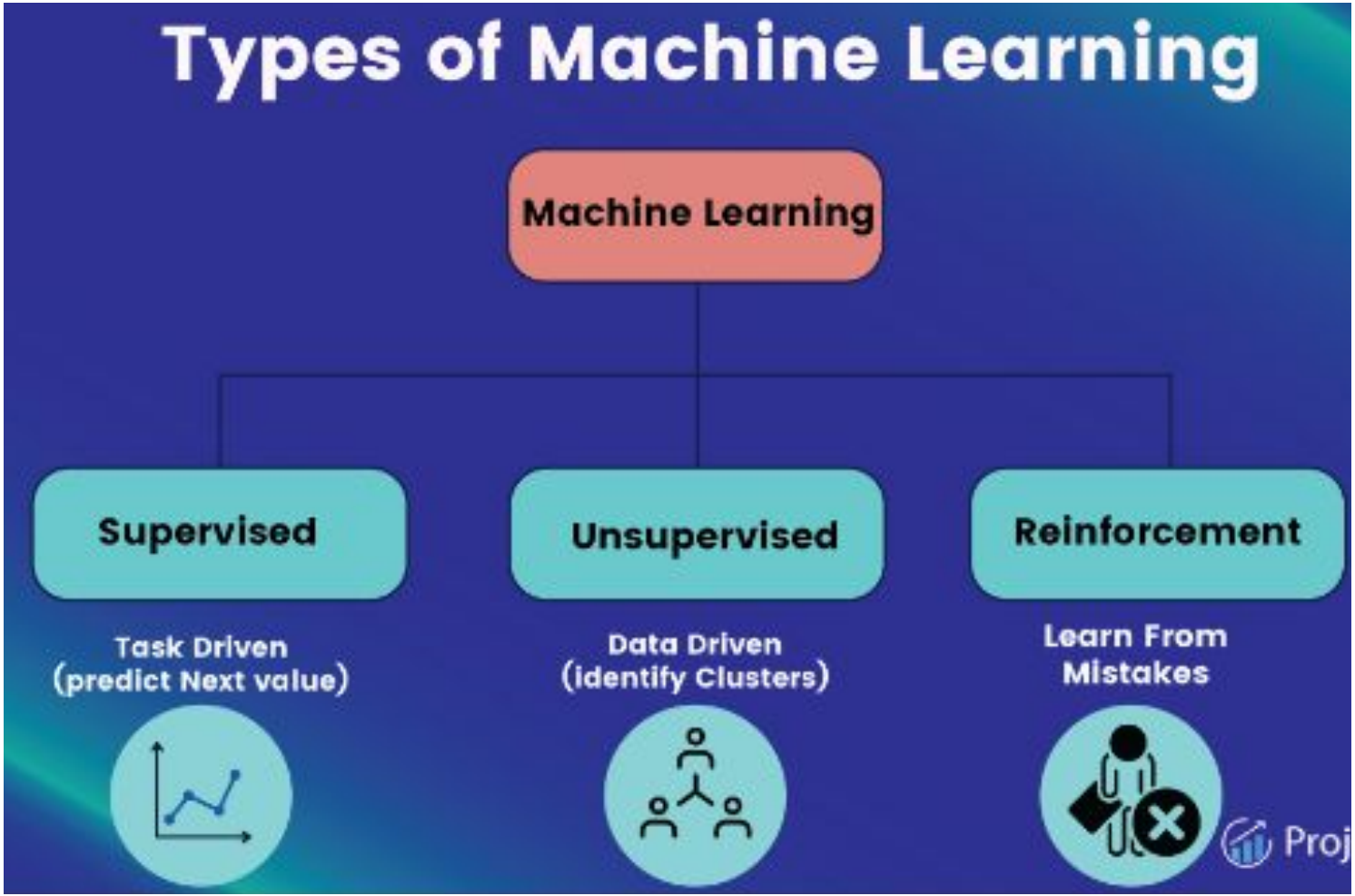
2021

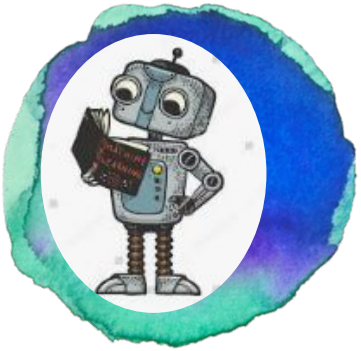
Released a paper “Improving Language Understanding by Generative Pre-Training”—introducing the concept of a Generative Pre-trained Transformer (GPT).

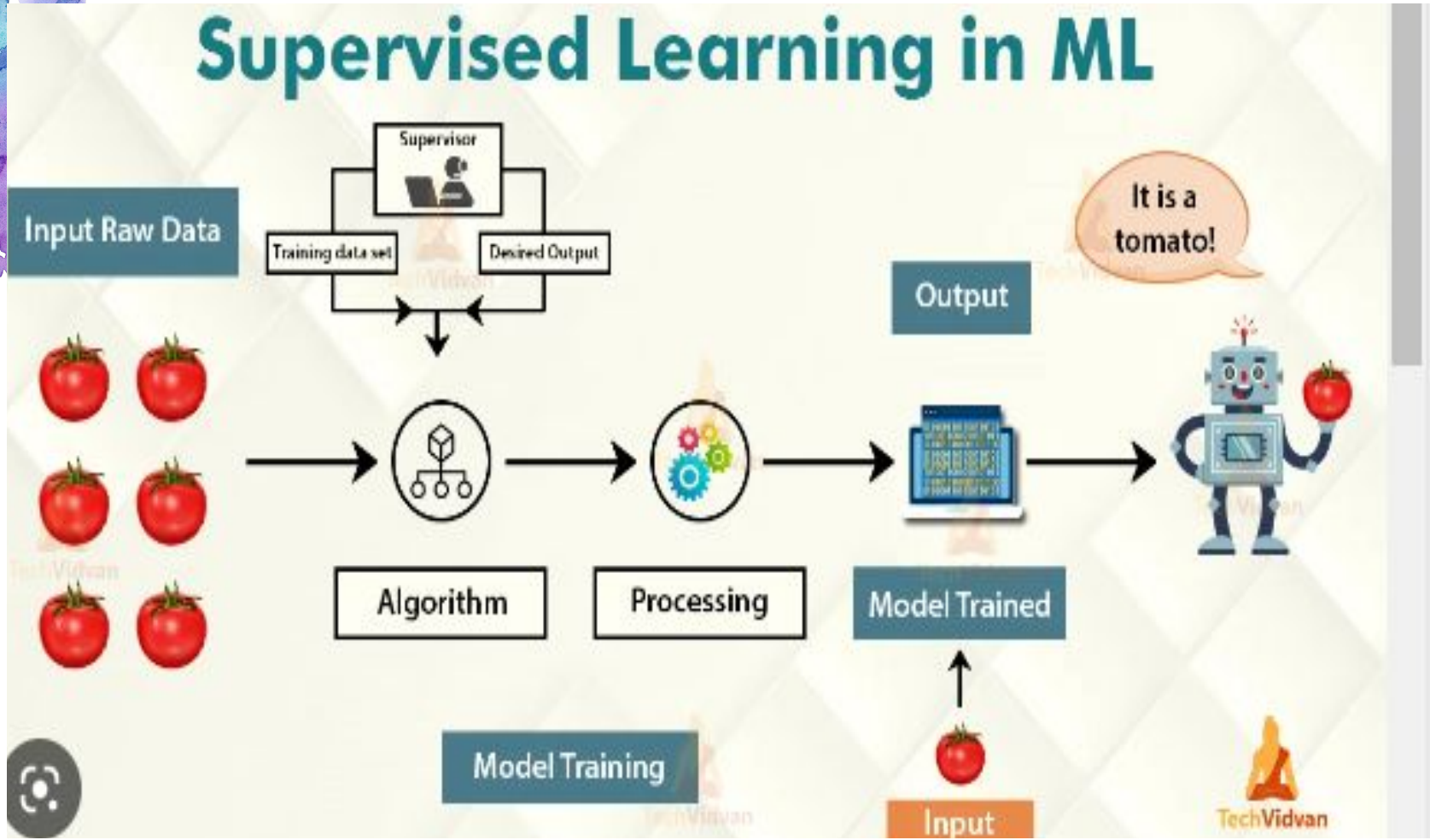
2022

- GPT’s are neural networks—machine learning models inspired by the structure and function of the human brain— trained on a large dataset of human-generated text. It can perform many functions like generating and answering questions, among other things.
- 2022, OpenAI released ChatGPT, a language model chatbot built on top of GPT-3.
- GPT-3 was fed 45TB of text data that translated into 175B parameters. It was smarter, faster, and more terrifying than anything we had seen before.
- Microsoft designed a supercomputer for OpenAI that included 285,000 CPU cores and 10,000 GPUs.
- 10 Millions users in 5 Days

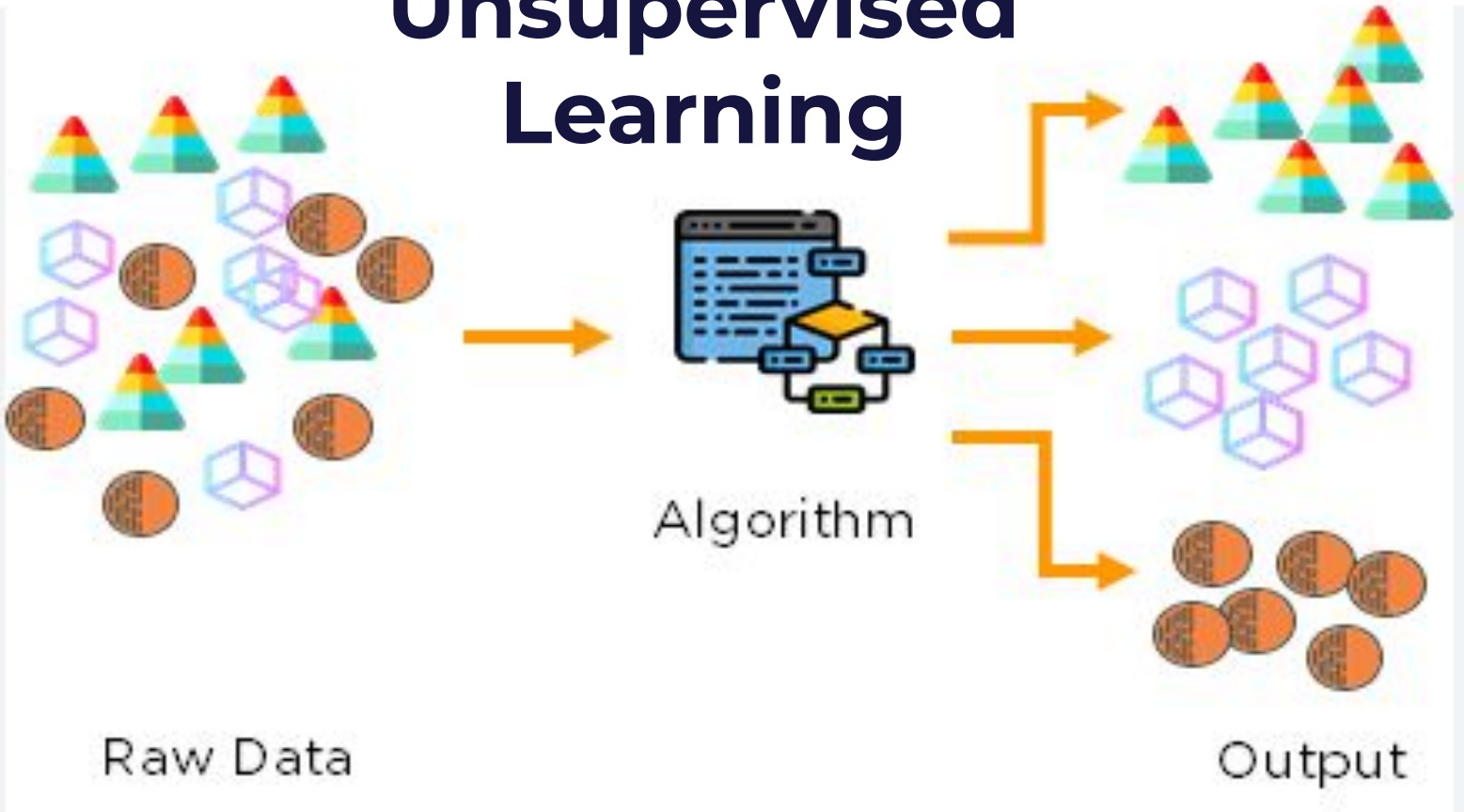
Types of Machine Learning

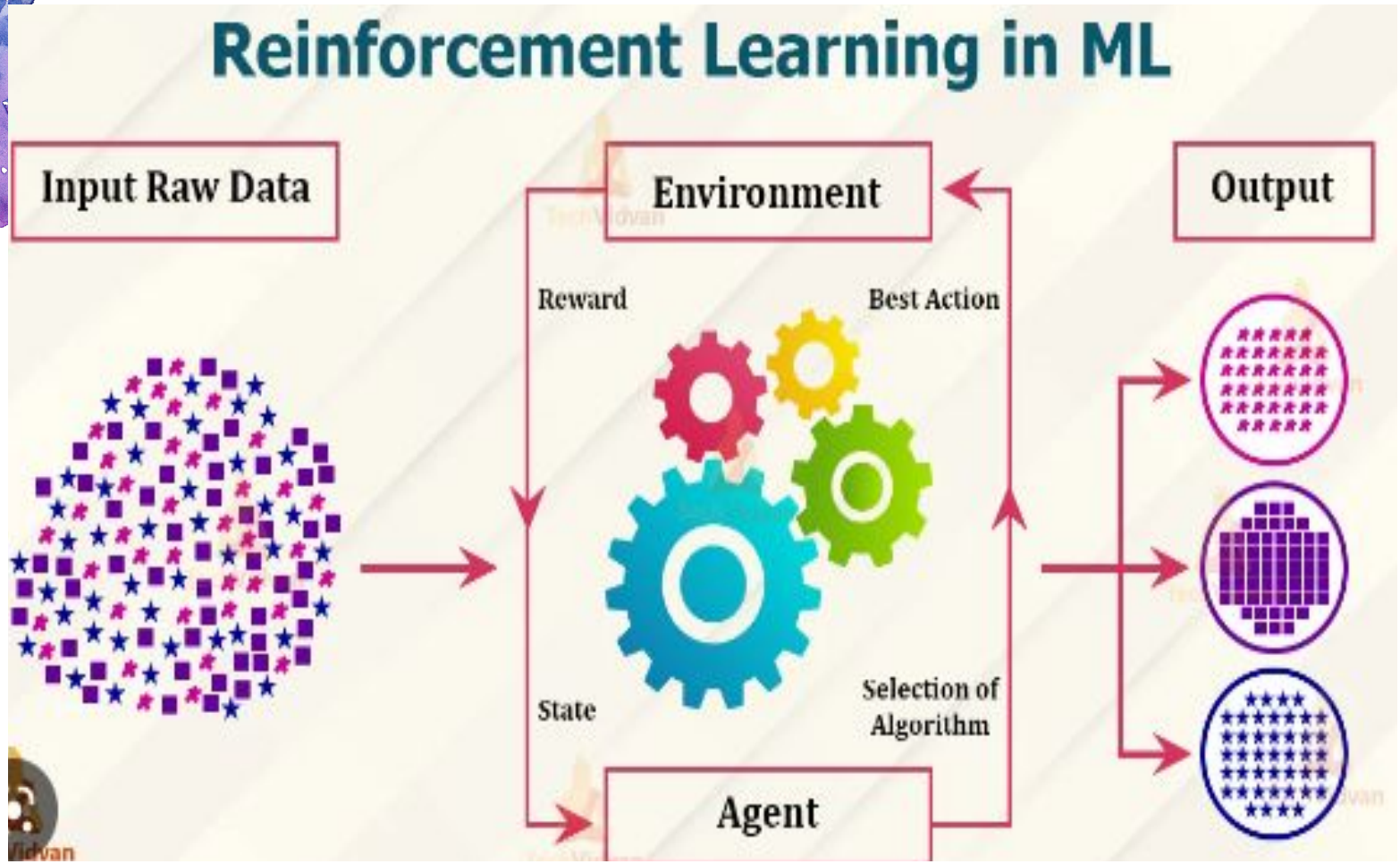


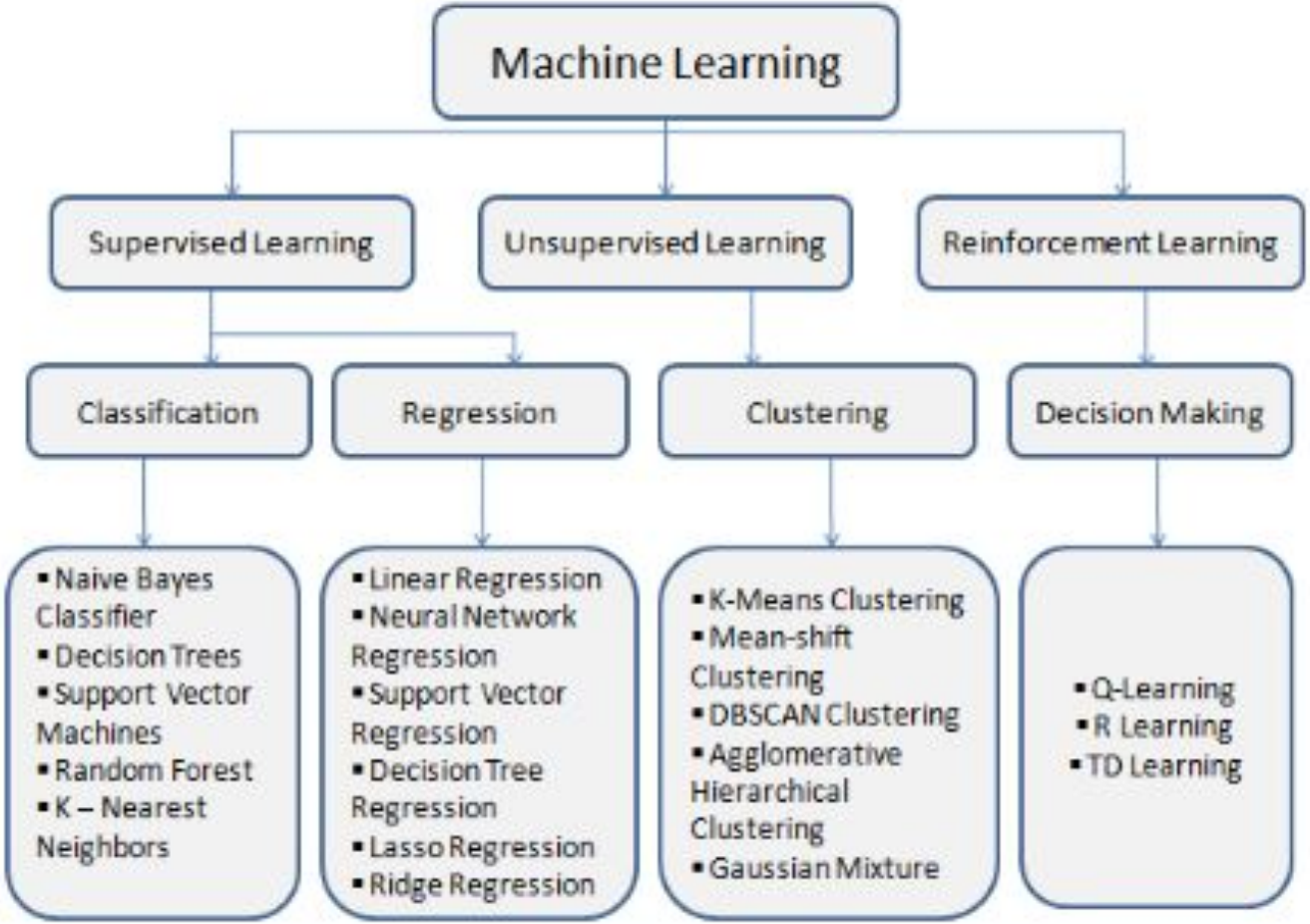



Supervised Learning in ML
Supervisor
Training data set
Desired Output
Input Raw Data
It is a tomato!
Output
Algorithm
Processing
Model Trained
Model Training
Input
TechVidvan

Unsupervised Learning




Reinforcement Learning in ML
Input Raw Data
Environment
Output
Reward
Best Action
State
Selection of Algorithm
Agent


Machine Learning
Supervised Learning
Unsupervised Learning
Reinforcement Learning
Classification
Regression
Clustering
Decision Making
▪ Naive Bayes Classifier
▪ Decision Trees
▪ Support Vector Machines
▪ Random Forest
▪ K – Nearest Neighbors
▪ Linear Regression
▪ Neural Network Regression
▪ Support Vector Regression
▪ Decision Tree Regression
▪ Lasso Regression
▪ Ridge Regression
▪ K-Means Clustering
▪ Mean-shift Clustering
▪ DBSCAN Clustering
▪ Agglomerative Hierarchical Clustering
▪ Gaussian Mixture
▪ Q-Learning
▪ R Learning
▪ TD Learning

How to use ?

From PC

Go to chat.OpenAi.com and register for an account with an email

From Android

Open Browser-> Type Chat.openAi.com-> Option to Add Shortcut

Access from Program

Find API Key & Replace it

PIP install openai

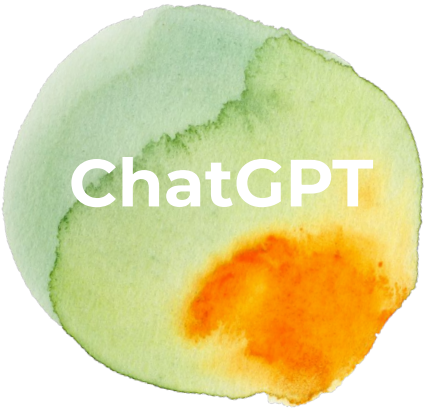
```
import openai
import os

openai.api_key = os.environ["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"]
prompt = "Hello, ChatGPT! How are you today?"

response = openai.Completion.create(
  engine="davinci",
  prompt=prompt,
  max_tokens=50,
  n=1,
  stop=None,
  temperature=0.5,
)

print(response.choices[0].text.strip())
```

```
DELL-E
def openai_image(prompt):
response =
openai.Image.create(
prompt=prompt,
n=1,
size="512x512"
)
image_url =
response['data'][0]['url']
return image_url
```



What is it?

- CHATGPT uses a neural network architecture called a transformer to process input text and generate output text.
- pre-trained on a large dataset , already learned
- patterns and structure of natural language.
- prompt-> CHATGPT> Output(Pre-trained knowledge to generate a response)

Ref: https://platform.openai.com/examples

- Write Code
- Write Music
- Translations
- Extract Data from Text
- Essays
- Maths Questions
- Unique Ideas and Examples
- Critical Thinking (with a Limitation)
- Jokes
- Can Act as a Linux terminal
- Debug Code

What is it?

DALL·E 2 is an AI system that can create realistic images and art from a description in natural language.

- create original, realistic images and art from a text description
- expand images beyond what's in the original canvas, creating expansive new compositions
- remove elements while taking shadows, reflections, and textures into account.
- create different variations of an image.

Ref: https://openai.com/product/dall-e-2

Limitation

- Limitations in Input Length and Output Length
- Possible Biases in Training Data
- A Passable Sense of Humor
- Lack of data in Music
- Outdated Data, Lack of data
- Scientific Research , Except Review Literature.
- Difficulties Understanding Figurative Phrases

Thank You

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