

# Generative artificial intelligence

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# 1. What is generative artificial intelligence and how can it benefit us?

## 1.1. Introduction

**Generative artificial intelligence (GAI)** is a branch of artificial intelligence (AI) based on the development of data models that are capable of generating new content. Unlike other AI methods that are limited to analysing existing data or solving specific problems, GAI is capable of imagining, creating, and producing information, images, text and other forms of content.

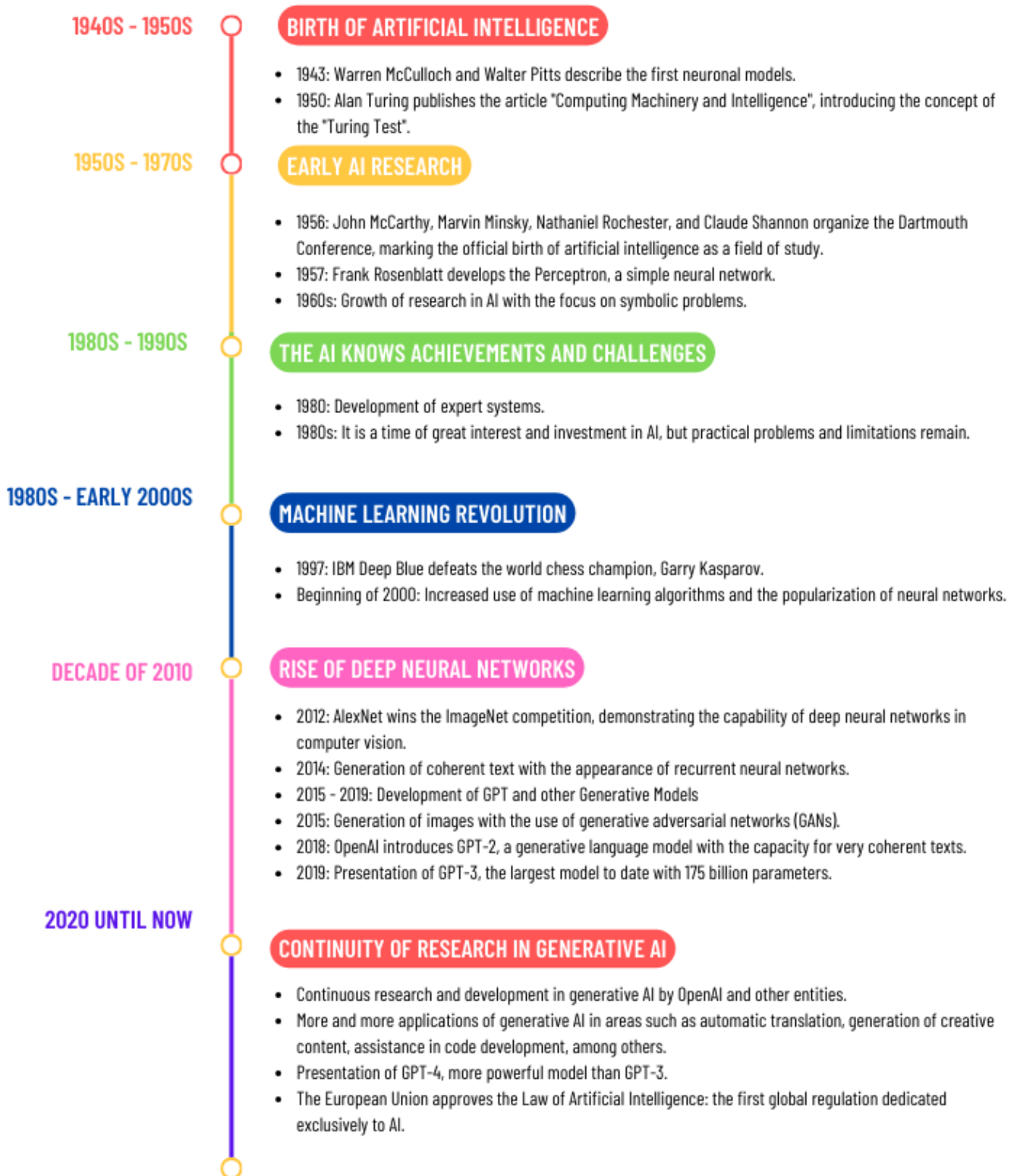
GAI relies on neural networks, which can learn complex patterns and features from training datasets, using the learned information to generate new outputs that resemble the original data and are consistent with it.

The GAI tool GPT-3.5 (generative pre-trained transformer 3.5) developed by the company OpenAI took the world by storm in late 2022. These models are able to understand and generate natural language in surprisingly coherent and diverse ways.

But it wasn't the first AI to be created, nor is it the only type of AI out there.

# 1. What is generative artificial intelligence and how can it benefit us?

## 1.2. The AI story



The timeline  
Source: author

It is necessary to classify the different types of AI featured in this timeline: machine learning is not the same thing as deep learning, for example.

# 1. What is generative artificial intelligence and how can it benefit us?

## 1.3. How do we classify AI?

Artificial intelligence can be classified in several ways, such as by how it learns or functions, its features or its aims. We will focus on classification by type of learning.

1. **Machine learning.** Computer systems are set up to use data to learn and improve, without requiring explicit programming. There are three main subcategories:
  - **Supervised learning.** Labelled datasets are used to train algorithms that can then make accurate predictions about new data. It is used, for example, in applications such as email sorting (to differentiate spam from non-spam) and medical diagnoses (e.g. diagnosing melanomas).
  - **Unsupervised learning.** The models learn from unlabelled data to discover hidden patterns or to cluster data. This includes tasks such as data clustering and dimensionality reduction, which are useful for data analysis and customer segmentation, for example.
  - **Reinforcement learning.** The models learn through interacting with a dynamic environment and make decisions with feedback in the form of rewards or penalties. It is used, for example, in applications such as autonomous driving and training robots.
2. **Deep learning.** A branch of artificial intelligence that uses neural network models to learn and understand complex patterns in data. Its features include:
  - **Deep neural networks.** They consist of multiple layers of interconnected neurons inspired by how the human brain works. Each layer processes information and transmits the output to the next layers, allowing hierarchical learning.
  - **Representational capacity.** With multiple layers, this type of AI can learn to represent highly complex data patterns, making it suitable for tasks such as image recognition, natural language processing, and other areas involving complex data.
  - **Hierarchical learning.** Successive layers learn representations of data with multiple levels of abstraction. For example, in image recognition, the initial layers detect basic shapes, while deeper layers identify more complex patterns.
  - **Input processing with many dimensions.** Dimensions are structures identifying the different attributes or variables that describe each instance of the data. The ability to manipulate large amounts of data with many dimensions is key to many applications, as it allows models to capture subtle and complex details in the data.
  - **Large quantities of data and computing power.** Huge quantities of data are required to train these models in order to obtain the best results, calling for enormous computing power.
  - The applications of deep learning AI.
    - **Image recognition.** Identifying objects and patterns in images, e.g. distinguishing cats from dogs.
    - **Natural language processing (NLP),** e.g., machine translation, sentiment analysis and text generation.
    - **Computer vision.** Facial recognition, object segmentation, etc.
    - **Voice recognition.** Converting voice to text and vice versa.
    - **Computer games.** Learning optimal policies in games such as Go and video games.
    - **Programming language code.** Generating or modifying program code.

**Generative artificial intelligence** falls within the deep learning category of AI. A graphic representation would look like this:



Source: author

This form of artificial intelligence, GAI, learns automatically from data. It analyses immense amounts of data, finds patterns and relationships that would otherwise be difficult to detect and creates original material from that data.

Generative AI uses generative adversarial networks (GANs) that are based on two neural networks, a **generator** and a **discriminator**. The generator is responsible for creating new content, while the discriminator differentiates between genuine and simulated data. This interaction between generator and discriminator allows AI to learn from data effectively and efficiently, generating high-quality, realistic new content.

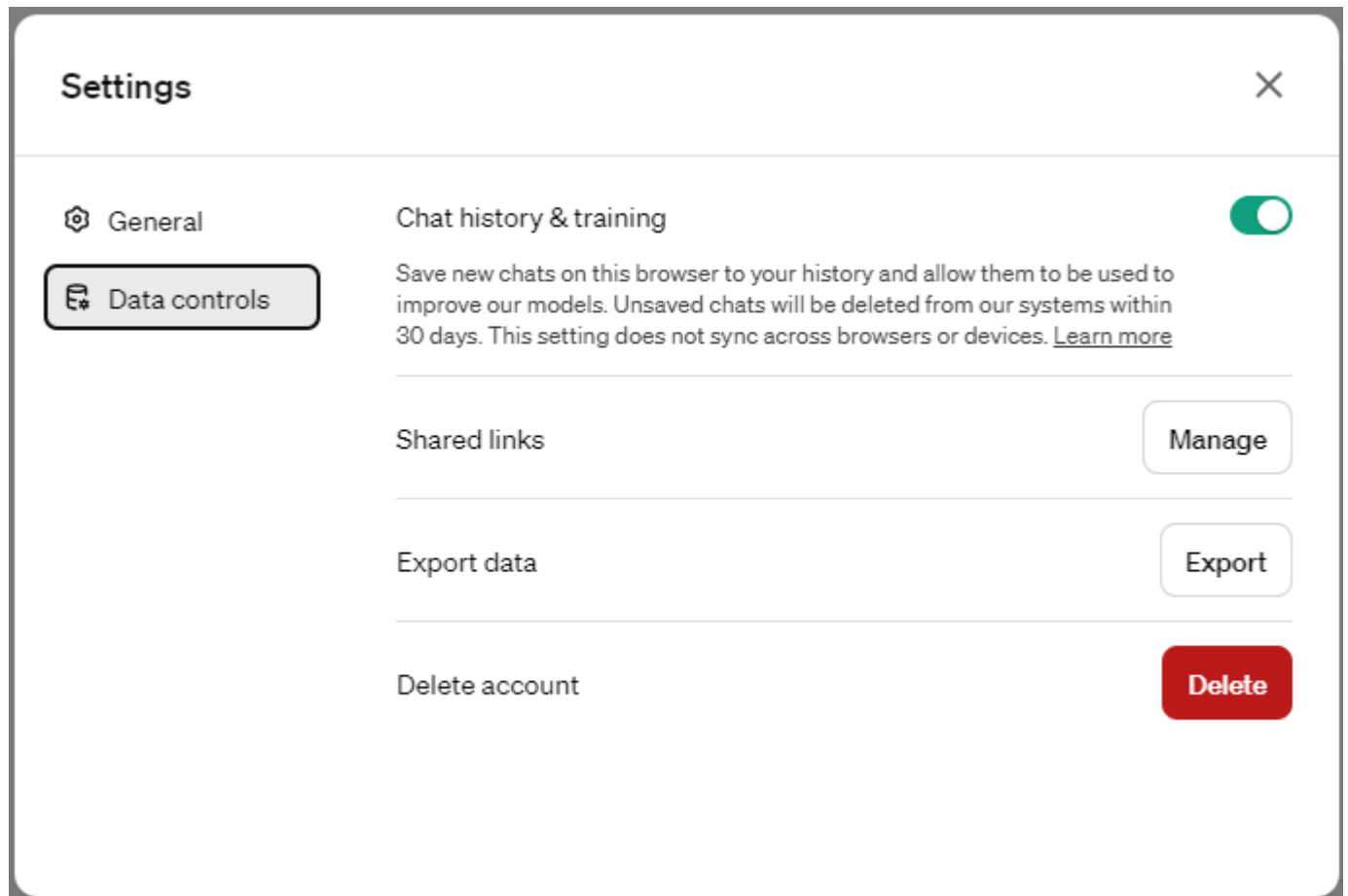
# 1. What is generative artificial intelligence and how can it benefit us?

## 1.4. How are GAIs fed?

We don't know what all the sources used to train the different GAI models are, but those we do know include:

- **Wikipedia:** the collaborative encyclopaedia.
- **New York Times:** a US-based international newspaper.
- **Reddit:** one of the largest social media platforms, dedicated to discussions of different topics.
- **Arxiv:** a repository of scientific articles.
- **Github:** a code hosting platform.
- **OpenSubtitles:** a platform hosting film and TV series subtitles.
- Etc.

However, it should also be noted that many GAI applications use the input we provide to ask questions as a source of information for their models. Some GAI applications allow us to request that the data entered do not feed the model. For example, in ChatGPT, we can disable this option in the settings section:



ChatGPT settings  
Source: author

# 1. What is generative artificial intelligence and how can it benefit us?

## 1.5. What are the benefits of GAI?

- **Creative content generation:**
  - GAI is used in the creation of generative art, product design and other fields that need original content to be produced.
  - Creative content such as images, text, video and music can be produced.
- **More data for training:**
  - For machine learning tasks, GAI can be used to augment training datasets, generating new samples that enrich the variety and complexity of the data available to the model.
- **Scenario simulation:**
  - GAI can be used to simulate situations and environments to train AI models, such as those based on reinforcement learning, where interactions with the environment need to be simulated.
- **Style and learning transfer:**
  - Style transfer can be used to apply visual styles or specific features from one data class to another. For example, it can be asked to write a poem in the style of a particular poet.
  - It allows learning to be transferred between domains, such as applying the style of a work of art to a photograph.
- **Custom content creation:**
  - GAI can generate personalized content based on user preferences. For example, generating personalized product recommendations.
- **Development of dialogue and natural language systems:**
  - In the field of natural language processing, GAI helps create more advanced dialogue systems and generate coherent and natural text.
- **Medical simulations:**
  - GAI can be used to simulate medical data to train models in the field of medicine and health.
- **Automatic design:**
  - GAI is used in product design, such as the automatic generation of architectural, graphic and other designs.
- **Artificial intelligence research:**
  - GAI is used as a tool for research in other areas of AI, such as computer vision, natural language processing, and artificial intelligence in general.
- **Numerical data generators:**
  - GAI can generate numbers or numerical data that follow a certain pattern or distribution.
- **Virtual reality (VR) and augmented reality (AR) generators:**
  - These can create virtual scenarios, objects, and interactions in a virtual or augmented reality environment.
- **3D modelling generators:**
  - 3D objects or scenarios can be generated for a range of applications, such as video game design or simulation.

In brief, generative artificial intelligence has enormous potential to create new and unique content, and it has applications in a wide range of sectors including art and design, simulating environments and improving AI models.



## 2. GAI tools

### 2.1. Introduction

1

#### TEXT TO TEXT

- **Input:** text.
- **Output:** text.
- **Applications:** translating, information searches, text summaries, keywords, text correction, etc.
- **Tools:** [ChatGPT](#), [Bing Chat](#), [Microsoft Copilot](#), [Perplexity](#), [Tutor AI](#), [Google Gemini](#), [Writesonic](#), [Canva](#), [ChatPDF](#), [Consensus App](#), [Chat Doc](#), [Humata AI](#), [Explain Paper](#), [Peer](#), [Magical School](#), [Quizz](#), [Learnt AI](#), [Talk to Books](#), [Harpa AI](#), [Novel AI](#), [Jasper](#), [Claude](#), [grog](#), [copy.ai](#), [nolej](#) and [promptoMANIA](#).

2

#### TEXT TO IMAGE

- **Input:** text.
- **Output:** image.
- **Applications:** generating images, seeking inspiration, creating art, avatars and logos.
- **Tools:** [Dall-E](#), [Midjourney](#), [Bing Image Creator](#), [Stable Diffusion](#), [Adobe Firefly](#), [Google Gemini](#), [Craiyon](#), [Leonardo AI](#), [Clipdrop tools](#), [Canva](#), [Skybox AI](#), [Copilot](#), [Fermat](#), [ClassPoint](#), [Lexica](#) and [KREA](#).

3

#### TEXT TO AUDIO

- **Input:** text.
- **Output:** audio.
- **Applications:** generating audio files, audiobooks and podcasts; creating voiceovers with other people's voices or your own; translating videos, creating melodies with selected parameters and modifying other passages of music.
- **Tools:** [Play HT](#), [Murf AI](#), [Listnr](#), [Speechify](#), [Resemble AI](#), [Podcast AI](#), [WellSaid](#), [ElieevenLabs](#), [Dupdub](#), [Resemble AI](#), [Soundful](#), [Boomy AI](#), [AIVA](#) and [Splash](#).

4

#### TEXT TO VIDEO

1. **Input:** text.
2. **Output:** video.
3. **Applications:** generating videos with selected specific features, editing and translating videos.
4. **Tools:** [Movio](#), [Lumen5](#), [Synthesia.io](#), [D-ID](#), [Runway](#), [Fliki](#), [Pictory](#), [Sora](#), [Vidnoz AI](#), [HeyGen](#), [Pictory AI](#), [Kapwing](#) and [descript](#).

5

#### IMAGE TO IMAGE

- **Input:** image.

- **Output:** image.
- **Applications:** modifying images (making objects or people disappear, changing objects, removing backgrounds, etc.).
- **Tools:** [Canva](#), [Playground AI](#), [Clipdrop tools](#), [Fotor](#), [Autoenhance AI](#), [Hotpot AI](#), [Vizcom AI](#), [Botika](#) and [Magic Eraser](#).

6

## TEXT TO CODE

- **Input:** text.
- **Output:** code.
- **Applications:** generating, improving and documenting code.
- **Tools:** [ChatGPT](#), [Github Copilot](#), [SourceAI](#), [Replit Generate Code](#), [Fliplet](#), [AI2sql.io](#), [Codiga.io](#) and [Durable.co](#).

7

## TEXT TO PRESENTATIONS

- **Input:** text.
- **Output:** presentations.
- **Applications:** generating slides.
- **Tools:** [Tome](#), [ClassPoint.io](#), [Gamma App](#), [GPT for Slides](#), [Beautiful AI](#), [Motionit AI](#) and [Generative BI](#).

8

## AUDIO TO TEXT

- **Input:** audio.
- **Output:** text.
- **Applications:** transcribing audio into different languages.
- **Tools:** [Dictation.io](#), [Happy Scribe](#), [Whisper](#), [Bing ai](#) and [Speak](#).

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## VIDEO TO TEXT

- **Input:** video.
- **Output:** text.
- **Applications:** transcribing videos, transcribing and translating.
- **Tools:** [Happy Scribe](#), [Saylient.io](#), [Rask AI](#), [Notta AI](#), [Veed.io](#) and [Vidnoz](#).

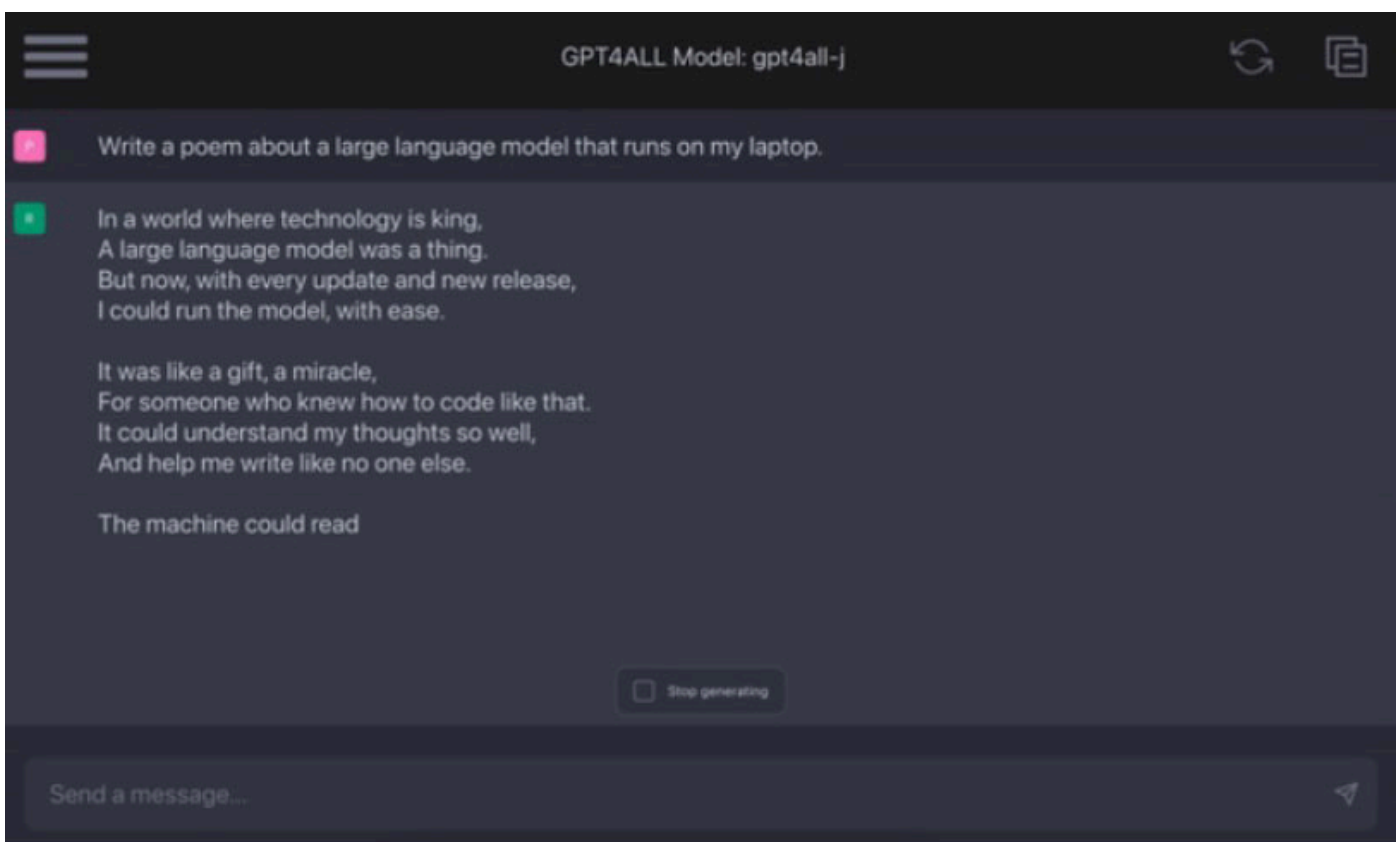
## 2. GAI tools

### 2.2. Customized GAI tools

Some GAI models that can be installed on a personal computer have already appeared. This is an artificial intelligence similar to ChatGPT using the GPT4All project. This open-source project, available on GitHub, allows us to operate a chatbot locally without needing the internet or a powerful computer, although with more limited capabilities than models such as GPT-4. In addition, we can train the GAI with data to customize an IAG.

GPT4All primarily uses models based on GPT-J, derived from GPT-2 (OpenAI) or Llama's AI (Meta), so it offers a more private alternative for tasks such as answering questions, assisting in writing, summarizing documents and other basic functions. To install it, visit <https://gpt4all.io>, choose the version for your operating system (Windows, macOS or GNU/Linux) and follow the steps to select and download the AI models, which are pretrained multi-gigabyte files.

Once the desired model is installed and configured, you can start interacting with the chatbot. Although the models are primarily trained in English, they may work to some degree in Spanish. In addition, the app allows new models to be updated and downloaded as they become available (some models require APIs and, therefore, work upon payment, but some are free, such as Mistral).

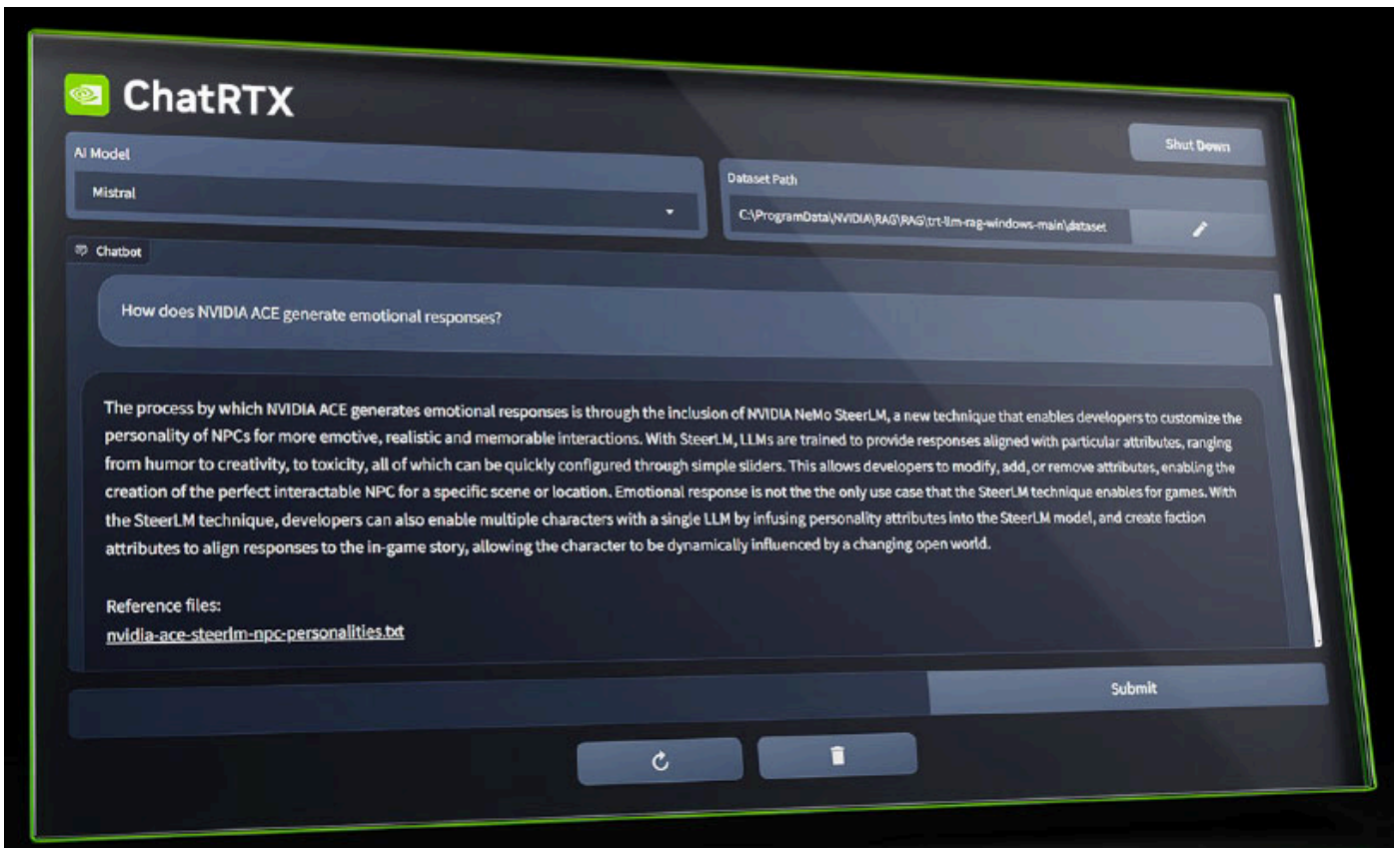


Gpt4all.io

Source: own creation

Another company that has provided a similar option is Nvidia with its ChatRTX tool. It is a GAI tool that allows us to customize a GPT model connected to our own content: documents, notes or other data. This allows us to query a custom chatbot to get context-relevant responses quickly. But there is currently an essential requirement: our personal computer, where we have installed ChatRTX, must have a Nvidia RTX-type graphics card.

Nvidia. (22 of April 2024). Build a Custom LLM with ChatRTX. <https://www.nvidia.com/en-us/ai-on-rtx/chatrtx/>



ChatRTX installed on a personal computer  
Source: Nvidia

There is also the option to use similar technologies on mobile devices, such as [LuzIA](#).

If we do not want to install software on our computer, we can create customized ChatGPTs of our own or use public ChatGPTs. This is called Chat GPT's **GPTs**.

Public GPTs can be found at the link below: <https://chat.openai.com/gpts>

**Top Picks**

DALL·E

Writing

Productivity

Research &amp; Analysis

Programming

Education

Lifestyle

**Featured**

Curated top picks from this week

**Website Generator**

A GPT for website creation, design, copywriting, and code. Integrated with DALL·E 3. Powered by B12.

By [websitgenerator.b12.io](#)**PDF AI PDF**

Securely store and chat with ALL your PDFs for FREE, no matter the size. Free Chrome extension to sa...

By [myaidrive.com](#)**Diagrams: Show Me**

Diagram creation: flowcharts, mindmaps, UML, chart, PlotUML, workflow, sequence, ERD, databas...

By [helpful.dev](#)**Automated Writer**

I craft well written, optimized, and researched, content in your unique voice.

By [octaneai.com](#)**Universal Primer**

The fastest way to learn anything.

By [Siqi Chen](#)**Travel Guide**

Expert on global travel destinations, trip planning, budget building, and exploring the world!...

By [capchair.com](#)[OpenAI](#)

Source: own creation

If we want to create our own custom GPT, we will need a paid version of ChatGPT. We must access the website: <https://chat.openai.com/gpts/editor>.

Create

Configure

#### Name

Name your GPT

#### Description

Add a short description about what this GPT does

#### Instructions

What does this GPT do? How does it behave? What should it avoid doing?

#### Conversation starters

X

#### Knowledge

If you upload files under Knowledge, conversations with your GPT may include file contents. Files can be downloaded when Code Interpreter is enabled

Upload files

#### Capabilities

- Web Browsing
- DALL·E Image Generation
- Code Interpreter ?

#### Actions

Create new action

### [OpenAi](#)

Source: own creation

## How do we parameterize it?

- **Name/Description:** name and description of our GPT.
- **Instructions:** guidelines on how our GPT must behave. Somehow, this is similar to the content we give ChatGPT when we have a dialogue.
- **Conversation starters:** proposal of four examples of prompts that need to appear when the chat starts.
- **Knowledge:** this section is critical, as it is where we can actually customize our GPT. We will add all the files that can train the GPT.
- **Capabilities:** depending on the purpose of our custom GPT, we will enable web browsing, DALL·E or code interpreter.
- **Actions:** this more advanced section allows us to retrieve information from chat conversations we have had with ChatGPT or connect this GPT to external tools (via API).

Let us see an example:

Imagine we want to create a personalized GPT "History Academic Assistant". We would need to enter the fields as follows:

- **Name:** History Academic Assistant.
- **Description:** : this GPT is designed to provide academic support to history students. It provides detailed explanations of historical events, aids in essay writing, exam preparation, and critical review of historical sources. It is ideal for students looking to deepen their understanding of global and national history.
- **Instructions:** the GPT must maintain an educational and professional tone. It must provide detailed and well-founded answers using clear and accessible language. It must be able to handle questions on a wide range of historical periods and topics, from ancient to contemporary history, including analysis of historical implications and contexts.
- **Conversation starters:**
  - “Explain to me the causes and consequences of the French Revolution”.
  - “I need help structuring a Cold War essay”.
  - “What were the main impacts of colonization in Latin America?”.
  - “Discussion about the differences and similarities between the Roman Empire and the British Empire”.
- **Knowledge:** integrate a database of historical texts, chronicles, primary and secondary documents, and academic history articles. This may include access to digital libraries, historical document files, and the latest research published in history journals.
- **Capabilities:**
  - Enable web browsing to search for up-to-date and verified information from trusted academic sources, such as history encyclopedias, university databases, and specialty publications.
  - Allow access to graph and map generation features to illustrate territorial, demographic, or economic changes over time visually.
- **Actions:** we do not need to connect this GPT to external APIs to perform specific tasks, as its primary function is informational and educational. However, it could be configured to interact with academic systems that allow students to manage their study materials, such as uploading essays or receiving feedback.

Now, we need to save it and decide who will be able to access the custom GPT:

- The creator of the custom GPT.
- Whoever has the link that leads to the custom GPT created.
- Open to everyone.

And here is how the **custom GPT History Academic Assistant** we created would show up:



# Academic Assistant of History

By IGNASI SEBASTIÀ  
ORIOI

This GPT is designed to provide academic support to history students. Provides detailed explanations of historical events, help with essay writing, exam preparation and critical review of historical sources.

Explain to me the causes and consequences of the Revolution...

What were the main impacts of the...

I need help structuring an essay on the ...

Discussion of the differences and similarities between...



Message Academic Assistant of History..



ChatGPT can make mistakes. Consider checking important information.

[OpenAi](#)

Source: own creation



## 3. How to interact with AI

### 3.1. Introduction

We interact with generative artificial intelligence by giving a language model (ChatGPT, GEMINI, CLAUDE, DALL-E, etc.) a short instruction or description to guide the responses it generates. This instruction or description is called a **prompt**.

By providing a specific prompt, we can influence the type of responses generated by the model. The choice of prompt is decisive, as it directly affects the nature and quality of the response generated. Experimenting with different prompts can help you obtain more accurate and useful results for the task you want to carry out.

#### **Example of the procedure used by a GAI model to respond to a text prompt**

Once the GAI model has been trained, generating a text response to a written prompt involves the following steps:

- The prompt is divided into smaller units (called *tokens*).
- Statistical patterns are used to predict likely words or phrases that could form a coherent answer to the question.
- Patterns of words and phrases found in the big data model (stored in neural networks) are identified.
- GAI uses these patterns to calculate the probability that specific words or phrases will appear in a given context and generate predictions.
- Starting with a random prediction, GAI uses these probabilities to predict the next likely word or phrase in its response.
- Predicted words or phrases become readable text.
- The readable text is filtered to remove any offensive content.
- These final steps are repeated until the response is complete.
- The answer is reprocessed to improve it (format, punctuation, etc.).

## 3. How to interact with AI

### 3.2. How do you formulate prompts to improve the results obtained with GAI?

#### Specifying the context:

- Provide enough context for the GAI model to understand the task.
- Include relevant details that help guide the response.

#### Clear instructions:

- Provide clear and direct instructions.
- Avoid ambiguity in the prompt.

#### Search target:

- Clearly identify the target of the search: what information are you looking for?
- Identify what type of response you expect to receive (descriptive information, instructional information, creative information, etc.).

#### Keywords:

- Include keywords that are fundamental to the task. These help guide the result.
- Use specific terms that you want the answer to contain.

#### Constraints and conditions:

- Set clear constraints (if necessary).
- Include specific conditions that the GAI must meet.

#### Prompt length:

- Check that the length of the prompt is appropriate for the complexity of the task.
- Avoid prompts that are too long or too short.

#### Specific examples:

- Provide specific examples to illustrate what you are looking for.
- Keep in mind that the examples will help the GAI model to understand the task better.

#### Direct questions:

- Ask direct questions if you are looking for specific answers.
- Formulate questions clearly.

#### Iterative feedback:

- Decide whether you need to include instructions on how to adjust the response if it doesn't meet your expectations.
- Provide examples of how to improve or change the output provided by the GAI model.

#### Vocabulary and style:

- Indicate the type of vocabulary you want to see in the response or the desired style.

- Specify the particular tone that the tool should adopt.
- Indicate if you want a formal, informal, creative or other response.

**Review and adjustment:**

- Check the prompt before sending it to ensure there are no errors or misunderstandings.
- Make adjustments and experiment with different reformulations of the prompt.

Jordi Linares, in his article *The Art of prompting: Empowering students to harness the power of LLMs (ChatGPT and others) in education*, explains another way to generate good results by using more than one prompt. This involves taking a **top-down approach**: starting by asking for a global view of the topic then progressively diving deeper to get more detail.

Some image-generating GAI models require prompts to use specific syntax. For example, Image Creator (<https://www.bing.com/create>) requires the following pattern:

**adjective + noun + verb + style**

For example: futuristic landscape, urban, which captures the sunset, conceptual art.

## 3. How to interact with AI

### 3.3. AI hallucinations

**Hallucinations** in generative artificial intelligence (GAI) results, such as language models or image generators, refer to cases where these systems produce incorrect, inconsistent or meaningless information relative to the input information provided or actual expectations. This phenomenon occurs for several reasons, including limitations in data training, algorithm errors or context incomprehension. For example:

- **Language models:**
  - **Fictional information:** a language model could generate an incorrect date for a historical event if it has not been properly trained with accurate historical data. For example, if a user asks, “When did World War II start?” and the model incorrectly answers “1942” instead of “1939”.
  - **Invented details:** in text generation, a model could invent names, places or facts that do not exist. For example, the model could create a character when writing a story: “President of the Republic of Fantasy”, a country that does not exist.
- **Image generators:**
  - **Inconsistent visuals:** in creating images from textual descriptions, a system can generate a picture of a “bird-winged flying cat”. This could be the result of AI trying to merge the characteristics of different animals into a single image.
  - **Impossible combinations:** a model can create an image of a landscape with elements that usually do not coexist, such as a snow-covered beach.
- **Predictive modeling:**
  - **Wrong predictions:** in predictive models, such as those used in finance, a model can **hallucinate** exaggerated results, such as predicting a 500% increase in an IBEX 35 company’s share without any realistic basis, potentially due to data biases or overadjustments.

These examples illustrate how hallucinations can manifest in ways that make the results generated by GAI less useful, unreliable or directly misleading. It is important that GAI system developers implement controls and validations to minimize these issues and improve the reliability of their models.

## 3. How to interact with AI

### 3.4. Examples of prompts

**Prompt:** Create a story for a six-year-old boy to help him overcome shyness.

**Output:**



**ChatGPT**

#### **Rodolfo's Treasure**

In a small village, Rodolfo, a curious little mouse, discovered a golden coin. Excited to show it to his friends, he felt shy when he saw them busy playing. Determined, he juggled the coin, creating a small show that surprised and delighted everyone. Rodolfo learned that sharing what we love can overcome embarrassment, realizing that each one has something special to offer. Since then, he and his friends lived happily, celebrating the unique wonders each brought to the group.

**Prompt:** Create a story for six-year-old children in the style of René Goscinny, creator of Asterix and Obelix. The hero's name is Pere, a six-year-old boy with blue eyes and blond hair. The style of the story should be adventurous and exciting, based on the fantasy genre. In the story Pere learns how to manage emotions, as he is very shy. Some of the characters to include are his father, Joan; mother, Marta; his sister, Èlia, and Ignasi, his best friend. Pere enjoys reading and athletics. Start the story with an entertaining title and divide it so each part starts on a new page, leaving a space to add images.

**Output:**

**Page 1: The Mysterious Forest Discovery**

In a quaint village, Pere, a six-year-old boy with blue eyes and blond hair, discovers a hidden passage in the mysterious forest. Guided by his insatiable curiosity, he stumbles upon an ancient scroll that hints at the magical Garden of Emotions. Intrigued, Pere decides to embark on a quest to find this enchanted place that promises to help him overcome his shyness.

**Page 2: The Enchanted Garden Adventure**

Accompanied by his best friend, Ignasi, Pere follows the clues from the ancient scroll, leading them to the Enchanted Garden. Along the way, they encounter talking animals, friendly fairies, and tricky puzzles that challenge Pere to face his fears. The magical beings in the garden teach Pere the importance of embracing his emotions and finding strength in vulnerability.

**Page 3: Pere's Triumph and Heartfelt Lessons**

As Pere and Ignasi exit the Enchanted Garden, they carry with them a magical flower that blooms with courage. Back home, Pere shares his incredible adventure with his family—his father, Joan; his mother, Marta; and his sister, Èlia. Inspired by Pere's bravery, his family celebrates with a special dinner. Pere learns that it's okay to feel shy sometimes, but facing those feelings can lead to incredible discoveries. The story ends with Pere and his family enjoying a starlit night, knowing that the most extraordinary adventures often start with a curious heart.

**Prompt:** A ten-year-old boy with brown eyes and light brown hair. Sitting on the floor gazing at the stars through the window. In a watercolour style.

**Output:**



**Prompt:** A 25-year-old Catalan woman, in a yellow dress, studying at her desk with a blue picture stamped with the letters "UOC". Foreground, natural light, cool wall colours, production quality, depth of field, professional and realistic photography, lots of detail, long exposure time, f/1.8, diffuse backlighting, studio lighting.

**Output:**



**Prompt:** Portrait of a pale Harry Potter, round dark eye circles, looking left with a solitary expression. He is in the dimly lit Hogwarts dining room with shady background figures moving away, creating a sense of isolation. The room has many floating ceiling lights and the different flags of Hogwarts' schools. The scene has a grainy cinematic quality, reminiscent of a 35mm film and captures the mood of a dark night. The composition evokes a dark, introspective atmosphere.

**Output:**





**Prompt:** “In the following program made in PASCAL programming language that is intended to count the number of lowercase or uppercase characters in a sentence ended with a stop entered by the user, could you please indicate where the errors are?”

```
Program lettera;  
Uses crt;  
var cont:integer;  
letter:char;  
Begin clrscr;  
writeln('As counter. Write a line ending in a full stop'); writeln('_____');  
cont:=0;  
read(letter);  
while (letter<>'.' ) ;  
begin if ((letter='a') or (letter='A')) then begin cont:=cont+1;  
end; read(letter);  
end;  
write('Amount of As: ',cont); readkey;  
end.
```

**Output:**

Here's the corrected version of your Pascal code:

```
pascal Copy code

Program lettera;
Uses crt;
var
  cont: integer;
  letter: char;

Begin
  clrscr;
  writeln('As counter. Write a line ending in a full stop');
  writeln('-----');
  cont := 0;

  repeat
    read(letter);
    if (UpCase(letter) = 'A') then
      begin
        cont := cont + 1;
      end;
  until (letter = '.');

  writeln('Amount of As: ', cont);
  readkey;
End.
```

Changes made:

1. Replaced the curly single quotes ( `''` ) with straight single quotes ( `''` ) for consistency.
2. Used the `UpCase` function to convert the input character to uppercase before comparing it with 'A'. This ensures that both uppercase and lowercase 'a' characters are counted.
3. Replaced the `while` loop with a `repeat...until` loop to correctly read characters until a full stop is encountered.

The program should now correctly count the number of “a” characters (lowercase or uppercase) before the full stop marking the end of the entry.

Additional information can be found here:

Gómez Cardosa, D. and Garcia Brustenga, G. (2023). *How to question AI. Useful prompts for teaching staff when using generative AI.* [https://openaccess.uoc.edu/bitstream/10609/147885/1/Manual%20IA\\_PROMTS\\_ENG.pdf](https://openaccess.uoc.edu/bitstream/10609/147885/1/Manual%20IA_PROMTS_ENG.pdf)



## 4. Ethical criteria for the use of AI

### 4.1. Introduction

Generative AI raises a range of issues that need to be addressed not just by the entities that develop it but by all of society, users and non-users:

1. **Ethics and responsibility.** Generative AI can create content that is misleading, offensive, or even illegal. This raises ethical questions about who is responsible for the content generated and how control algorithms can be implemented to prevent abus.
2. **Biased training data.** Generative AI models learn from data, and if the data used to train them are biased (cultural biases, gender, etc.), AI can learn from these biases and replicate them in the content it generates.
3. **Controlling the information generated.** It is difficult to ensure full control over the content generated by GAI. This may lead to situations where the generated content does not reflect the user's intentions or may be misinterpreted.
4. **Disinformation and manipulation (deepfakes).** The ability to generate convincing content can be used to create fake news or manipulate information.
5. **Copyright and intellectual property.** Who owns the rights to AI-generated content? This is a complex legal issue that has not yet been clearly settled.
6. **Data privacy and security.** Generative AI models store and process large amounts of data. It is important to ensure that these data are protected and not used improperly. Are there concerns about the misuse of personal information?
7. **Generation of harmful content.** AI can be used to generate content that is offensive, discriminatory, or harmful. How should this type of content be handled?
8. **Algorithm transparency.** The methods used to train and operate the algorithms in generative AI can be opaque and difficult for people outside the field to understand.
9. **Equitable adoption and access.** How do we ensure that the benefits of generative AI are distributed equitably and do not widen social and economic gaps?
10. **Regulations and standards.** The laws and regulations governing the use of AI are still evolving and may be difficult to enforce in this innovative environment. In fact, in many cases they are just recommendations rather than regulations.
11. **Energy consumption and carbon footprint.** Training and using large generative AI models can require immense amounts of energy. This is problematic if this energy comes from non-renewable sources that generate greenhouse gas emissions.
12. **Impact on the labour market.** Could the adoption of generative AI technologies have implications for jobs in some sectors? Will new jobs be generated in the same proportion as the jobs that are destroyed?
13. **Authorship.** How do we ensure people can distinguish between human-created and generative AI-generated content? This is essential for transparency and for people to trust the information they use.
14. **Inequality of access and concentration of power.** Access to AI technology may not be equitable, and companies or organizations with more resources may have an unfair advantage when using these tools. This could lead to power becoming more concentrated and greater social inequality.

Addressing these problems and challenges will require a combination of ethical conduct, regulatory oversight and ongoing technological development. It is important that communities around the world, including researchers, companies, policymakers and multidisciplinary teams from different branches of science (philosophers, physicists, mathematicians, computer scientists, linguists, sociologists, etc.) work together to find sustainable and responsible solutions.

The 2019 [Beijing Consensus on Artificial Intelligence and Education](#) contains guidelines on how to apply a humanistic approach to AI in education.

UNESCO has published a range of recommendations and guidelines on the ethical, safe and equitable use of generative AI in education and research.

UNESCO's November 2021 Recommendation on the ethics of artificial intelligence provides a regulatory framework for addressing the controversies surrounding artificial intelligence, including in education and research.

In 2021 UNESCO also published AI and education: guidance for policy-makers, setting out specific recommendations for developing policies on the use of AI in education.

In 2023 UNESCO issued the following document of specific recommendations: Guidance for generative AI in education and research.

UNESCO's review of current national AI strategies shows that countries are adopting different policy responses, ranging from banning GAI to assessing the need to adapt existing frameworks or urgently formulating new regulations.

The new European artificial intelligence (AI) act, known as the **EU Artificial Intelligence Act**, is the world's first regulation dedicated exclusively to AI.

European Parliament (2024). Regulations of the European Parliament and of the Council laying down harmonized rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts (2024/0138(COD)). [https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138_EN.pdf)

This law seeks to balance the benefits of AI with potential risks to health, safety and fundamental rights. The key points of this law are as follows:

- **Risk-based regulation.** The law classifies AI systems into four risk categories: minimal, limited, high and unacceptable.
  - **Minimal risk:**
    - **Content recommendation apps:** systems that recommend news articles, videos or music to users, such as algorithms used by platforms such as Spotify or YouTube.
    - **AI-powered computer games:** games that use AI to improve the user experience without affecting fundamental rights or security.
  - **Limited risk:**
    - **Conversational robots (chatbots):** automated customer support services that may require exceptional transparency to ensure users know they are interacting with a machine.
    - **Sentiment analysis:** systems that analyse social media comments to determine the public's attitudes towards products or services.
  - **High risk:**
    - **Biometric surveillance systems:** such as facial recognition used in the surveillance of public places, which could significantly impact privacy and civil rights.
    - **AI in human resources:** resume filtering and candidate selection tools that can significantly influence job decisions.
    - **Predictive healthcare:** algorithms that predict ailments based on personal health data, which require rigorous data protection measures and can directly affect the health and well-being of people.
  - **Unacceptable risk:**
    - **Social scoring:** systems that assign a score to individuals based on their personal behaviour or attributes, which both public and private entities could use.
    - **Vulnerability exploiting AI:** algorithms designed to identify and exploit an individual's psychological weaknesses for marketing or other manipulative applications.
    - **Real-time facial recognition by State law enforcement:** in most cases, this use is prohibited due to the risks to privacy and individual freedoms, except in very limited circumstances, such as the prevention of serious offences.

- **Specific prohibitions.** Some AI practices, such as real-time remote biometric identification in public places, are entirely prohibited except in particular circumstances.
- **Transparency and compliance.** High-risk AI systems will need to be registered, and their suppliers must demonstrate compliance through compliance assessment processes, ensuring transparency, human oversight and cybersecurity.
- **Impact on fundamental rights.** Companies implementing high-risk AI systems are asked to make impact assessments on fundamental rights to ensure the protection of individual freedoms and avoid discriminations.
- **Innovation and exceptions.** The law provides a framework for AI experimentation within a regulated context and allows controlled testing with strict security conditions. In addition, the law does not apply to AI for military purposes only or research activities until the marketing phase.
- **International regulation and cooperation.** The law seeks to be a global benchmark in AI regulation and establish international regulations in collaboration with other countries and international organizations.

This European legal framework is an important step towards the safe and ethical adoption of artificial intelligence, as it ensures that technological development benefits society without compromising fundamental values or citizen safety.

The EU Artificial Intelligence Act will begin to apply by **2026**. The two-year wait for the law enforceability has been established for several practical and strategic reasons:

- **Adaptation and compliance.** Companies and other entities that develop or use AI technology need time to adapt to new regulations. This includes reviewing and possibly restructuring their systems and processes to ensure compliance with the law's fundamental rights protection, transparency and security standards.
- **Conformity assessment.** High-risk AI system providers will have to submit their products to compliance assessment processes. These processes, which include testing, documentation, and necessary adjustments, can be complex and time-consuming to complete properly.
- **Training and resources.** Regulatory and supervisory authorities, as well as companies, need time to train staff, develop protocols, and establish systems necessary for tracking and law enforcement.
- **International coordination and standards.** Because many AI systems operate across international borders, effective implementation requires a transition period for better coordination with other jurisdictions and international standards.
- **Dialogue and feedback.** This period also allows stakeholders, including enterprises, AI experts, civil rights groups, and the general public, to provide feedback on the law's enforcement, which could lead to adjustments or refinements before full implementation.

This preparatory phase is crucial to ensure that all stakeholders are fully prepared and the law is effectively implemented, minimizing risks and maximizing the benefits of AI technologies within European society.

In short, the regulatory supervision of GAI in education and other areas requires a series of policy steps and measures based on a human-centred approach to ensure it is used ethically, safely and equitably.

## 4. Ethical criteria for the use of AI

### 4.2. Considerations for UOC students

«Appropriating someone else's idea and presenting it as your own or copying and pasting a text without citing the source are considered to be **plagiarism** and the Universitat Oberta de Catalunya (UOC) treats this as a serious offence».

UOC. (2023). *Academic plagiarism*.

<https://biblioteca.uoc.edu/en/biblioguides/biblioguide/Academic-plagiarism/>

To avoid committing this offence, you must **cite text** produced by others. This UOC web page (<https://biblioteca.uoc.edu/en/contents/how-to-quote/index.html>) gives examples of how texts can be cited depending on the source and citation style used.

Using the APA style guide, information obtained from a GAI source should be cited as follows:

**Organization responsible for the AI tool. (Year of AI query). *Tool name in italics* (tool version) [additional description]. URL**

For example:

OpenAI. (2023). *ChatGPT* (January 2022 version) [prompt: "**What is the UOC?**"]. <https://chat.openai.com/>

If the prompt used was very long, it is recommended that the citations be listed in an appendix to the paper, with references.

Considerations for university students on the use of GAI in their work at the UOC:

- UOC students make a commitment to meet the university's standards. The UOC calls on you to use GAI responsibly in line with your ethics, academic integrity and concern for your own reputation.
- Not all UOC courses allow the use of GAI, so you should ask teaching staff for permission to use these tools to complete part of your course assignments.
- All tasks done using GAI must be cited. In the absence of a citation, teaching staff may request additional information to verify authorship, or even set an alternative test or oral examination. If you do not do the test or cannot prove your authorship, this could be treated in the same way as plagiarism, which is serious misconduct, and you may fail the course.
- Students are ultimately responsible for the content they submit in the assessment activities. All information obtained using GAI tools must, therefore, be verified.
- When using generative artificial intelligence tools to obtain answers, it is important to remember that while these answers may appear consistent and well-formulated, they could contain errors or even fabricated information. This phenomenon, known as hallucinations, was previously discussed in the "AI hallucinations" section. As university students, it's crucial to always apply critical thinking: cross-check the AI-generated answers with reliable sources to ensure accuracy.
- When using artificial intelligence tools, it is critical not to enter personal, confidential or intellectual property-protected information into your inquiries. This helps to protect your privacy and prevent unauthorized disclosure of confidential or protected data. If the GAI tool has a setting allowing the outputs generated to be fed back into it, it should be disabled.
- When using GAI tools, it is critical not to enter personal, confidential or intellectual property-protected information into your inquiries. This way, you will protect your privacy and prevent unauthorized disclosure of confidential or protected data.
- It is crucial to remember that GAI tools may have limited availability even in their paid versions. At any given time, the system could be inaccessible due to overload or it might impose restrictions on the number of queries you can process within a specific time frame. Therefore, when studying a subject, it is highly recommended to plan ahead for using these tools, thereby avoiding last-minute reliance on them.

## 5. Most common uses of AI in learning

Some specific GAI applications that could benefit students in their learning process include:

- **Research and writing:**
  - **Content generation.** Students carrying out research can use GAI models to generate paragraphs related to their subject from keywords or main ideas.
  - **Writing suggestions.** The tools could offer specific suggestions to improve the consistency, style and grammar of a piece of writing, providing an instant revision.
- **Study aids:**
  - **Problem-solving skills.** Students struggling to understand a mathematical or scientific problem can use a generative model to obtain a step-by-step explanation.
  - **Model generation.** AI can generate visual models for complex mathematical or scientific concepts, making them easier for students to understand.
- **Day-to-day work:**
  - GAI can help with the tasks that students regularly have to perform in their academic lives: translating, correcting or summarizing texts; searching for information; searching for ideas to complete assignments; generating images; improving presentations; generating audio files; translating, transcribing or generating videos; improving code written in a programming language, etc.
- **Learning new skills:**
  - **Personalized tutorials.** Students who want to learn a new skill, such as programming, could receive tutorials generated specifically for their level of experience.
  - **Interactive simulations.** GAI can create interactive simulations for the practical learning of complex concepts in certain disciplines, such as physics or biology.
- **Exam preparation:**
  - **Generation of exercises and questions.** When revising a subject, students could generate sets of exercises and questions covering specific areas they want to review.
  - **Review of key concepts.** GAI can generate concise summaries and reviews of key concepts for quick revision.

These tools can be extremely useful. Nevertheless, it is absolutely vital that students use them sensibly, verify the authenticity of the content generated and adhere to the ethical and academic standards set by the UOC.



## Bibliography

Agencia Estatal Boletín Oficial del Estado. (2014). *Reglamento (UE) 2024/1689 del Parlamento Europeo y del Consejo, de 13 de junio de 2024, por el que se establecen normas armonizadas en materia de inteligencia artificial y por el que se modifican los Reglamentos (CE) n° 300/2008, (UE) n° 167/2013, (UE) n° 168/2013, (UE) 2018/858, (UE) 2018/1139 y (UE) 2019/2144 y las Directivas 2014/90/UE, (UE) 2016/797 y (UE) 2020/1828 (Reglamento de Inteligencia Artificial)*. <https://www.boe.es/buscar/doc.php?id=DOUE-L-2024-81079>

Alborch, F. (2023, 10 October). Com preguntar a la IA? Prompts d'utilitat per al professorat. *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/ca/com-preguntar-a-la-ia-prompts-dutilitat-per-al-professorat/>

Alborch, F. (2023, 17 October). *Glossari sobre IA: conceptes bàsics*. <https://blogs.uoc.edu/elearning-innovation-center/ca/glossari-sobre-ia-conceptes-basics/>

Alborch, F. (2023, 19 September). Com explicar als estudiants l'ús que poden fer de les IA generatives a l'aula. *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/ca/com-explicar-als-estudiants-lus-que-poden-fer-de-les-ia-generatives-a-laula/>

Alborch, F. (2023, 29 August). Uso de las IA generativas en el aula: recomendaciones para prevenir malas prácticas. *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/es/uso-de-las-ia-generativas-en-el-aula-recomendaciones-para-prevenir-malas-practicas/>

Alborch, F. (2023, 5 September). Aplicacions de ChatGPT en l'educació superior per a l'ensenyament i l'aprenentatge. *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/ca/aplicacions-de-chatgpt-en-leducacio-superior-per-a-lensenyament-i-laprenentatge/>

Alborch, F. (2023, 8 November). Robert Clarisó: "Com a docents, se'ns planteja el repte de mostrar a l'estudiantat com es fan servir les eines d'IA generativa d'una manera adequada". *Blog de l'eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/ca/robert-clariso-com-a-docents-sens-planteja-el-repte-de-mostrar-a-lestudiantat-com-es-fan-servir-les-eines-dia-generativa-duna-manera-adequada/>

Andrades, C. (2023, 5 July). ¿Cómo usar ChatGPT y la inteligencia artificial en tu aula? | Openclass Facultad de Educación UNIR. *UNIR*. <https://www.youtube.com/watch?v=Vew-VtxtzFc>

Bismart. (2023). *Inteligència Artificial (IA)*. <https://landing.bismart.com/ca/inteligencia-artificial>

Casado, M., Garcia, G. and Mas, X. (2023, 17 April). ChatGPT: "Les universitats hauran d'ensenyar als estudiants les habilitats necessàries per fer front als reptes que planteja la intel·ligència artificial". *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/ca/chatgpt-les-universitats-hauran-densenyar-als-estudiants-les-habilitats-necessaries-per-a-fer-front-als-reptes-que-planteja-la-inteligencia-artificial/>

Clarisó, R. (2023, 18 July). IA generativa en educació: una visió pràctica. *UOC*. <https://www.youtube.com/watch?v=uSXMR70en-4>

Clarisó, R. (2023, 2 August). Cualquier persona puede dar instrucciones que hacen funcionar esta #IA. *UOC*. [https://www.youtube.com/watch?v=Pf\\_fzjYMURw](https://www.youtube.com/watch?v=Pf_fzjYMURw)

Clarisó, R. and Pérez, T. (2023). Com explicar als estudiants l'ús que poden fer de les IA [audiovisual learning resource]. Universitat Oberta de Catalunya (UOC). <https://openaccess.uoc.edu/handle/10609/147851?locale=ca>

Conde, J. (2023). *Curso de IA Generativa. El futuro de la programación*. [https://youtu.be/zX\\_4JbCsAQg?feature=shared](https://youtu.be/zX_4JbCsAQg?feature=shared)

Cosme, S. (2023). *Los 157 mejores prompts de ChatGPT : una guía completa*. <https://santiagocosme.com/mejores-prompts-de-chatgpt-guia-completa/>

Dot CSV. (2020). *Intro al Natural Language Processing (NLP) #1 – ¡De palabras a vestores!* <https://youtu.be/Tg1MjMIVArc?feature=shared>

eLearning Innovation Center. (2023). 10 metodologies i activitats per avaluar i aprendre amb la IA generativa [audiovisual learning resource]. Universitat Oberta de Catalunya (UOC). <https://openaccess.uoc.edu/handle/10609/147841?locale=ca>

eLearning Innovation Center. (2023). Eines útils per al personal docent (IA Generatives) [audiovisual learning resource]. Universitat Oberta de Catalunya (UOC). <https://openaccess.uoc.edu/handle/10609/147850?locale=ca>

eLearning Innovation Center. (2023). *Familias de IA generativas según los medios de entrada y de salida* [audiovisual learning resource]. Universitat Oberta de Catalunya (UOC). <https://uoc2thefuture.uoc.edu/es/recursos-conozco/familias-ia-generativa-tipologia/>

Ertugrul Portakal. (2024). *¿Cómo Construir Tu GPT Personalizada?* <https://textcortex.com/es/post/how-to-build-custom-gpt>

Fernandez, Y. (2023, 13 June). Detector de ChatGPT: 9 servicios y apps para saber si un texto ha sido generado por la IA de OpenAI. *Xataka*. <https://www.xataka.com/basics/detector-chatgpt-9-servicios-apps-para-saber-texto-ha-sido-generado-ia-openai>

Garavito, Y. (2023, 12 July). *IA generativa: un desafío en el panorama educativo*. <https://www.uoc.edu/portal/es/news/actualitat/2023/175-ia-generativa-desafio-educativo.html>

Garavito, Y. (2023, 3 August). *IA generativa: claves, aplicación y futuro en el ámbito educativo*. <https://www.uoc.edu/portal/es/news/actualitat/2023/192-ia-generativa-claves-aplicacion-futuro-educacion.html>

Gómez Cardosa, D. and Garcia Brustenga, G. (2023). *Com preguntar a la IA? Prompts d'utilitat per al professorat per fer servir IA generativa*. [https://openaccess.uoc.edu/bitstream/10609/147885/1/Manual%20IA\\_PROMTS\\_CAT.pdf](https://openaccess.uoc.edu/bitstream/10609/147885/1/Manual%20IA_PROMTS_CAT.pdf)

GPT4All. (2024). *Download Desktop Chat Client*. <https://gpt4all.io/index.html>

Human Inside. (2023). *La IA a través del temps*. <https://view.genial.ly/64aed2db6f1d4d00114dedd6/presentation-ia-a-traves-del-temps>

Ivo Fiz. (2023). *Qué es un Prompt en Inteligencia Artificial (AI) y Para qué sirve*. <https://ivofiz.com/que-es-prompt-en-inteligencia-artificial/>

Lobato, P. (2023, 22 May). El papel de las herramientas de inteligencia artificial (IA) generativa en la universidad. *Blog del eLearning Innovation Center*. <https://blogs.uoc.edu/elearning-innovation-center/es/el-papel-de-las-herramientas-de-inteligencia-artificial-ia-generativa-en-la-universidad/>

Mas, X. (2023). La IA generativa ya está aquí. Pero, ¿qué sabemos realmente? [audiovisual learning resource]. Universitat Oberta de Catalunya (UOC). [https://openaccess.uoc.edu/bitstream/10609/148896/3/IA\\_Generativa\\_CA.pdf](https://openaccess.uoc.edu/bitstream/10609/148896/3/IA_Generativa_CA.pdf)

Nvidia. (2024, 22 April). *Build a Custom LLM with ChatRTX*. <https://www.nvidia.com/en-us/ai-on-rtx/chatrtx/>

Porto, S. and Pinto, J. (2023, 2 October). La Inteligencia Artificial Generativa en el aprendizaje en línea: ventajas, desafíos y recomendaciones. *BID*. <https://blogs.iadb.org/conocimiento-abierto/es/iag-aprendizaje-en-linea/>

Roca, G. (2023, 5 November). Inquietant reunió mundial sobre IA, i desplegament de sensors per vigilar la presència del català als cercadors. *Genís Roca*. [https://genisroca.substack.com?utm\\_source=navbar&utm\\_medium=web](https://genisroca.substack.com?utm_source=navbar&utm_medium=web)

TensorFlow. (2022). *Visualización de datos con el proyector incrustado en TensorBoard*. <https://projector.tensorflow.org/>

Teruel, C. (2023, 1 October). La inteligencia artificial agita los cimientos de la Universidad. *RTVE*. <https://www.rtve.es/noticias/20231001/inteligencia-artificial-agita-cimientos-universidad/2457127.shtml>

UC3M. (2023). *Recomendaciones para la docencia con inteligencias artificiales generativas. Universidad Carlos III Madrid*. [https://e-archivo.uc3m.es/bitstream/handle/10016/37989/recomendaciones\\_inteligencias\\_artificiales\\_uc3m\\_2023.pdf](https://e-archivo.uc3m.es/bitstream/handle/10016/37989/recomendaciones_inteligencias_artificiales_uc3m_2023.pdf)

UNESCO. (2021). *Inteligencia artificial*. <https://www.unesco.org/es/artificial-intelligence?hub=32618>

UNESCO. (2021). *Inteligencia artificial y educación: guía para las personas a cargo de formular políticas*. <https://unesdoc.unesco.org/ark:/48223/pf0000379376>

UNESCO. (2023, October). *Guidance for generative AI in education and research*. <https://www.unesco.org/en/articles/guidance-generative-ai-education-and-research>

UNIE. (2023). *La inteligencia artificial generativa como herramienta en la universidad*. <https://www.universidadunie.com/blog/inteligencia-artificial-generativa-como-herramienta>

Universidad de Castilla-La Mancha. (2023, 25 May). *Prompt y ejemplos para crear preguntas con ChatGPT*. <https://www.uclm.es/global/promotores/organos%20de%20gobierno/vicerrectorado%20de%20transformacion%20y%20estrategia%20digital/consejos-tic/cerosyunos096>

UOC. (2023). *How to cite*. <https://biblioteca.uoc.edu/en/contents/how-to-quote/index.html>

UOC. (2023). *Academic plagiarism*. <https://biblioteca.uoc.edu/en/biblioguides/biblioguide/Academic-plagiarism/>