What’s Chat GPT ?

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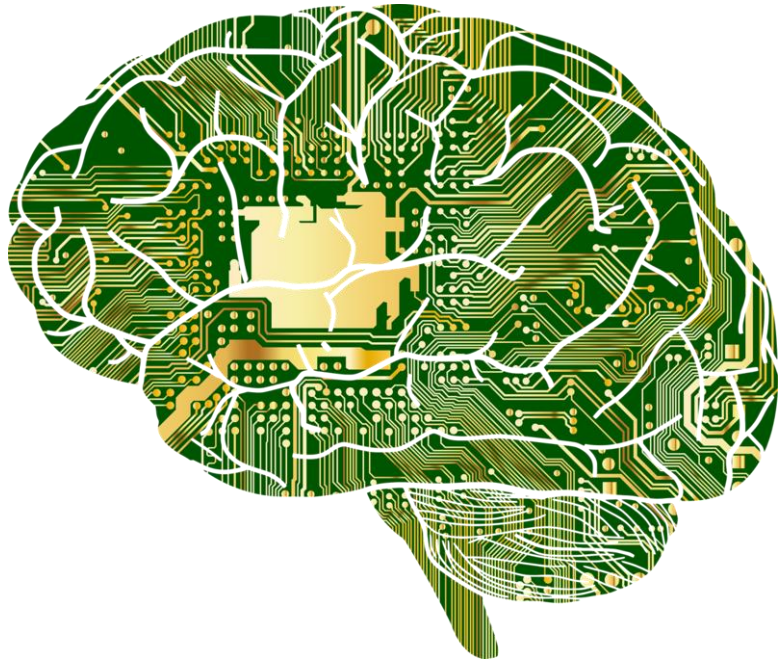
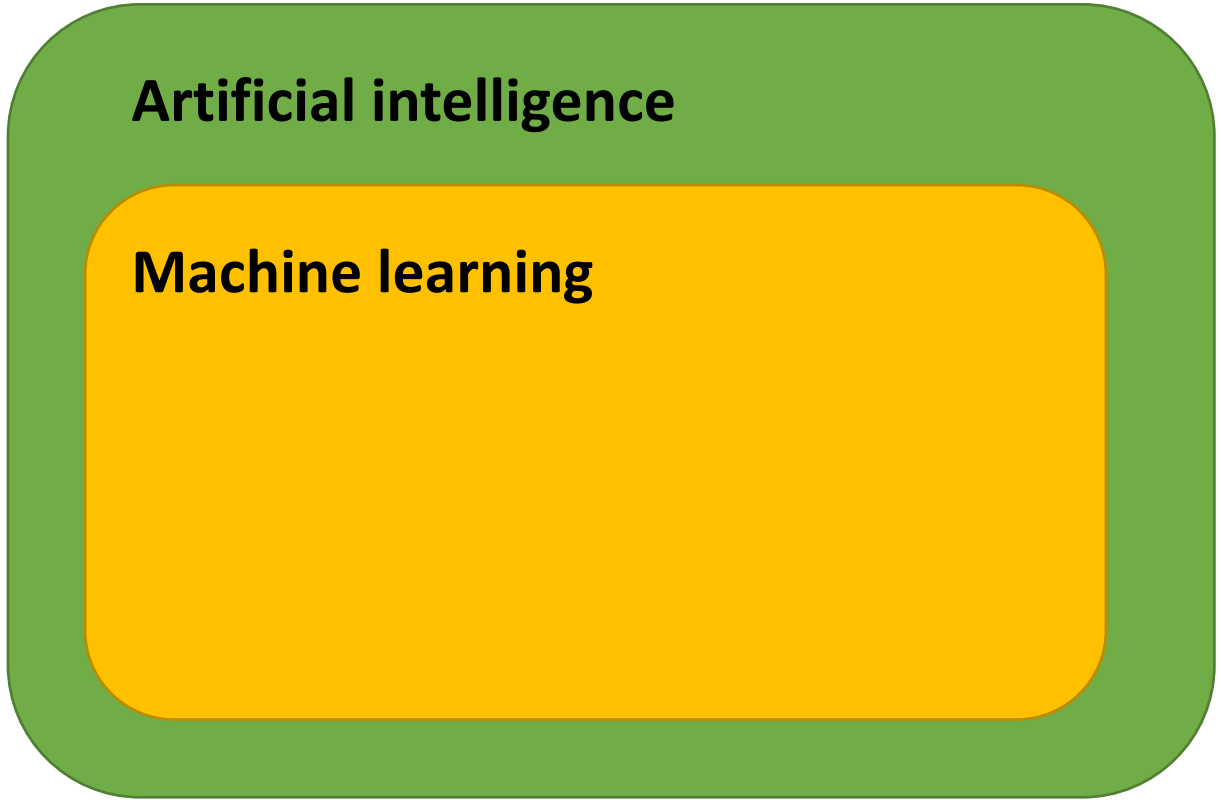
What’s Artificial intelligence ?

Artificial intelligence

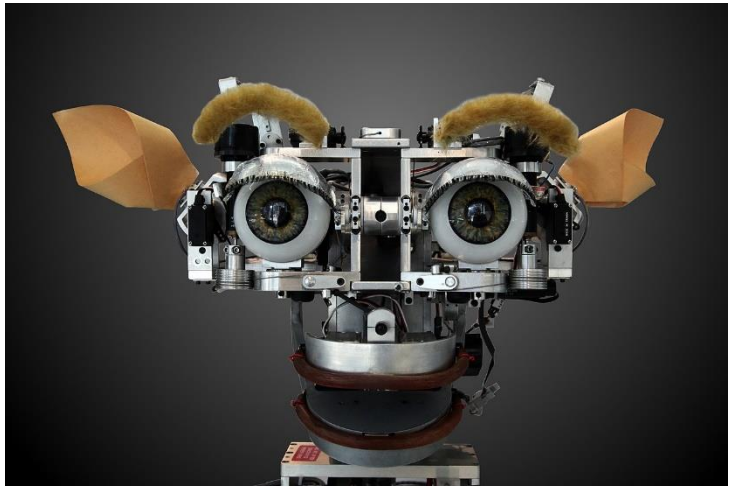
Trying to gives machines the ability of thinking and making chooses .
(1950 to 1980)



What’s Machine learning ?

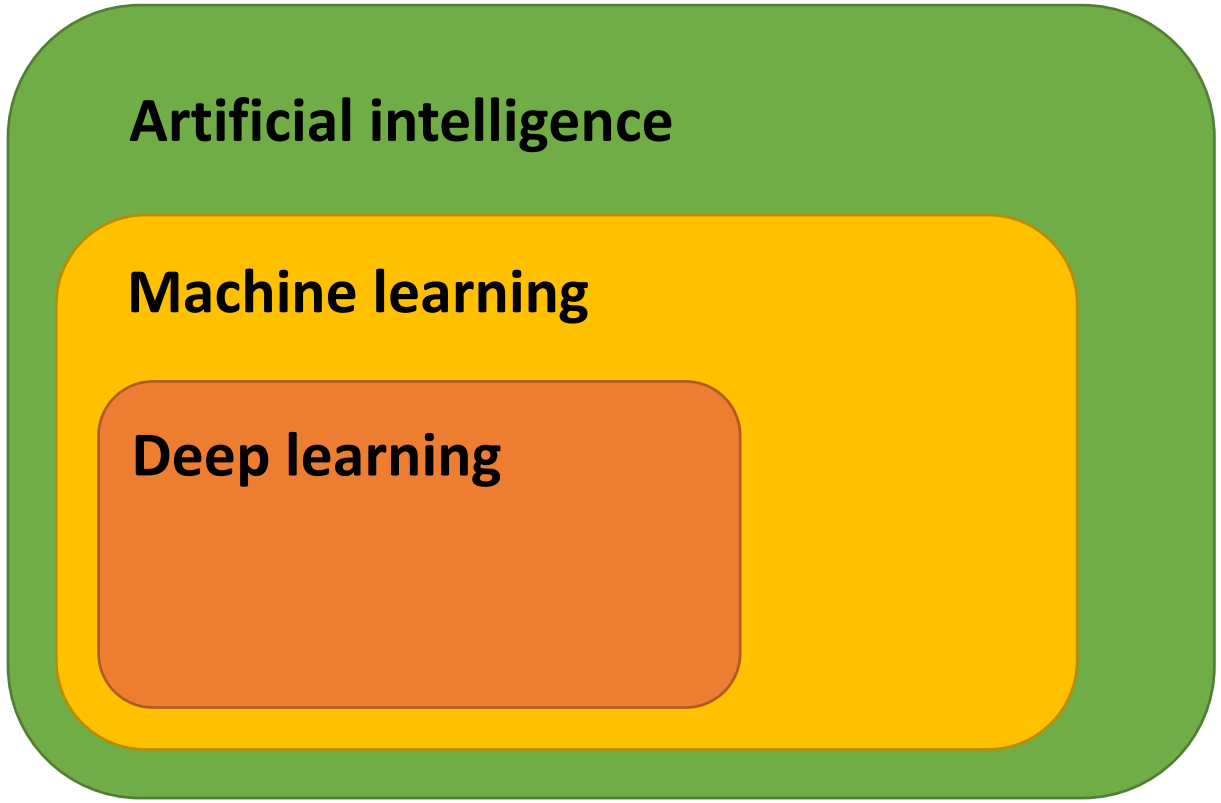


Teach machine how to thing and make a solution to solve defined problem. (1980 to up-to-now…)

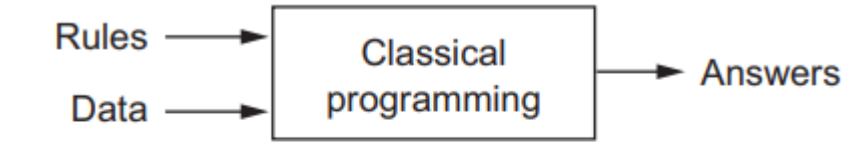


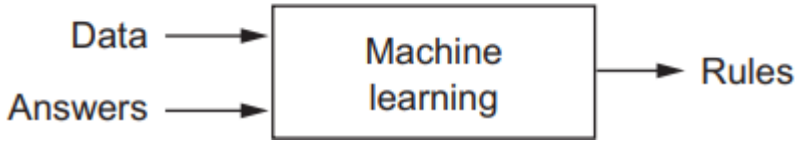
KISMET robot / 1990 / MIT

What’s deep learning ?

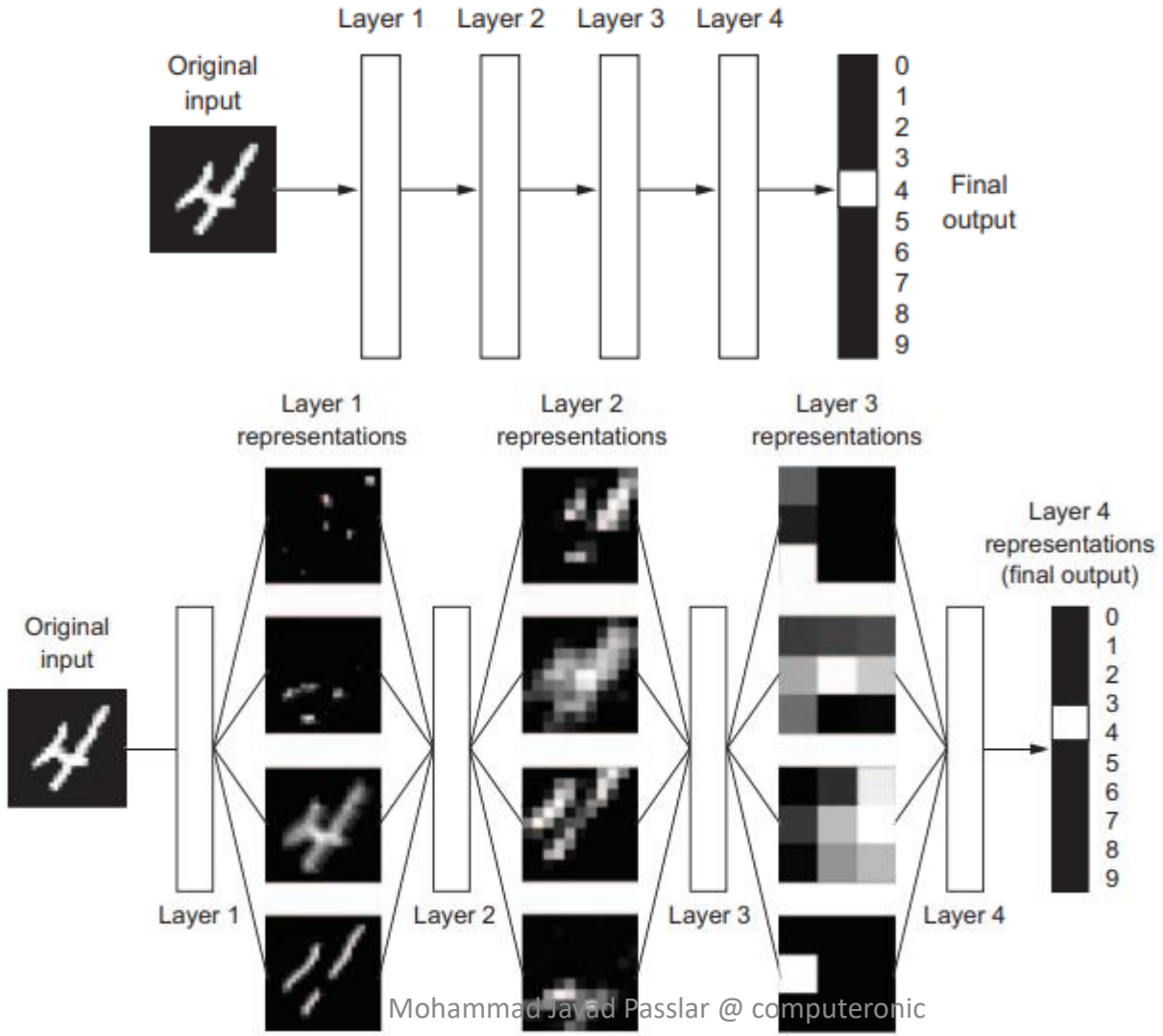


New method to Teach machines based on human brain(NN)(1997)



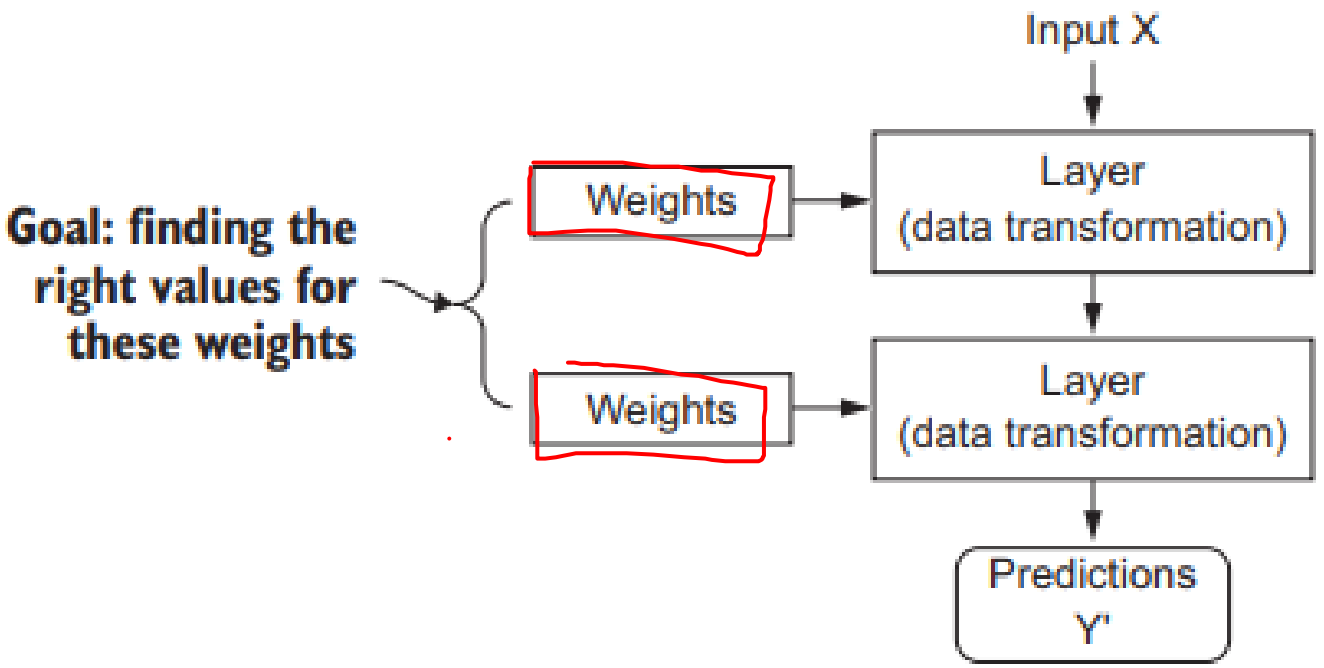


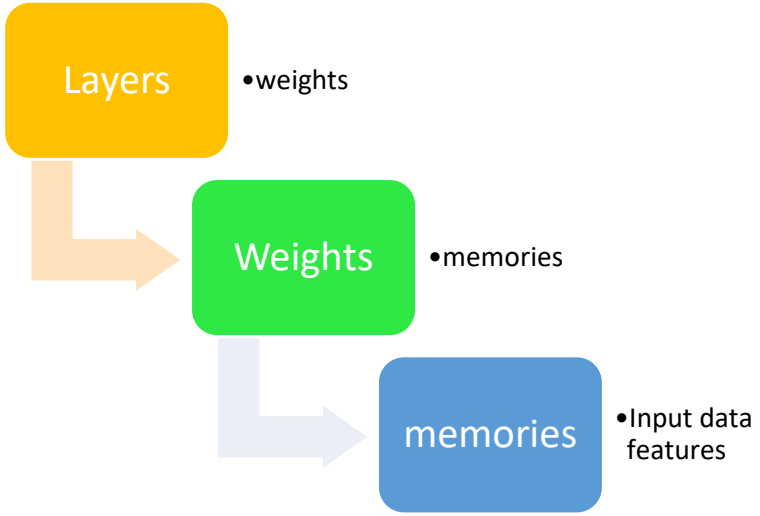
Deep NN structure



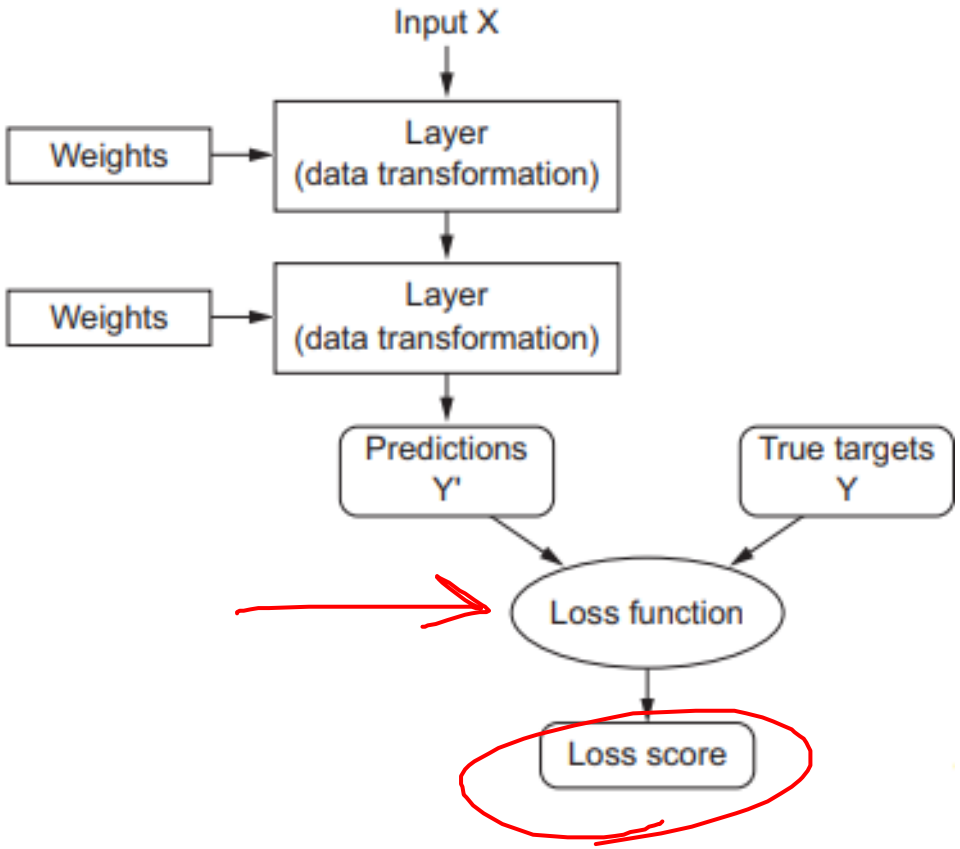
DNN Layers …


F
W
F
W
F

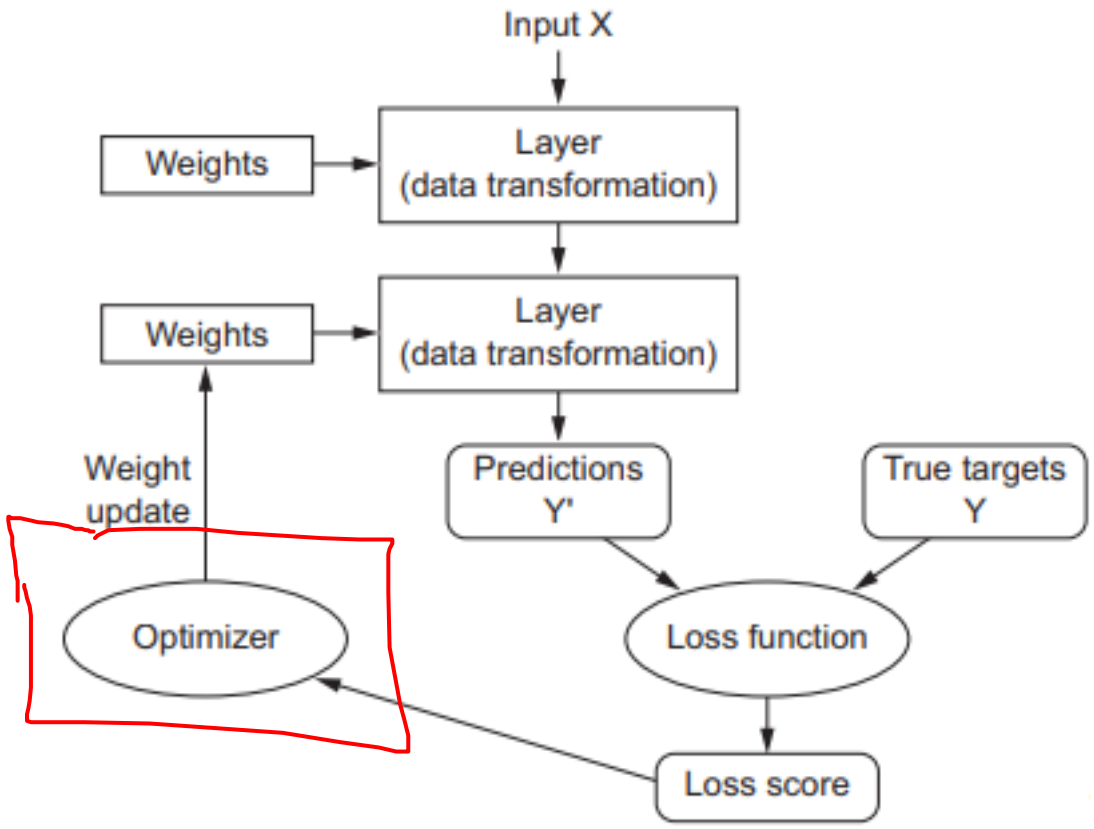

Input X
Goal: finding the right values for these weights
Weights
Layer (data transformation)
Weights
Layer (data transformation)
Predictions Y'


Layers
•weights
Weights
•memories
memories
•Input data features

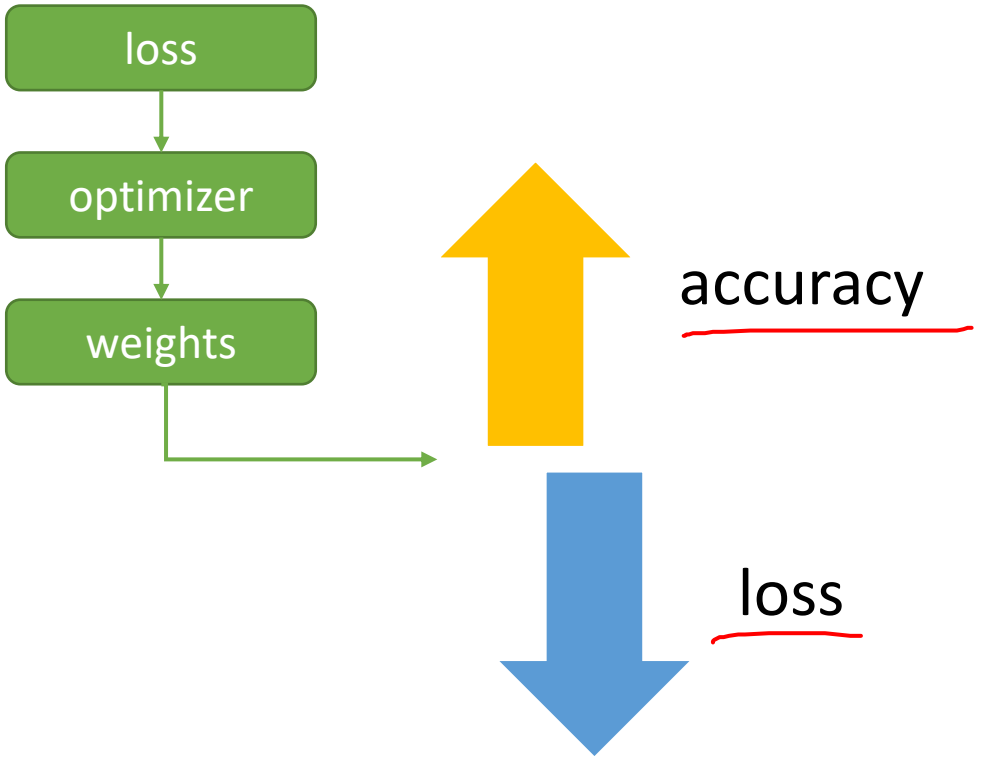
DNN loss functions …



DNN Optimizer …



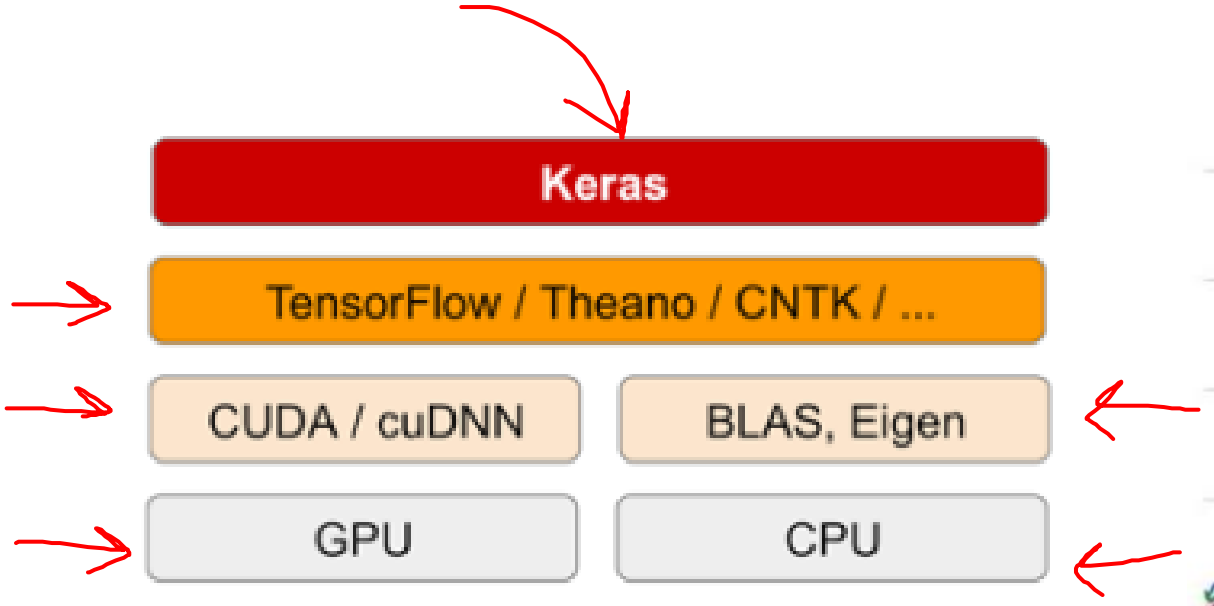
Update layer's weight to minimize loss and maximum accuracy

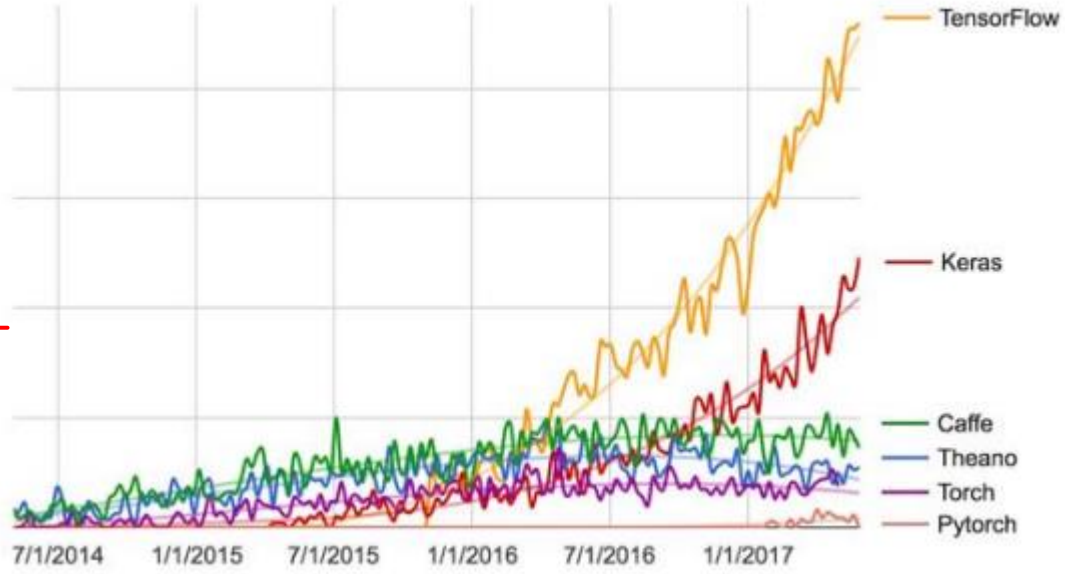


Why DNN is trend now ?

Hardware	Data sets	Algorithm	A new wave of investment
• GPU • TPU	• Image data set • Video data set • Sound data set • Test data set	• Better loos function • Efficient activation function • New NN structures	• 2011-> 19M$ • 2013 ->400M$ • 2014 -> 500M$ • And so on …

Lest set-up workspace …





LB-prosessnig vs CB-prosessing

- You have two options to run tensorflow :
  - Use your PC (LB- processing) -> anaconda
  - Use cloud base processing(CB-processing) -> google-corlab

How to use ?

- Download anaconda for your OS (https://www.anaconda.com/)
- Install and run anaconda.exe
- Run anaconda prompt
  - run below commands :
    - For CPU :

```
conda create -n tf tensorflow
conda activate tf
```

    - For GPU :

```
conda create -n tf-gpu tensorflow-gpu
conda activate tf-gpu
```

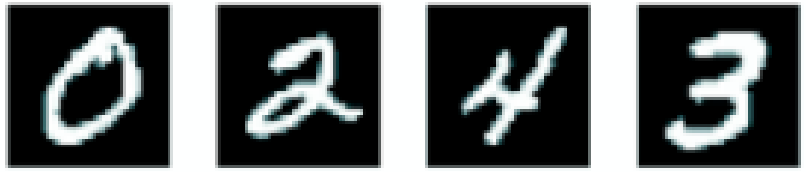
How to use ?

- Join to your google account.
- Go to google colab website (https://colab.research.google.com/)
- Create new project and use in !

Lest run the first DNN code …

- MNIST classification problem is a problem of classifying digits numbers in 9 classes.

- MNIST data-set :



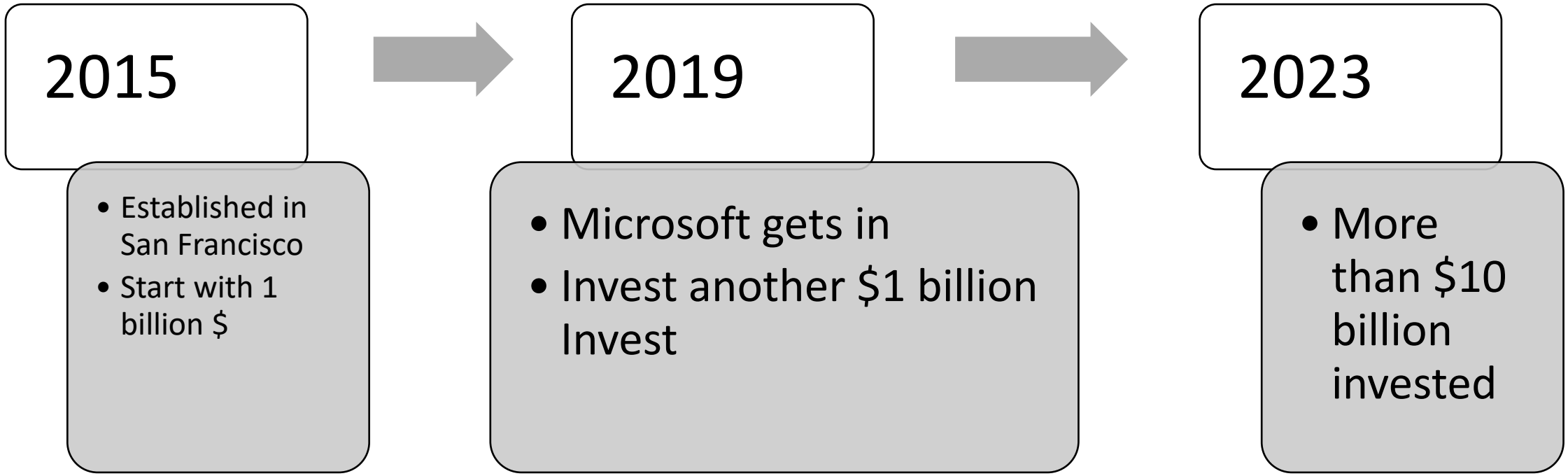
- Code on Colab :

https://colab.research.google.com/github/keras-team/keras-io/blob/master/examples/vision/ipynb/mnist_convnet.ipynb

داستان از کجا شروع شد ؟

داستان از اونجایی شروع شد که google یک بخش با عنوان google Brain برای تحقیق و توسعه بر روی هوش مصنوعی ایجاد کرد.(۲۰۱۷)
نتیجه جالب اما خطرناک بود و برای اینکه قدرت هوش مصنوعی در دستان یک شرکت نباشه، شرکت openAI با حدف ایجاد یک هوش مصنوعی با کاربری عمومی و استفاده رایگان تاسیس شد.(۲۰۱۸)

Open AI up to now …



Open AI products …

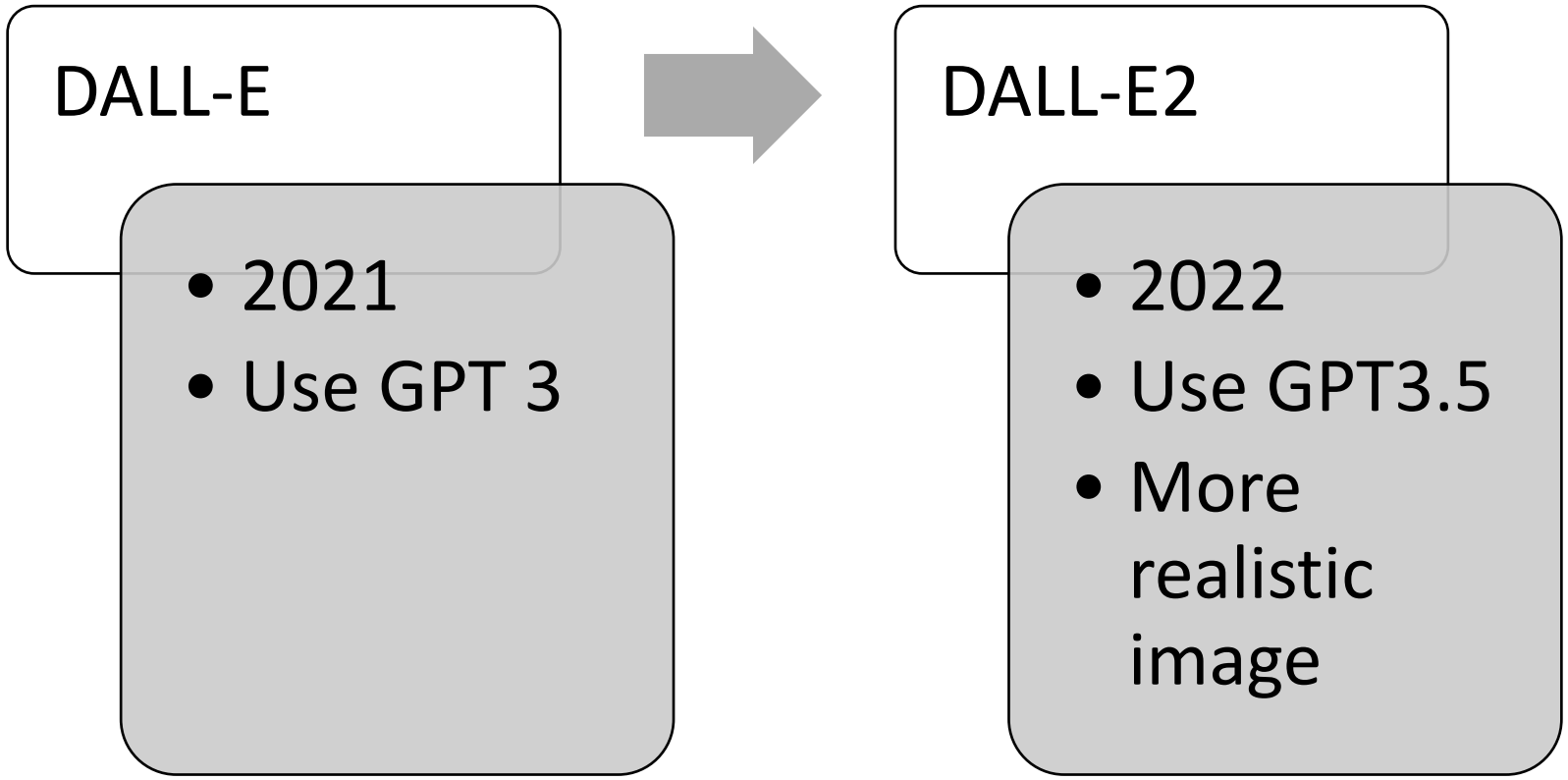
DALL-E

Generate image according to your description

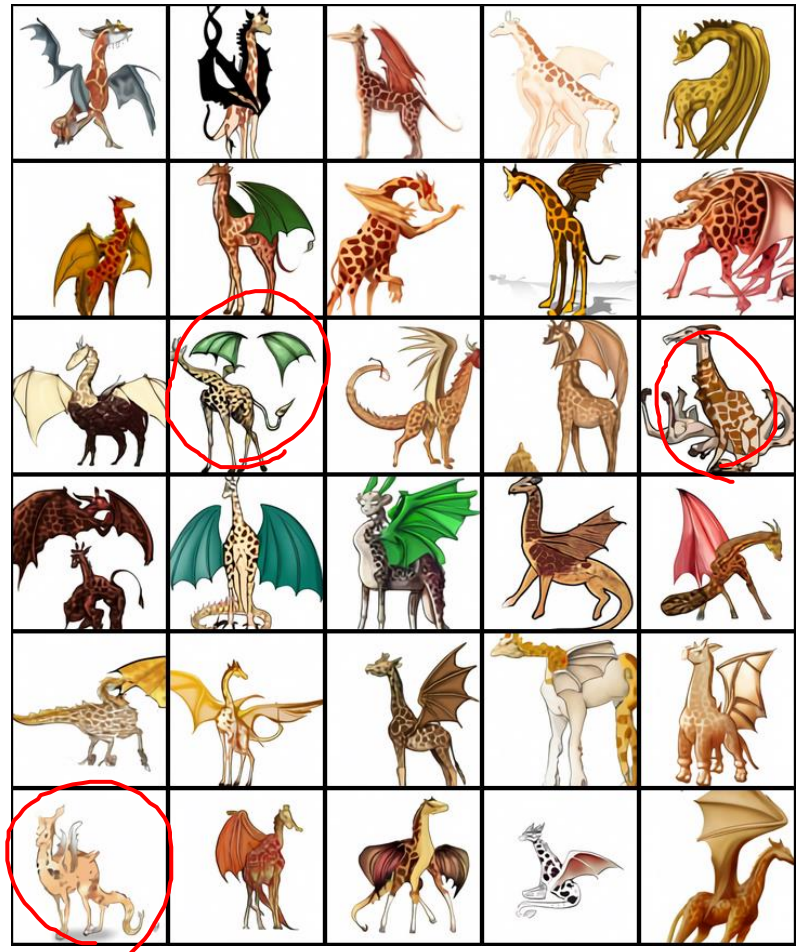
CHAT GPT

Generate text in response to your text

DALL-E2


DALL-E
• 2021
• Use GPT 3
DALL-E2
• 2022
• Use GPT3.5
• More realistic image

Capabilities and limits of DALL-E

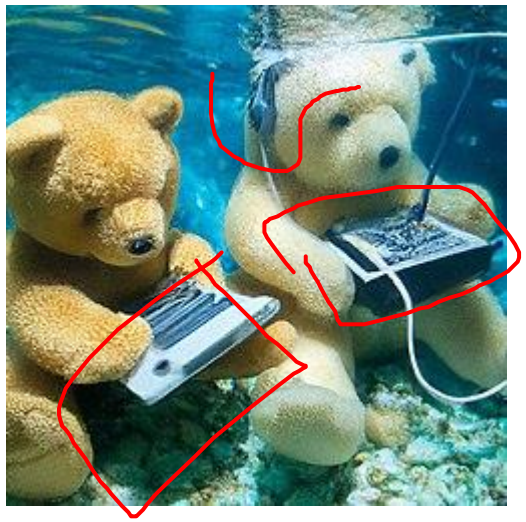


a professional high quality illustration of a giraffe dragon chimera. a giraffe imitating a dragon. a giraffe made of dragon

- It's **CLIP model** => Contrastive Language-Image Pre-training
- was trained on **400 million** pairs of images with text captions scraped from the Internet
- **Zero-shot learning (ZSL)** is a problem setup in machine learning where, at test time, a learner observes samples from classes that were not observed during training and needs to predict the class that they belong to. Zero-shot methods generally work by associating observed and non-observed classes through some form of auxiliary information, which encodes observable distinguishing properties of objects

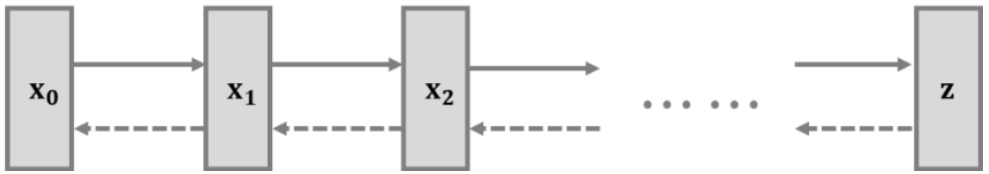
Capabilities and limits of DALL-E2

Teddy bears working on new AI research underwater with 1990s technology

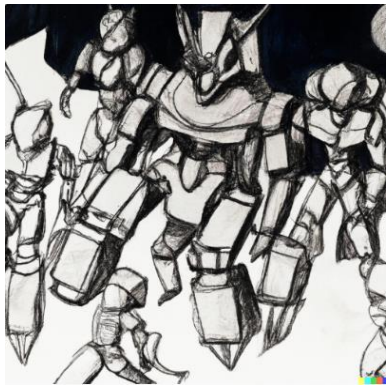


Girl With a Pearl Earring

- It's **CLIP model** => Contrastive Language-Image Pre-training
- was trained on **3.5Billion** parameters and using CHAT GPT3 for more details on given text
- In machine learning, **diffusion models**, also known **as diffusion probabilistic models**, are a class of latent variable models. They are Markov chains trained using variational inference.



Let’s try DALL-E2

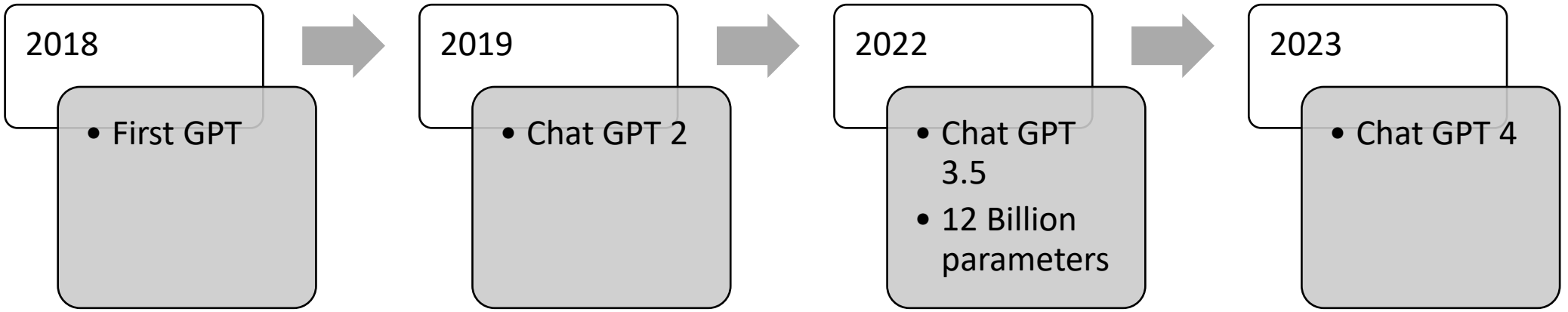



Painting of robots in war




oil painting of a smoking alone man in the street

CHAT GPT History



What’s Chat GPT ?

ChatGPT is a powerful text-generating dialogue system. It is a natural language processing model (NLP) that generates human-like responses to inputs from users.

Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →

Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests

Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

Step 1

Collect demonstration data and train a supervised policy.

A prompt is sampled from our prompt dataset.

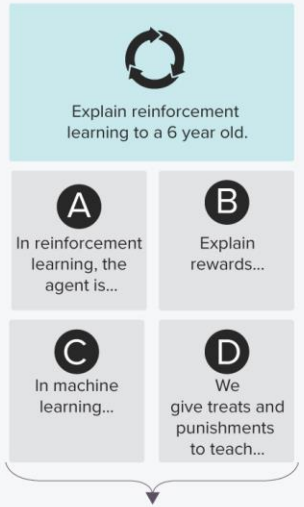
A labeler demonstrates the desired output behavior.

This data is used to fine-tune GPT-3.5 with supervised learning.

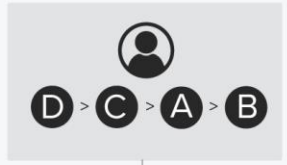
Step 2

Collect comparison data and train a reward model.

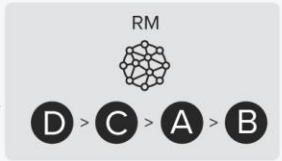
A prompt and several model outputs are sampled.



A lableler ranks the outputs from best to worst.



This data is used to train our reward model.



Step 3

Optimize a policy against the reward model using the PPO reinforcement leaning algorithm.

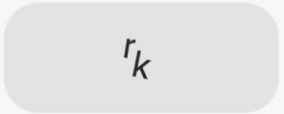
A new prompt is sampled from the dataset.

The PPO model is initialized from the supervised policy.

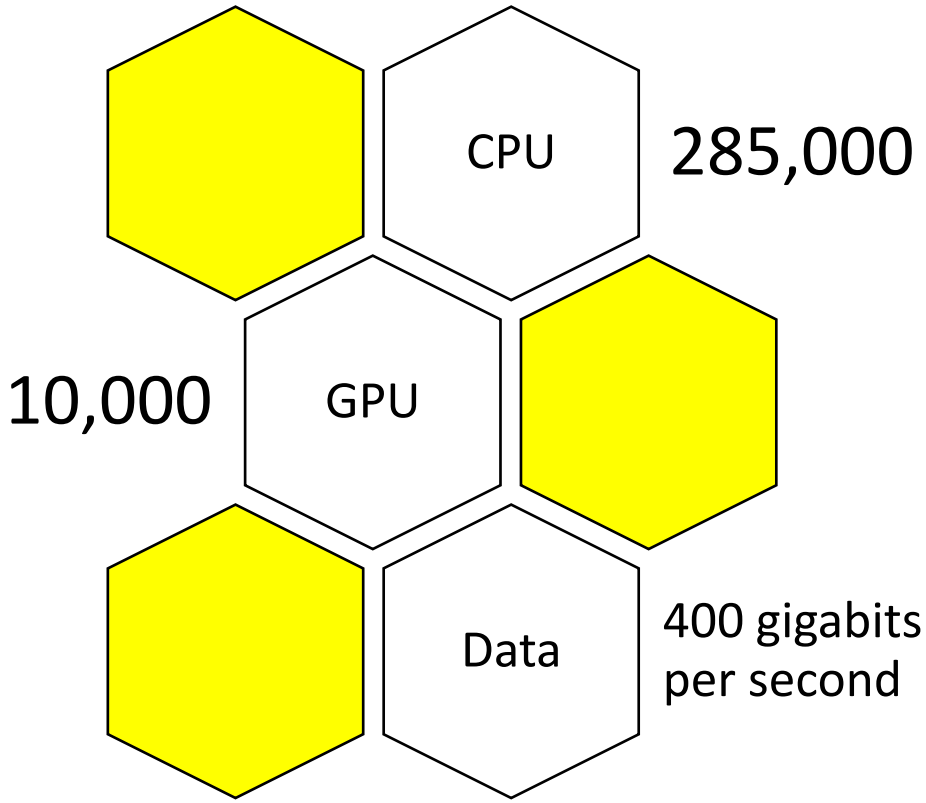
The policy generates an output.

The reward model calculates a reward for the output.

The reward is used to update the policy using PPO.

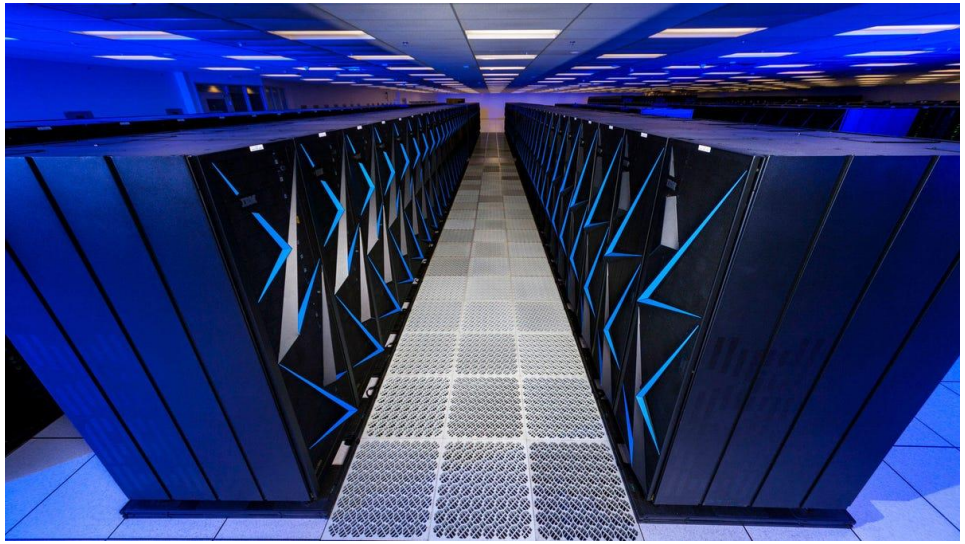


What run CHAT GPT ?



Fifth supercomputer in the world host CHAT GPT

AZURE



Some Critical Questions …

Q1: Hi ChatGPT, tell us about the history of chatbots.

Q2: How you were developed?

Q3: in what ways can you be used in healthcare, education, and research?

Q4: what are some of your limitations?

How to make a Chat bot ?

0- create openAI account:

got to https://platform.openai.com/

use your VPN

Enter your foreign number

1- install libraries :

pip install openai

pip install gradio

2- generate API and add to sample code

CHAT BOT example

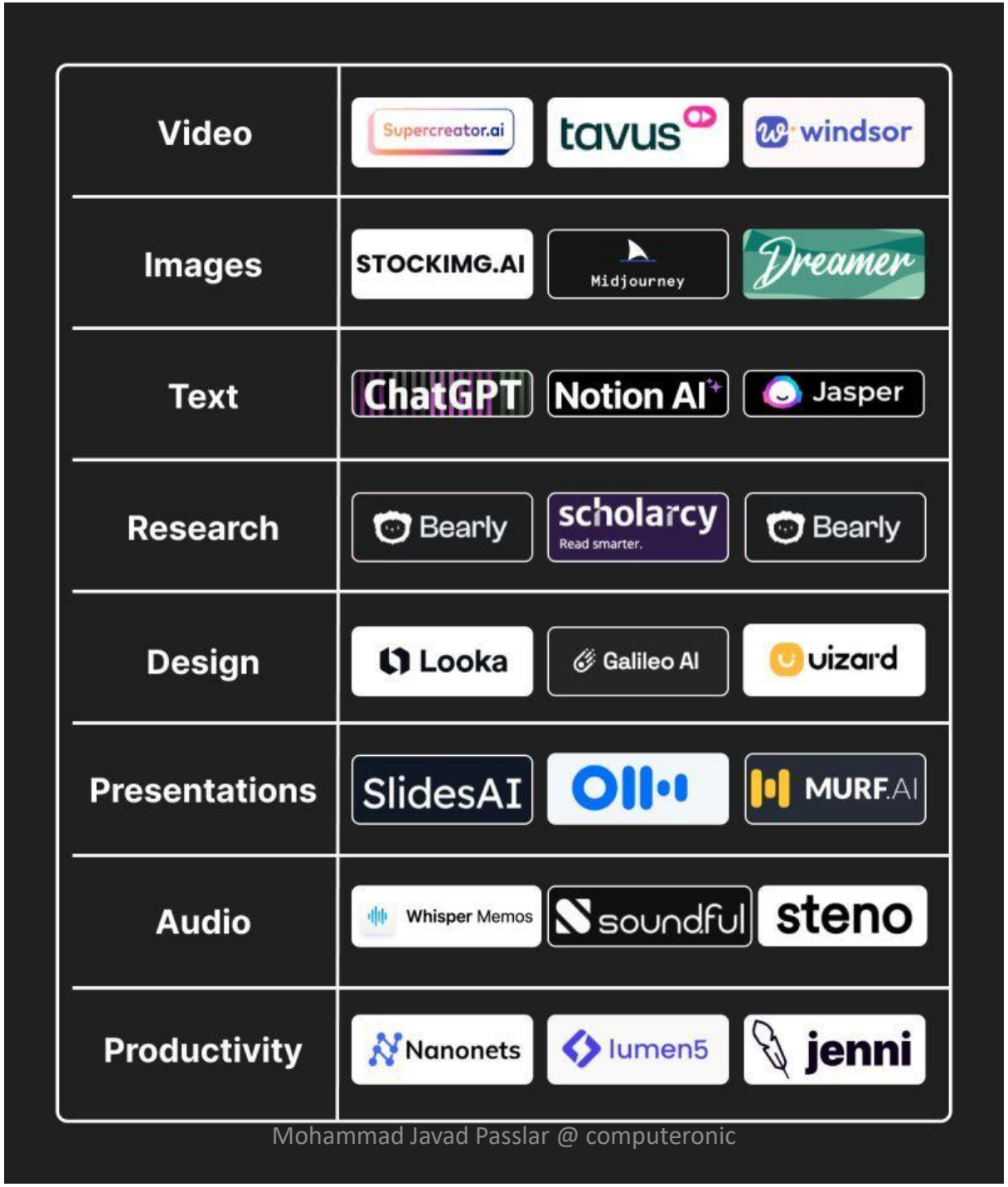
```
import openai
import gradio as gr

openai.api_key = "sk-**************************************************"

messages = [
   {"role": "system", "content": "You are a helpful and kind AI Assistant."},
]

def chatbot(input):
   if input:
      messages.append({"role": "user", "content": input})
      chat = openai.ChatCompletion.create(
         model="gpt-3.5-turbo", messages=messages
      )
      reply = chat.choices[0].message.content
      messages.append({"role": "assistant", "content": reply})
      return reply

inputs = gr.inputs.Textbox(lines=7, label="Chat with AI")
outputs = gr.outputs.Textbox(label="Reply")

gr.Interface(fn=chatbot, inputs=inputs, outputs=outputs, title="AI Chatbot",
          description="Ask anything you want",
          theme="compact").launch(share=True)
```

Please Try at home !!!

Chat gpt 3.5 => https://platform.openai.com/

DALL-E2 => https://openai.com/product/dall-e-2

DDG => https://deepdreamgenerator.com/


Video
Supercreator.ai
tavus
windsor
Images
STOCKIMG.AI
Midjourney
Dreamer
Text
ChatGPT
Notion AI
Jasper
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Bearly
scholarcy
Read smarter.
Bearly
Design
Looka
Galileo AI
uizard
Presentations
SlidesAI
MURF.AI
Audio
Whisper Memos
soundful
steno
Productivity
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THANKS

ANY Q ?