



Artificial Intelligence and its rol in education

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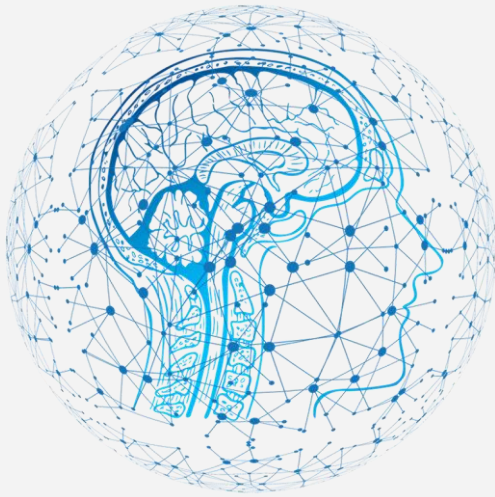
Useful AI apps

01

What is Artificial
Intelligence (AI)?



What is AI?



At its core, AI is about getting computers to do things that require human intelligence.

“The theory and development of computer systems able to perform tasks that normally require human intelligence” - Merriam Webster

Understanding language, reasoning, speech recognition, decision-making, navigating the visual world, manipulating physical objects, etc.



Cognitive Computing



Computer Vision



Machine Learning



Neural Networks

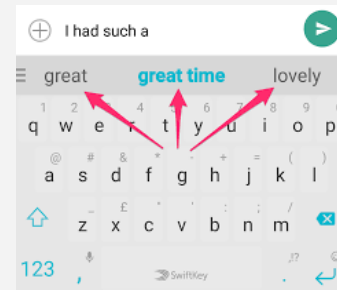
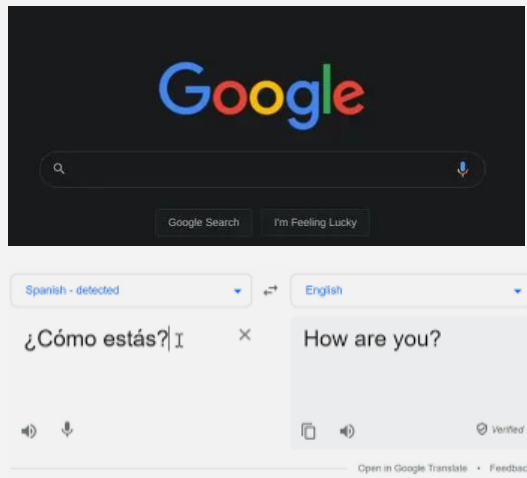
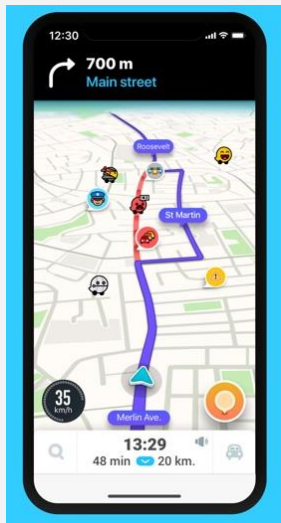


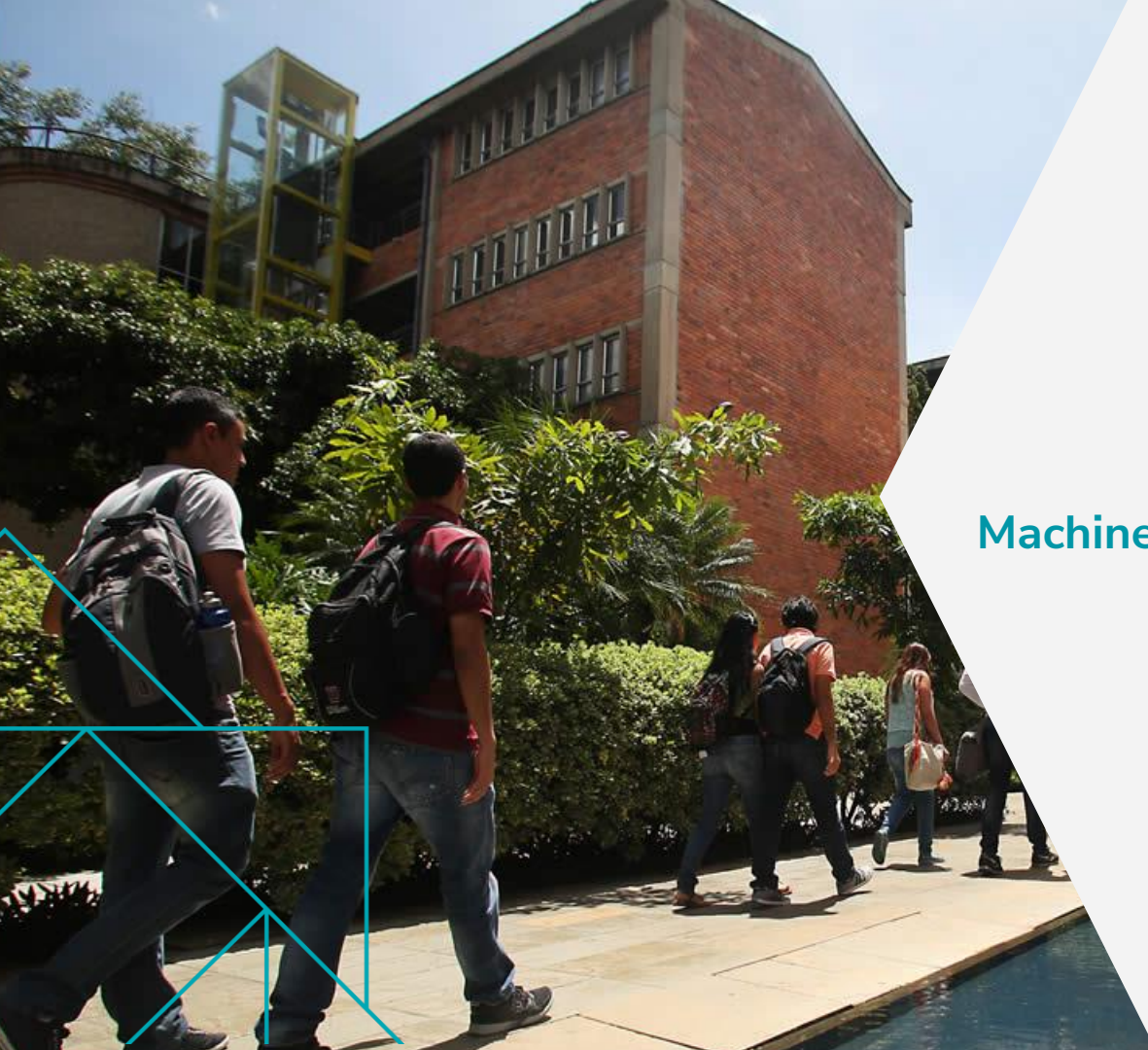
Deep Learning



Natural Language Processing

Examples of AI





02

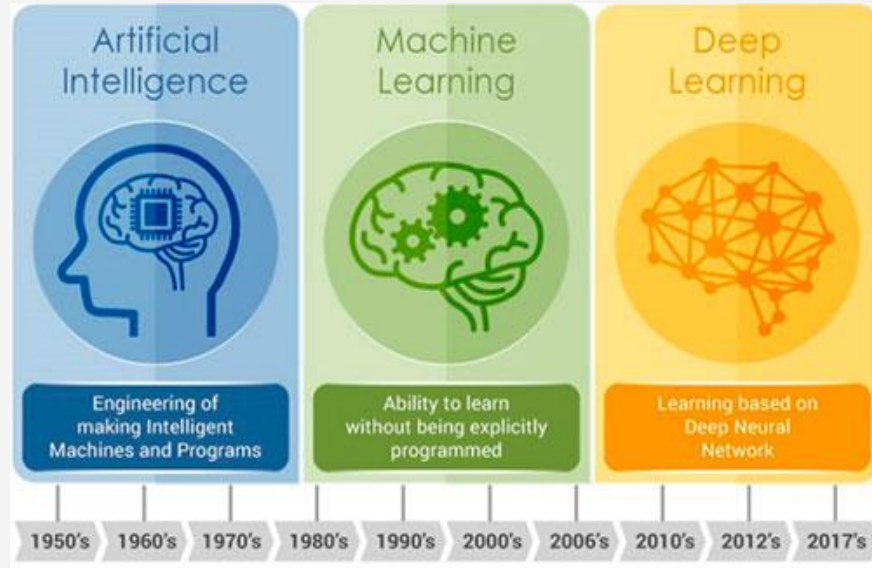
Machine Learning (ML) concepts

What is ML?

"Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy"

ML methods are characterized by their ability to **learn from data** without being explicitly programmed

ML is often used for making predictions



Types of ML algorithms

Supervised Learning

Develop predictive model based on input and output data

Unsupervised Learning

Group and interpret observations based only on input data

Reinforcement Learning

Acquire new data by taking actions and receiving ad hoc feedback

Regression

Supervised learning

Training



Input: Images and labels
(training data)

Output: Model that
maps images to a
labels

Deployment



$$P(dog) = 0,99$$

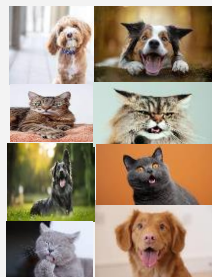
$$P(cat) = 0,01$$

Input: Image

Output: Probability for
each label

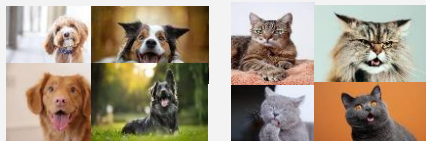
Unsupervised learning

Training



Input: Images (without labels)

Output: Model that finds similar groups (clusters)



Deployment



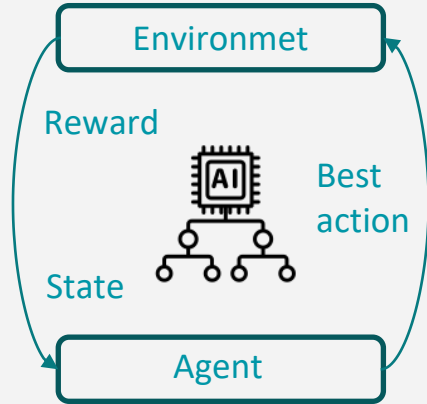
Cluster 1

Input: Image

Output: group

Reinforcement learning

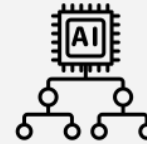
Training



Input: Images (without labels)

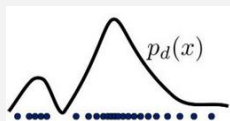
Output: best action

Deployment

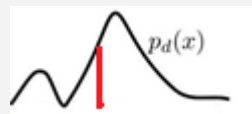


Generative models

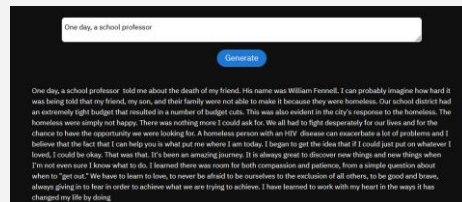
Training



Deployment



<https://thispersondoesnotexist.com/>



<https://hyperwriteai.com>

Images



Transfer learning



Related data



Related task

Supervised
Self-supervised



Transfer
knowledge



Specific data



Answer Candidate

gravity

Passage Sentence

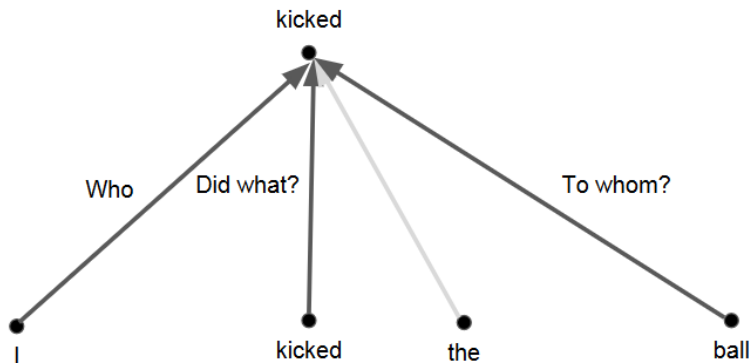
In meteorology, precipitation is any product of the condensation of atmospheric water vapor that falls under gravity.

Question

What causes precipitation to fall?

Transformer

Self-Attention

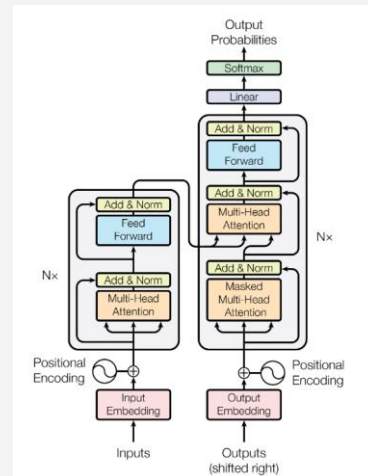


Meaning of a word
depends on the context

A transformer is a type of computer program that helps computers understand and process language, like reading and writing. It works by breaking down words into smaller parts, understanding their meaning and relationships, and then using that information to generate new sentences or translate between languages. Think of it like a smart helper for a computer, helping it to understand and communicate in language just like we do (ChatGPT, 2023).

Attention Is All You Need

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03

Generative Pre-trained Transformers



Generative Pretrained Transformer (GPT)

Generative

Predicts a future outcome of a sequence based on previously-observed outcomes in that sequence

Pretrained

Self-supervised learning using to predict next token (word) in a huge amount of data

Transformer

Attention mechanism to learn language characteristics

ChatGPT

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.



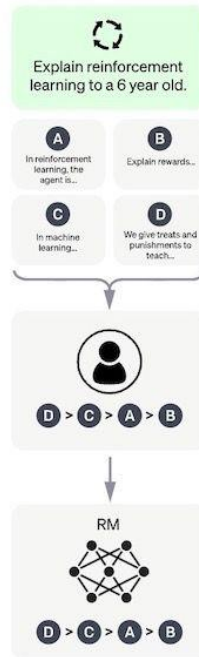
Step 2

Collect comparison data and train a reward model.

A prompt and several model outputs are sampled.

A labeler 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 learning algorithm.

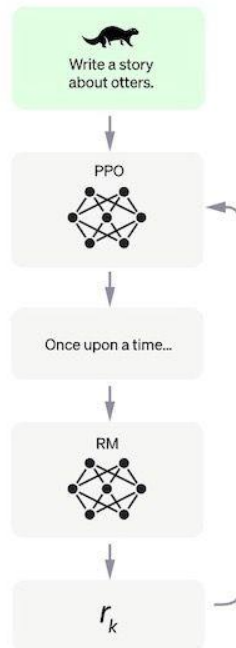
A new prompt is sampled from the dataset.

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.



ChatGPT Evolution

Advantages

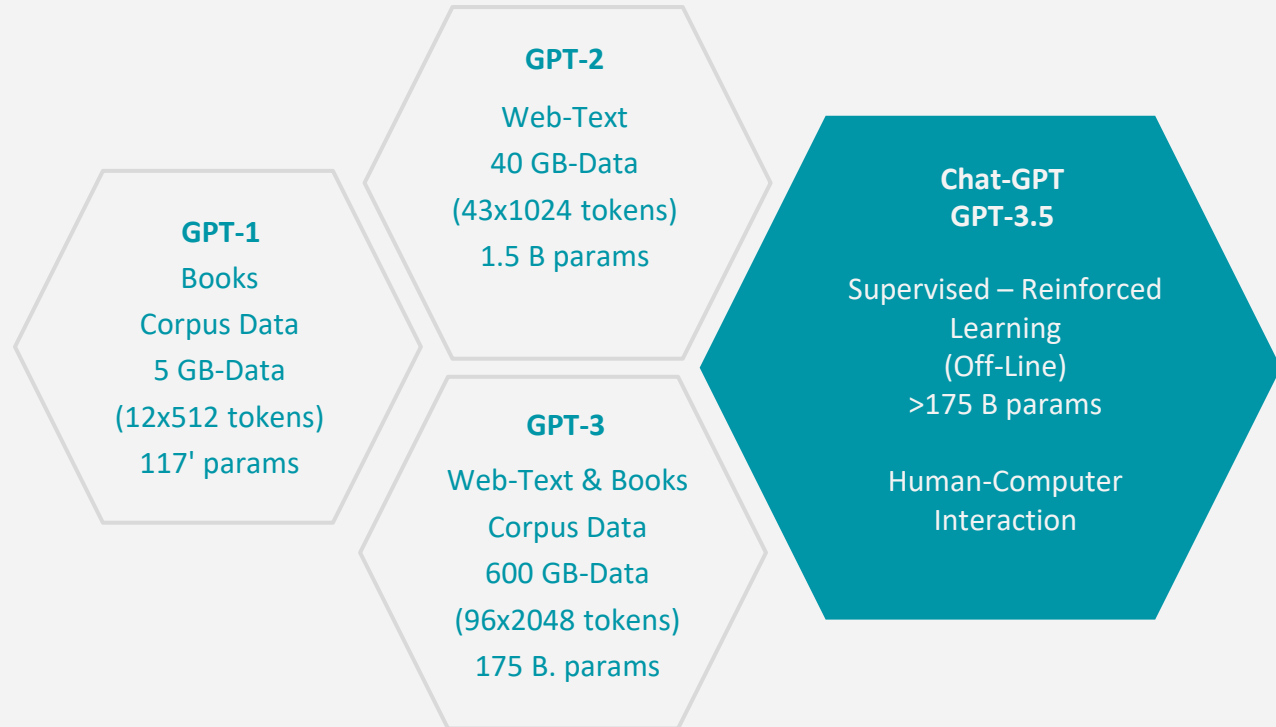
- Human like writing
- Complex Instructions
- Mix-match Ideas

Dis-Advantages

- Hallucinate at times
- Not truly creative
- Computer Expensive

Applications

- Writing blogs, emails, Whatsapp
- Search descriptive information
- Idea generation





04

Artificial Intelligence in Education

Adopt or resist

Don't Ban ChatGPT in Schools. Teach With It.

OpenAI's new chatbot is raising fears of cheating on homework, but its potential as an educational tool outweighs its risks.

Should schools ban ChatGPT or embrace the technology instead?

School districts and universities are banning the ChatGPT AI that writes in a human-like fashion, but some teachers say a better approach may be to incorporate it into the curriculum

Australian universities to return to 'pen and paper' exams after students caught using AI to write essays

New York City schools ban AI chatbot that writes essays and answers prompts

ChatGPT tool will be forbidden across all devices and networks in public schools over 'concerns about negative impacts on learning'

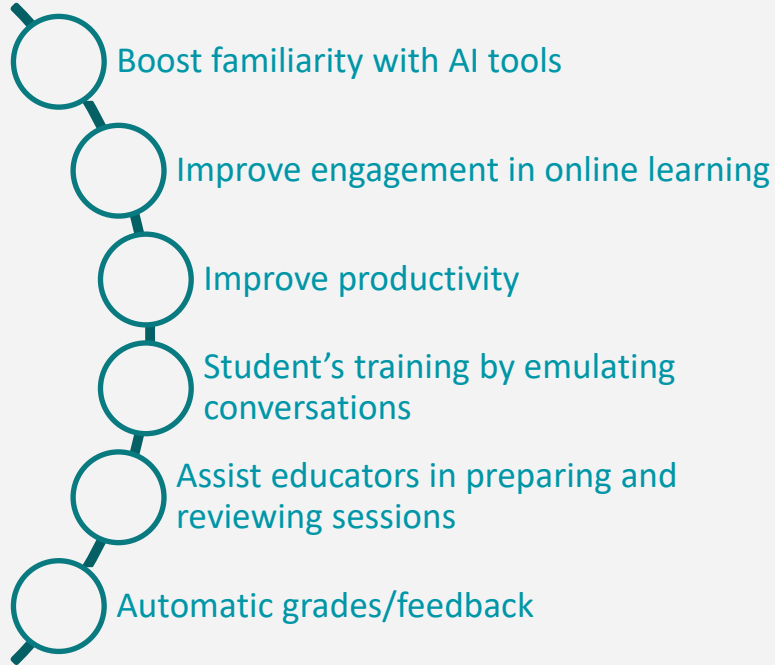
Top French university bans students from using ChatGPT

ChatGPT banned by Indian, French and US Colleges, Schools and Universities to Keep Students from Gaining Unfair Advantage

ChatGPT developed by OpenAI has been banned in several Universities across globe. The punishments include expulsion from University campuses.

**AI technology will keep improving, and we will
have to incorporate it sooner or later into the
classroom**

Pros and cons



How to adopt AI

Ethical



Help students to develop critical thinking



Emphasize ethical use of AI

Engagement



Adopt new strategies for students to show their knowledge



Create engaging learning environments

Evaluation



In-class activities as part of the evaluation process



In-person evaluations

Ban



More complex questions or anecdotal experiences



Block student's Access or GPTZero

Take-home message

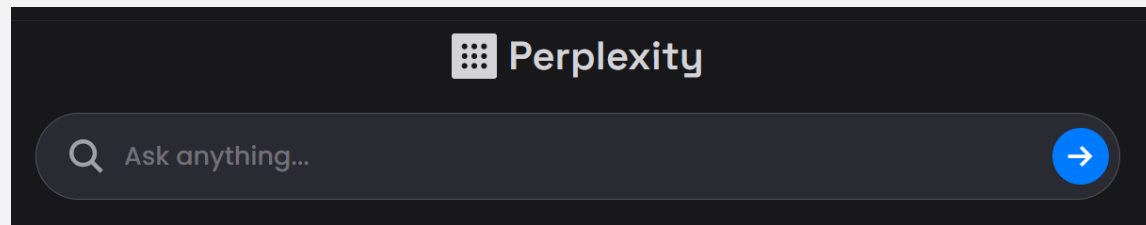
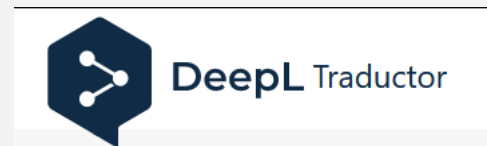
Instead of taking ChatGPT as a threat, educators and their institutions should analyze its advantages and use them in favor of the student to achieve their educational objectives.

05

Useful AI applications



Useful AI apps





¡Gracias!

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