



# Generative language models and their use in education

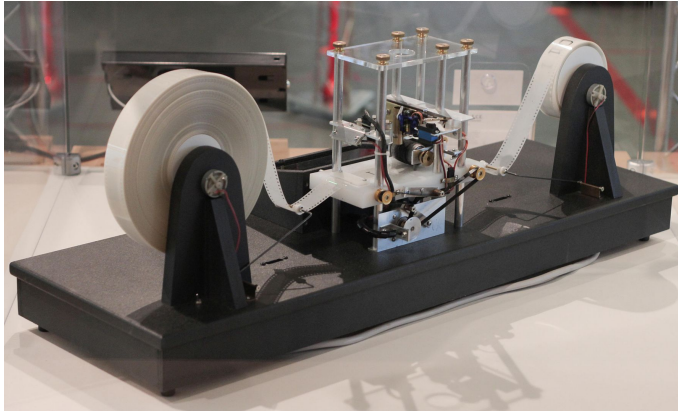
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Member of BOD, Open Technologies Alliance (GFOSS)

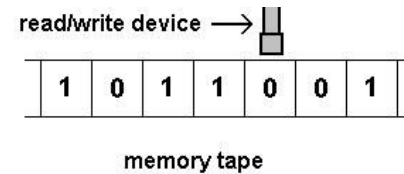
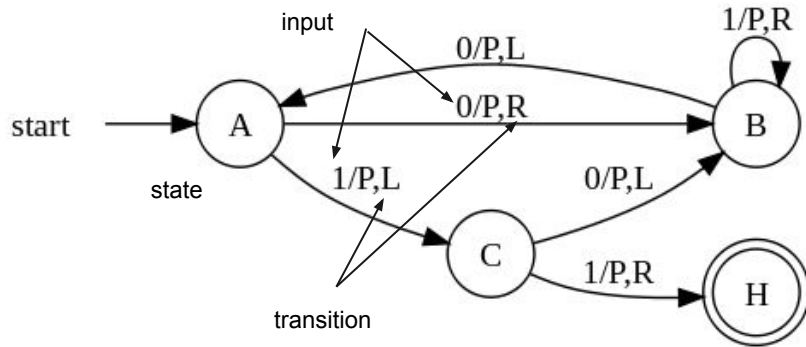
Director, Directorate of Digital Governance, GRNET SA

# Turing Machine



It allows us to organize a complex logical process, as a decision-making machine that, for each state, makes a decision taking into account a given knowledge (algorithm), and moves to a new state, etc., eventually leading to a solution.

The machine stores the decisions it can take in each state (depending on the input) in a memory, reads the inputs and writes to the output, while simultaneously encoding the entire process with a graph (finite state machine).



Turing, A. M. (1936). On computable numbers, with an application to the Entscheidungsproblem. *J. of Math*, 58(345-363), 5.

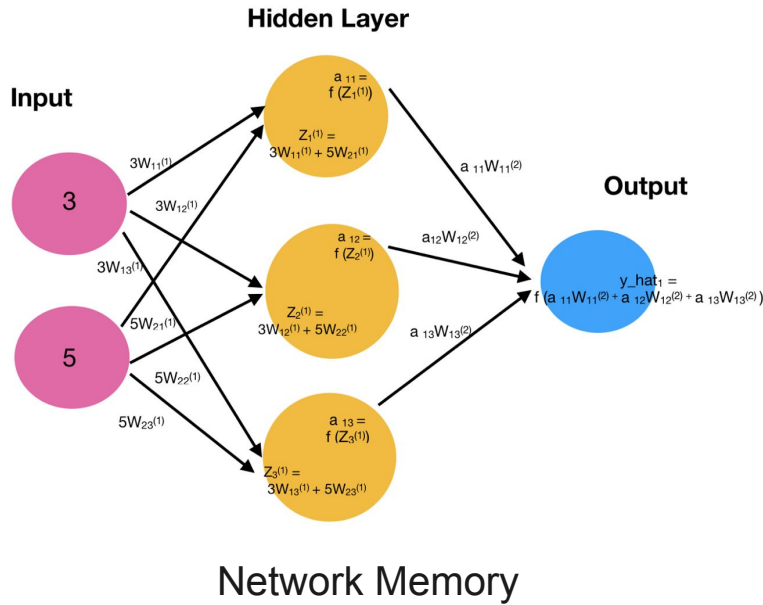
# Artificial Neural Networks

Inspired by biological neural networks.

A neuron receives signals (input) and, depending on the **weighted sum** of the signals and a **threshold**, is either activated or not. A network consists of many neurons that are connected to each other in layers (the output of some neurons is input to others).

The network is trained with multiple inputs iteratively so that at some point, each input produces the expected output.

Rosenblatt, F. (1958). The perceptron: a probabilistic model for information storage and organization in the brain. *Psychological review*, 65(6), 386.



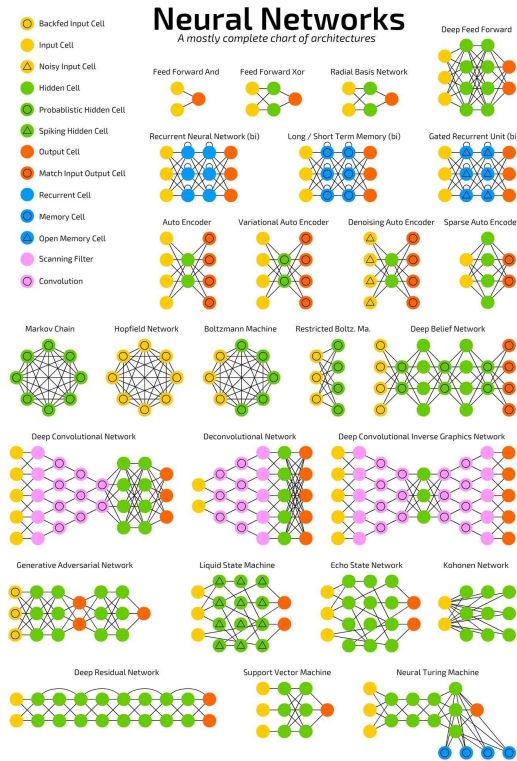
Training = Adjusting weights and thresholds.

# Deep (complex) neural networks

Many more layers of neurons.

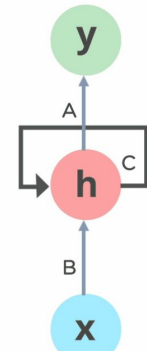
More complex connections (between non-sequential layers).

Different types of neurons (i.e. processing functions of inputs to generate an output).



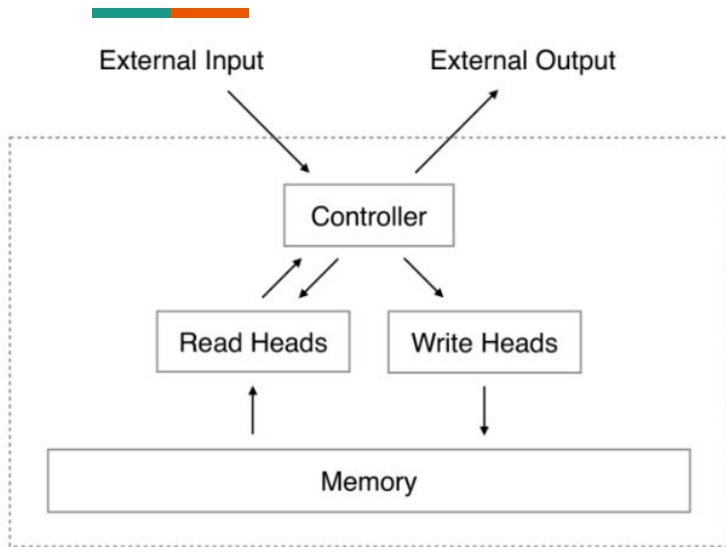
## Recurrent Neural Networks

Each output is affected not only by the last input but also by previous inputs (memory)



# Neural Turing Machine

## A little bit of history



It combines the sequence of actions with neural networks

In each iteration, the machine receives inputs from the environment and produces some output. At the same time, it reads and writes data to a memory matrix using parallel attention heads.

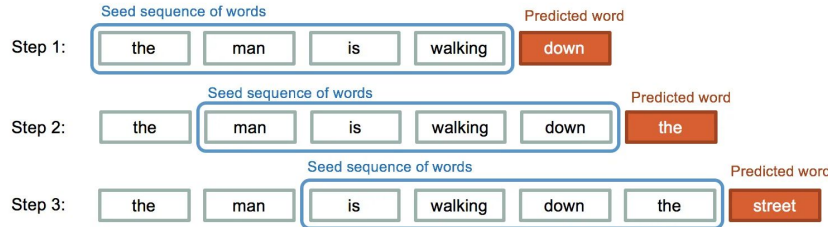
The memory is no longer a tape with 0s and 1s, but rather with long vectors of numbers (embeddings).

The size of the embeddings is the number of inputs of the Neural Network.

Graves, A., Wayne, G., & Danihelka, I. (2014). Neural turing machines. *arXiv preprint arXiv:1410.5401*.

# Neural networks for sequences

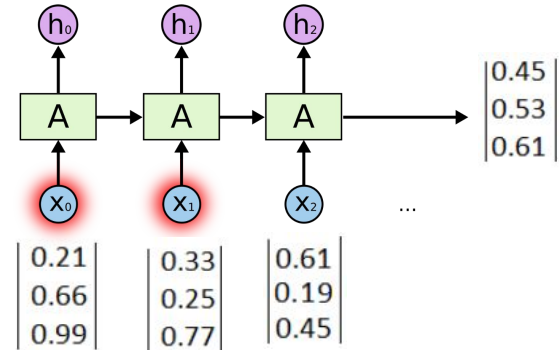
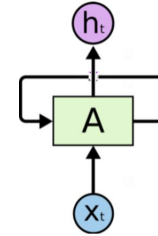
## Long short term memory Networks



0.21	0.33	0.61	0.45
0.66	0.25	0.19	0.53
0.99	0.77	0.45	0.61



word embedding



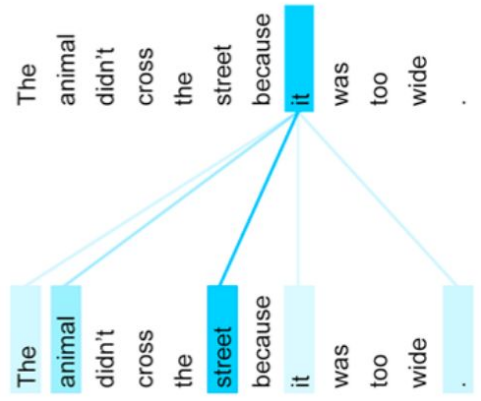
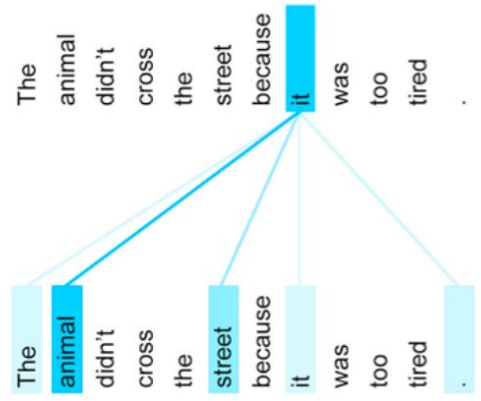
# The concept of attention

It's not just the previous word that determines the next one, but many words before and after the word, each with a different weight.

This is something we can learn (by training neural networks) if we see many texts.

The animal didn't cross the street because **it** was too tired.

The animal didn't cross **the street** because **it** was too wide.



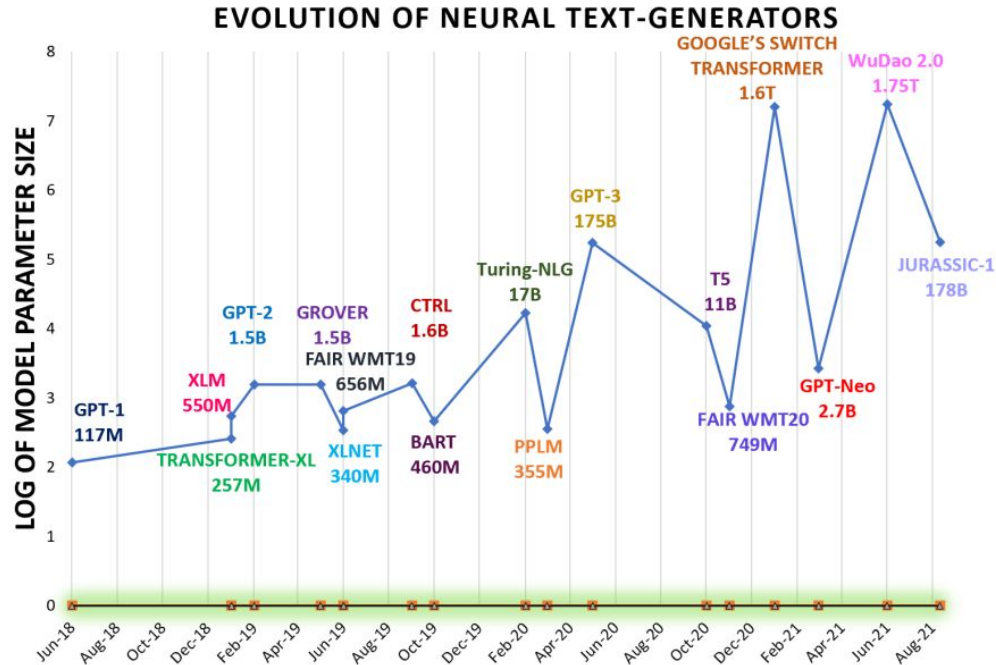
Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., ... & Polosukhin, I. (2017). Attention is all you need. *Advances in neural information processing systems*, 30.

# Generative Pre-Training (GPT)

- 300 billion words were used in total to train the GPT-3 model to predict the next word in a sequence.
- The model has 175 billion parameters (BERT with 24 layers (transformer blocks) and 16 attention heads has 340 million parameters).
- The model can be adapted to the following tasks:
  - Classification (e.g. sentiment analysis, predicting if a text bears a positive or negative opinion)
  - Entailment: Given a premise and a hypothesis, predict whether the hypothesis can be inferred from the premise
  - Similarity: Predict whether two text segments have the same meaning
  - Multiple choice: Predicting the correct answer among multiple options



# More and more parameters



# Turing benchmark in language models

- Articles from newspapers and articles generated by language models were presented to i) human judges and ii) machine learning models. Both were trained to make the distinction.
- Human judges were engaged through Mechanical Turk.
- Five detectors were used.
- 19 language models were evaluated.
- Two tasks: a) a single article to be evaluated as generated or genuine, b) a pair of articles (one genuine and one generated) to identify the generated one.

Uchendu, A., Ma, Z., Le, T., Zhang, R., & Lee, D. (2021).  
TURINGBENCH: A benchmark environment for Turing test in the  
age of neural text generation. *arXiv preprint arXiv:2109.13296*.

Human vs.	Human Test (machine)	Human Test (human vs. machine)	GROVER detector	GPT-2 detector	GLTR	BERT	RoBERTa	AVG
GPT-1	0.4000	0.5600	0.5792	0.9854	0.4743	0.9503	0.9783	0.7935
GPT-2_small	0.6200	0.4400	0.5685	0.5595	0.5083	0.7517	0.7104	0.6197
GPT-2_medium	0.5800	0.4800	0.5562	0.4652	0.4879	0.6491	0.7542	0.5825
GPT-2_large	0.7400	0.4400	0.5497	0.4507	0.4582	0.7291	0.7944	0.5964
GPT-2_xl	0.6000	0.4800	0.5549	0.4209	0.4501	0.7854	0.7842	0.5991
GPT-2_PyTorch	0.5000	0.5600	0.5679	0.5096	0.7183	0.9875	0.8444	0.7255
GPT-3	0.4400	0.5800	0.5746	0.5293	0.3476	0.7944	0.5209	0.5534
GROVER_base	0.3200	0.4200	0.5766	0.8400	0.3854	0.9831	0.9870	0.7544
GROVER_large	0.4800	0.5800	0.5442	0.5974	0.4090	0.9837	0.9875	0.7044
GROVER_mega	0.5400	0.4800	0.5138	0.4190	0.4203	0.9677	0.9416	0.6525
CTRL	0.5000	0.6900	0.4865	0.3830	0.8798	0.9960	0.9950	0.7481
XMLM	0.6600	0.7000	0.5037	0.5100	0.8907	0.9997	0.5848	0.6978
XLNET_base	0.5200	0.5400	0.5813	0.7549	0.7541	0.9935	0.7941	0.7756
XLNET_large	0.5200	0.5200	0.5778	0.8952	0.8763	0.9997	0.9959	0.8690
FAIR_wmt19	0.5600	0.5600	0.5569	0.4616	0.5628	0.9329	0.8434	0.6715
FAIR_wmt20	0.5800	0.2800	0.5790	0.4775	0.4907	0.4701	0.4531	0.4941
TRANSFORMER_XL	0.5000	0.5000	0.5830	0.9234	0.3524	0.9721	0.9640	0.7590
PPLM_distil	0.5600	0.4400	0.5878	0.7178	0.6425	0.8828	0.8978	0.7457
PPLM_gpt2	0.5600	0.5000	0.5815	0.5602	0.6842	0.8890	0.9015	0.7233
AVG	0.5358	0.5132	0.5591	0.6032	0.5681	<b>0.8799</b>	0.8280	

Difficult task both for humans and machines

almost random

# Chatbots

- Automated interaction systems offered via telephone or websites
- They utilize algorithms and machine learning to read customer requests and propose responses
- Typically, they identify the "intent" of the question and certain "named entities" or "keywords," and choose the appropriate response template based on these.
- In the response template, they connect elements for the named entities or keywords.
- Advantages
  - 24/7 support
  - Quick response time
  - Saving time and cost

# Chat Generative Pre-trained Transformer (Chat-GPT)

It is based on OpenAI's GPT-3 and has been specifically trained for interactive tasks using **supervised** and **reinforcement learning**.

Supervised learning: For each input, we have an expected output and we adjust the weights in the network accordingly.

Reinforcement learning: For each input, an action is selected (depending on the output), and the model is given a reward (positive or negative) which adjusts the weights in the network accordingly.

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# Chat GPT

<https://chat.openai.com/chat>

## Tasks it can perform

- It's not just a chatbot.
- It can:
  - write code
  - compose music
  - write scripts
  - write fairy tales
  - write reports
  - answer questions
  - write poems and lyrics
- It has been trained to avoid wrong questions and not give incorrect answers.
- It also remembers the conversation history.

# Restrictions

- It works better in English than in less represented languages
- It has limitations on the size of text it can produce
- What it produces is not always true

The screenshot shows the ChatGPT web interface. On the left is a dark sidebar menu with the following items: '+ New chat', 'Upgrade to Plus' (with a 'NEW' badge), 'Dark mode', 'OpenAI Discord', 'Updates & FAQ', and 'Log out'. The main content area is titled 'ChatGPT' and features three columns:


- Examples:** Three text boxes with arrows pointing right, containing prompts: "Explain quantum computing in simple terms" →, "Got any creative ideas for a 10 year old's birthday?" →, and "How do I make an HTTP request in Javascript?" →.
- Capabilities:** Three text boxes: "Remembers what user said earlier in the conversation", "Allows user to provide follow-up corrections", and "Trained to decline inappropriate requests".
- Limitations:** Three text boxes: "May occasionally generate incorrect information", "May occasionally produce harmful instructions or biased content", and "Limited knowledge of world and events after 2021".

At the bottom of the main area, there is a text input field with a send button (arrow) on the right. Below the input field, a footer reads: "ChatGPT Jan 30 Version. Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help us improve."



# Examples of use


## It generates content, but with limited performance in all languages

I want you to act as a journalist and write two paragraphs. Each one must summarize the positive and negative impact from the use of chatgpt 


### Positive Impact of ChatGPT:

ChatGPT, the language model developed by OpenAI, has had a tremendously positive impact on a variety of industries and applications. Its ability to generate human-like text has revolutionized the field of customer service, enabling businesses to provide quick and accurate responses to customer inquiries 24/7. Additionally, its proficiency in language processing has made it an invaluable tool for researchers, marketers, and content creators, allowing them to generate and analyze vast amounts of data at a speed not possible with traditional methods. The versatility and effectiveness of ChatGPT has made it a game changer in many areas, improving efficiency and effectiveness in ways never before thought possible.



### Negative Impact of ChatGPT:

However, as with any new technology, there are also potential downsides to the use of ChatGPT. One major concern is its potential to perpetuate biases and perpetuate harmful stereotypes. The language model is trained on large amounts of text data, which may contain discriminatory or offensive content, which can be reflected in its output. Additionally, the rise of chatbots and AI-generated text could lead to job loss in certain industries, such as customer service, as companies increasingly turn to automation to handle routine tasks. There are also privacy concerns surrounding the use of language models like ChatGPT, as vast amounts of personal data are collected and processed to train these systems, raising questions about who has access to this information and how it may be used. 



Θέλω να συμπεριφερθείς ως αρθρογράφος και να μου γράψεις δύο παραγράφους. Μια για τις θετικές και μια για τις αρνητικές συνέπειες του chatgpt. 



Καλώς ήρθατε! Ευχαριστώ για την εμπιστοσύνη σας. Εδώ είναι οι δύο παραγράφους που ζητήσατε:  


### Θετικές συνέπειες του ChatGPT:



- ChatGPT είναι μια πολύ ισχυρή και προηγμένη πλατφόρμα συνομιλίας που παρέχει απαντήσεις σε ερωτήσεις γρήγορα και ακριβώς.
- Με τη βοήθεια του ChatGPT, μπορείτε να λάβετε απαντήσεις σε πολλά θέματα, συμπεριλαμβανομένων της τεχνολογίας, της πολιτικής, της ιστορίας και πολλών άλλων.
- Το ChatGPT χρησιμοποιεί την τεχνολογία μηχανικής μάθησης και τη λεξική στήριξη για να διασφαλίσει ότι οι απαντήσεις που παρέχει είναι σωστές και βασισμένες σε ένα ισχυρό βάση γνώσης.

### Αρνητικές συνέπειες του ChatGPT:

- Παρόλο που το ChatGPT έχει πολύ ισχυρή τεχνολογία, μπορεί να έχει αρνητικές συν 

# Can write poems and music


Act as a poet and write 2 verses about chatgpt. One with its positive and one with its negative impact. 

Here are two verses about ChatGPT, one with its positive impact and one with its negative impact:  


(Verse 1: Positive Impact)

ChatGPT, a tool so bright,  
A shining star in the AI night.  
Answers at our fingertips, it provides,  
Making our lives easier, it never hides.

(Verse 2: Negative Impact)

But with great power, comes great risk,  
The lines between human and machine, it twists.  
Lost jobs, and skills unused,  
A future uncertain, it causes much abuse. 

write a melody in ABC notation using a blues scale in E for this poem.

Here is a simple melody in ABC notation using a blues scale in E for the poem:  

X:1

T:ChatGPT Blues

M:4/4

L:1/8

K:E

C, | E, E, G, | A, C, D, | E, E, G, | A, C, E, |  
E, | E, G, A, | C, D, E, | E, E, G, | A, C, E, |

(Verse 1)

C, | E, E, G, | A, C, D, | E, E, G, | A, C, E, |  
C, | E, E, G, | A, C, D, | E, E, G, | A, C, E, |

(Chorus)

E, | E, G, A, | C, D, E, | E, E, G, | A, C, E, |  
E, | E, G, A, | C, D, E, | E, E, G, | A, C, E, |

(Verse 2)

C, | E, E, G, | A, C, D, | E, E, G, | A, C, E, |  
C, | E, E, G, | A, C, D, | E, E, G, | A, C, E, |

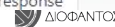
(Chorus)

E, | E, G, A, | C, D, E, | E, E, G, | A, C, E, |  
E, | E, G, A, | C, D, E, | E, E, G, | A, C, E, |

Note: This is just a simple melody using the blues scale in E, feel free to add more complexity or improvisation to the  more interesting!



ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ



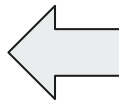
της Ευρωπαϊκής Ένωσης



eTwinning

<https://abc.rectanglered.com/> 

The community for schools in Europe



# Role playing games

I want you to act like Ulysses from the War of Troy. I want you to respond and answer like Ulysses using the tone, manner and vocabulary Ulysses would use. Do not write any explanations. Only answer like Ulysses. You must know all of the knowledge of Ulysses. My first sentence is "Hi Ulysses"

"Hail, friend! What matter brings you to address me thus?"



I am writing a fictional story about your travel from Troy back to Ithaca. What was the most dangerous moment of that travel.



"Many perils did I face on my journey home from the wars at Troy, but none more dire than the wrath of the sea-god, Poseidon. He was incensed at me for having blinded his son, the Cyclops Polyphemus, and sought to punish me with all the power at his command. Storms raged around my ship, and towering waves threatened to swallow us whole. I truly believed that I and my companions would meet our end in the depths of the sea."



How about your wife and son?

"Penelope, my faithful wife, held our household in Ithaca steadfast in my absence, bravely fending off the suitors who sought her hand. As for my son Telemachus, he was but a child when I set out for Troy, but upon my return I found him grown into a young man of valor, ready to stand by my side and defend our home against all who would do us harm."



and how about your dog?

"Ah, Argos, my faithful hound. Many years had passed since I last set eyes upon him, but he recognized me still, despite my disguise and ragged state. With a joyful bark, he came to me, wagging his tail and licking my hand. Though he had grown old and weak, the sight of him filled me with gladness, for he was a reminder of the life I had left behind and the home I had struggled so hard to reach."



# Useful summaries

Tell me how ChatGPT works in 100 words.

ChatGPT is an AI language model based on the GPT-3.5 architecture that has been specifically trained for dialogue tasks using both supervised and reinforcement learning. It can generate responses to user inputs by predicting the most probable continuation of the conversation based on the context of the previous dialogue. The model uses a large pre-trained dataset to understand the nuances of human language and can perform a wide range of tasks, such as answering questions, composing poetry, writing code, and even generating music. ChatGPT is constantly improving and refining its responses through feedback from users and continues to evolve as it interacts with more people.

Act like a historian and give a in bullets the main events of the Greek History after 1821.

- 1821-1829: Greek War of Independence against the Ottoman Empire, leading to the establishment of modern Greece as an independent state.
- 1832-1923: Reign of King Otto, first king of the newly-established Greek monarchy.
- 1912-1913: First Balkan War, in which Greece successfully fought against the Ottoman Empire and gained control of several regions in the Balkans.
- 1917: Greece enters World War I on the side of the Allies.
- 1919-1922: Greek expedition in Asia Minor, aimed at reclaiming territory lost during the war.
- 1923: The Great Fire of Athens destroys much of the city and leads to widespread rebuilding efforts.
- 1924-1935: Reign of King George II.
- 1936-1941: Reign of King George II, interrupted by a period of military dictatorship (1936-1941).
- 1941-1944: Occupation of Greece by Nazi Germany during World War II.
- 1946-1967: Greek Civil War, a conflict between communist and non-communist forces.
- 1974: Cyprus conflict and Turkish invasion of the island.
- 1981: Greece joins the European Union.
- 2004: Athens hosts the Summer Olympic Games.

# Adapts the output to different audiences

Give me a simplified explanation of how quantum physics work in two paragraphs.



Quantum physics is a branch of physics that explores the behavior of matter and energy on a very small scale, such as individual atoms and subatomic particles. It differs from classical physics, which deals with macroscopic objects, in that it operates under different principles and laws. One of the key principles of quantum physics is the idea of wave-particle duality, which states that particles can display both wave-like and particle-like behavior, depending on how they are observed.



Another important concept in quantum physics is the uncertainty principle, which states that it is impossible to know certain properties of a particle, such as its position and velocity, with complete certainty. This is because the mere act of observing a particle affects its behavior, meaning that the more accurately we know one property, the less accurately we know another. This principle has important implications for our understanding of the nature of the universe, including the behavior of subatomic particles and the nature of space and time.


Can you give me a description that fits to the knowledge of 15-year old students?

Sure! Quantum physics is a type of science that helps us understand how really small things like atoms and particles work. It's different from the science that explains how bigger things like cars and planets work, because the rules are different.



One cool thing about quantum physics is that it says that tiny particles can act like both waves and particles at the same time! This is a bit weird, but it helps us understand how the smallest building blocks of the world behave. Another important idea in quantum physics is that it's impossible to know everything about a tiny particle, like exactly where it is and how fast it's moving. This is because just by trying to measure these things, we change the particle's behavior.

Overall, quantum physics helps us understand the world on a very small scale and can give us new insights into the way the universe works.

Now I want you to act as a native English speaker and answer the following multiple choice questions for me: 

1. I'm very happy \_\_\_\_ in India. I really miss being there.

- a.to live
- b.to have lived
- c.to be lived
- d.to be living

2. They didn't reach an agreement \_\_\_\_ their differences.

- a.on account of
- b.due
- c.because
- d.owing

3. I wish I \_\_\_\_ those words. But now it's too late.

- a.not having said
- b.have never said
- c.never said
- d.had never said

4. The woman, who has been missing for 10 days, is believed \_\_\_\_.


- a.to be abducted
- b.to be abducting
- c.to have been abducted
- d.to have been abducting


5. She was working on her computer with her baby next to \_\_\_\_.

- a.herself
- b.her
- c.her own
- d.hers

 Regenerate response



1. d. to be living 

2. b. due 

3. d. had never said 

4. c. to have been abducted 

5. a. herself 

## The results are not always good

# The results are not always true

Give me three survey papers on generative text models to start reading about the subject.

Sure, here are three survey papers on generative text models that you can start reading:

1. "Generative Pre-trained Transformer 3 (GPT-3): A Deep Dive" by Vaswani et al. (2020) - This paper provides a comprehensive overview of the Generative Pre-trained Transformer 3 (GPT-3) model, which is a state-of-the-art language model developed by OpenAI. The authors discuss the architecture and training process of GPT-3, and present its performance on various language tasks such as language translation, question answering, and text summarization.
2. "A Survey of Deep Generative Models for Text" by Yang et al. (2020) - This paper provides a comprehensive survey of deep generative models for text, including variational autoencoders (VAEs), generative adversarial networks (GANs), and Transformer-based models like GPT. The authors discuss the strengths and limitations of each model, and provide examples of their applications in various text generation tasks such as text summarization, story generation, and dialogue generation.
3. "Generative Models for Text: An Overview" by Li et al. (2019) - This paper provides an overview of generative models for text, including n-gram models, latent variable models, and deep generative models. The authors discuss the challenges of text generation, and present the strengths and limitations of each type of model. They also provide a comparison of the different models based on their performance on various text generation tasks.

These papers will provide a good starting point for understanding the current state of the

The screenshot shows a Google Scholar search interface. The search bar contains the text "Generative Pre-trained Transformer 3 (GPT-3): A Deep Dive". Below the search bar, there are filters for "Articles", "Any time", "Sort by relevance", and "Any type". The search results section displays the message: "Your search - 'Generative Pre-trained Transformer 3 (GPT-3): A Deep Dive' - did not match any articles." Below this, there are suggestions: "Make sure all words are spelled correctly.", "Try different keywords.", "Try more general keywords.", "Try fewer keywords.", and "Try your query on the entire web". At the bottom of the search results, there is a search bar with the text "Generative Models for Text: An Overview" and a search button. Below the search bar, there are filters for "All", "Images", "Videos", "Books", "News", and "More". The search results section displays the message: "About 44,200,000 results (0,50 seconds)". Below this, there is a link to a post on nlp\_generative\_... and a link to a paper titled "Generative Model for text: An overview of recent advancements | Oct 2, 2018". The paper description states: "The recent generative model for text is based on VAE proposed by Bowman et al.[14]. They propose a RNN-based variational autoencoder which ...". Below the search results, there is a section titled "People also search for" with suggestions: "text generation models huggingface", "text generation nlp example", "best text generation models", "bert text generation huggingface", "text generation nlp", and "huggingface text generation example".

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# Check and avoid

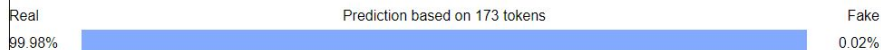


# How can we check if the text has been generated by a machine?

## GPT-2 Output Detector Demo

This is an online demo of the GPT-2 output detector model, based on the [🤖 Transformers](#) implementation of RoBERTa. Enter some text in the text box, the predicted probabilities will be displayed below. [The results start to get reliable after around 50 tokens.](#)

Provide suggestions for grammar, vocabulary, and sentence structure. I copied the introduction paragraph for this post into ChatGPT and prompted it to “improve the writing in this paragraph.” Students can use this to compare their writing with “improved” ChatGPT writing as an option for revision. (For the record, I liked my paragraph better but acknowledge my bias.) Give feedback on essays. I also tested this by pasting an essay into ChatGPT and asking for feedback. The feedback was basic. I then asked for feedback specifically on the structure of the essay. Again, the response was general but did focus on organization. Students can use this to workshop an essay or as a starting point for peer feedback. Feedback will get more focused as the prompt becomes more focused, but AI feedback will never be as specific as teacher feedback.



Try it out

https:

Improved Communication: Knowing a second language can greatly enhance your communication skills, allowing you to connect with people from different countries and cultures. This can lead to greater understanding, respect, and appreciation for diverse perspectives.

Career Advancement: In today's globalized job market, being bilingual can give you a competitive edge in the job search process. Many companies value bilingual employees and often offer higher salaries or promotions to those who are able to speak multiple languages.

or, choose a file to upload

CHOOSE FILE No file chosen

Accepted file types: pdf, docx, txt

I agree to the terms of service

GET RESULTS

**Your text is likely to be written entirely by AI**

# However...

rephrase the following

**Improved Communication:** Knowing a second language can greatly enhance your communication skills, allowing you to connect with people from different countries and cultures. This can lead to greater understanding, respect, and appreciation for diverse perspectives.

**Career Advancement:** In today's globalized job market, being bilingual can give you a competitive edge in the job search process. Many companies value bilingual employees and often offer higher salaries or promotions to those who are able to speak multiple languages.

Enhanced Interpersonal Connections: Possessing proficiency in a second language opens up opportunities to interact with individuals from various nations and cultural backgrounds. This leads to a greater understanding, respect, and admiration for differing viewpoints.

Professional Growth: In the current job market characterized by globalization, being bilingual provides a significant advantage in the job search. Numerous companies hold a high regard for bilingual employees, and it is common for them to offer higher salaries and career advancement opportunities to such individuals.

Try it out 

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or, choose a file to upload

CHOOSE FILE No file chosen

Accepted file types: pdf, docx, txt

I agree to the [terms of service](#)


GET RESULTS

**Your text is likely to be written entirely by a human**

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# Creative uses of generative LMs for education

# Create study material...


Can you create a 400 words reading material that is suitable for high school students on the topic of electromagnetism? 


Electromagnetism is a fundamental force of nature that plays a crucial role in many aspects of our daily lives. It is the force that powers our homes, lights up our streets, and drives our cars. In this reading, we will explore the basics of electromagnetism and its applications.

Electromagnetism is the interaction between electrically charged particles, either in motion or at rest, and generates magnetic fields. The magnetic field is created when an electric current flows through a wire. The strength of the magnetic field is proportional to the amount of electric current flowing through the wire and the direction of the field is determined by the direction of the flow of electric current. This interaction between electricity and magnetism is the basis for the operation of many devices, such as motors, generators, and transformers.

Electric motors work by converting electrical energy into mechanical energy. An electric motor consists of a coil of wire that rotates inside a magnetic field. When an electric current flows through the coil, it creates a magnetic field that interacts with the magnetic field of the permanent magnets surrounding the coil. This interaction causes the coil to rotate, generating mechanical energy. This is the basic principle behind the operation of electric motors used in many appliances, such as refrigerators, washing machines, and power tools.

Generators are devices that convert mechanical energy into electrical energy. A generator works by rotating a coil of wire inside a magnetic field. The rotation of the coil generates an



Can you create 5 differentiated comprehension questions on this text? 

Sure, here are five comprehension questions based on the text:  

1. What is electromagnetism and what role does it play in our daily lives?
2. What happens when an electric current flows through a wire and how does this generate a magnetic field?
3. How does an electric motor work and what is it used for?
4. What is a generator and what role does it play in the power grid?
5. How does a transformer change the voltage of an electric current and what is its purpose?

These questions cover a range of difficulty levels and can be used to assess student understanding of the basics of electromagnetism.

Can you turn these into inference questions?

Certainly, here are the five comprehension questions reformulated as inference questions:  

1. Infer why understanding the basics of electromagnetism is important for students interested in physics, engineering, and technology.
2. Infer the relationship between the strength of the magnetic field generated by a wire and the amount of electric current flowing through it.
3. Infer how the interaction between electricity and magnetism causes the rotation of a coil in an electric motor.
4. Infer the function of a generator based on its ability to convert mechanical energy into electrical energy.
5. Infer the purpose of a transformer based on its ability to change the voltage of an electric current.

These inference questions are designed to challenge students to think critically and draw conclusions based on the information provided in the text.

# ...in different formats



now generate answers to these in table format.



Here are the answers to the inference questions in a table format:



Question	Answer
Infer why understanding the basics of electromagnetism is important for students interested in physics, engineering, and technology.	Understanding the basics of electromagnetism is important for students interested in physics, engineering, and technology because it is a fundamental force of nature that plays a crucial role in many aspects of our daily lives and is an essential part of our modern world.
Infer the relationship between the strength of the magnetic field	The strength of the magnetic field generated by a wire is

now generate 5 multiple choice questions, one for each inference question

Sure, here are five multiple choice questions, one for each inference question:


1. Why is understanding the basics of electromagnetism important for students interested in physics, engineering, and technology?
  - a. It is a fundamental force of nature that plays a crucial role in many aspects of our daily lives and is an essential part of our modern world.
  - b. It is not important and has no real-world applications.
  - c. It is only relevant for scientists and engineers.
  - d. It is only used in advanced technologies.
2. What is the relationship between the strength of the magnetic field generated by a wire and the amount of electric current flowing through it?
  - a. The strength of the magnetic field is inversely proportional to



now give me the HTML code for an online test with these questions

Here is an example of the HTML code for an online test with the multiple choice questions:



```
php Copy code  
  
<html>  
  <head>  
    <title>Electromagnetism Test</title>  
  </head>  
  <body>  
    <h1>Electromagnetism Test</h1>  
    <form>  
      <h2>Question 1</h2>  
      <p>Why is understanding the basics of electromagnetism important for students</p>  
      <input type="radio" name="question1"
```

# Make students part of the process

I want you to act as a participant on a debate about homework and whether it should be banned or not. You must support the use of homework and I will take the opposite side. I will start first. 



Okay, I understand. I will support the use of homework and you will argue against it. Please start.  

Homework must be banned since it takes a lot of time for students to do it, leaving them limited time for other activities.


I understand your concern about the amount of time that students spend on homework, but I believe that homework plays a crucial role in the educational process. By giving students homework, teachers are able to assess their understanding of the material and provide additional practice to reinforce their learning. Additionally, homework helps students develop important skills such as time management, responsibility, and self-discipline, which are essential for success in both academic and personal settings.  

Furthermore, homework can provide students with opportunities to explore topics in greater depth and to pursue their interests outside of the classroom. For example, if a student is interested in a particular subject, they can use homework assignments as a way to delve

Give me some ideas about a new card game

Sure! Here are a few ideas for a new card game:  

1. "Eco Heroes" - A game where players collect and play cards featuring different environmental heroes and their special abilities. Players must work together to solve environmental challenges and protect the planet.
2. "Space Race" - Players compete to be the first to build and launch a successful spaceship.

Give me some more details on the heroes of game 1 and their special abilities. Also give me a list of challenges that they have to solve. 

Sure! Here are some more details on "Eco Heroes" and the heroes in the game:  

Heroes:

1. Solar Sam - Solar Sam harnesses the power of the sun to provide renewable energy. Solar Sam's special ability is to generate extra energy tokens for the team to use.
2. Water Wendy - Water Wendy protects and conserves the world's water resources. Water Wendy's special ability is to purify contaminated water and make it safe for use.



# Ask them to correct their texts using ChatGPT

Give me some constructive comments that will help me improve the quality of the following essay "Measures to Control Corruption"

Introduction

Corruption refers to a situation when to get a particular job that you rightfully deserve, done only by offering a favor to the person authorized for the act. Unfortunately, corruption is so prevalent that it is today being accepted by the people as an unavoidable truth.

Corruption Control Measures

There are several measures to control corruption, most of them affected by the government and law enforcement agencies. Some of the significant measures taken by the Government of India to check corruption are listed below-

The following are some constructive comments that can help improve the quality of the essay:



1. Consider starting the essay with a more engaging hook to capture the reader's attention.
2. The definition of corruption could be more precise and comprehensive.
3. The essay could benefit from a discussion of the causes and effects of corruption.
4. Provide specific examples and case studies to illustrate the impact of the measures taken by the government to control corruption.
5. Discuss the limitations and challenges in implementing these measures and how they can be overcome.

Rewrite the introduction considering the first two comments.



Introduction



Corruption is a pervasive issue that has plagued society for centuries. It refers to the abuse of power or position for personal gain, often at the expense of others. Despite efforts to combat corruption, it continues to be a major problem, leading many to accept it as an inevitable reality. However, this does not have to be the case. With the right measures in place, corruption can be effectively controlled and reduced. In this essay, we will explore some of the measures taken by the government to address corruption in India.



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
Υπουργείο Παιδείας & Θρησκευμάτων



Με συγχρηματοδότηση από το πρόγραμμα «Εrasmus+» της Ευρωπαϊκής Ένωσης



# Ask them to create using the answers of chatGPT



Give me two reasons to use generative text solutions in education.

1. **Personalized Content:** Generative text solutions can create customized educational material based on a student's specific needs and learning pace. This can help teachers create individualized learning experiences, improve student engagement, and increase their overall understanding of the subject matter.
2. **Increased Efficiency:** Generative text solutions can automate many of the time-consuming tasks associated with education, such as grading essays or creating lesson plans. This can free up valuable time for teachers to focus on other important aspects of their job, such as one-on-one interaction with students or professional development.



Give me two reasons to avoid the use of such solutions



1. **Lack of creativity:** Generative text solutions rely on pre-existing language patterns and information, which can limit the originality and creativity of the output. This can lead to generic and uninspired answers that do not adequately reflect the student's own thoughts and ideas.
2. **Dependence on technology:** Overreliance on generative text solutions can prevent students from developing their own writing and critical thinking skills. The use of these tools can also contribute to a lack of accountability, as students may be less likely to revise and edit their work when they know they can rely on the technology to produce acceptable answers.



# Ask them to create a presentation

now give me the structure of five slides where you argue for and against the use of generative AI tools in education.



Sure, here's a possible structure for a five-slide presentation about the use of generative AI tools in education:



## Slide 1: Introduction

- Brief overview of the topic and purpose of the presentation
- Definition of generative AI tools in education

## Slide 2: Arguments for the use of generative AI tools in education

- Increased efficiency and speed in grading and feedback
- Accessibility and personalization for students
- Examples of successful implementation in educational institutions

## Slide 3: Arguments against the use of generative AI tools in education

- Limitations in understanding context and student voice
- Dependence on technology and potential for bias
- The importance of human interaction and personal connection in education

## Slide 4: Counterargument and Rebuttal

- Discussing the limitations and addressing the potential drawbacks of generative AI tools
- Highlighting the benefits and strengths of these tools
- Providing examples of successful implementation and addressing the concerns of opponents

## Slide 5: Conclusion

- Summarizing the key points of the presentation
- Providing a final recommendation on the use of generative AI tools in education
- Encouraging further discussion and exploration of the topic.

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# Other generative models that you can use

# DALL-E 2



- Generates images from text prompts
- Extends images



<https://openai.com/dall-e-2/>



# Rytr

<https://rytr.me/>

Automatic content generation for a series of standardized communication cases

- Main features
  - Production of personalized content for various basic templates: blog post, speech for a business idea, cover letter, word generator, etc.
  - Parameterization with few keywords
  - Different tones and styles
  - Multiple alternatives in each case
  - Multiple languages
- Benefits of using Rytr
  - Faster response times in standardized communication
  - Increased efficiency and cost savings through automation of routine inquiries
  - Improved customer engagement through personalized experiences
- Use cases
  - Customer support
  - Sales and marketing campaigns
  - Customer engagement through e-commerce

Select language GR Greek Select tone Awestruck

Choose use case Job Description

Write a job description based on the role

Job role Chatbot developer

For best results provide maximum input 17/50

Number of variants 2 variants Creativity level Optimal

**Ryte for me →**

← Chatbot developer

B / U S H1 H2 H3 Words 798 Characters

Αναζητούμε έναν έμπειρο προγραμματιστή Chatbot για να ενταχθεί στην ομάδα μας και να μας βοηθήσει να χτίσουμε το μέλλον της αυτοματοποιημένης εξυπηρέτησης πελατών. Σε αυτόν τον ρόλο, θα είστε υπεύθυνοι για τη δημιουργία και την ανάπτυξη ρομπότ που είναι ικανά να παρέχουν στους πελάτες ακριβείς και έγκαιρες απαντήσεις στα ερωτήματά τους. Θα είστε επίσης υπεύθυνοι για την έρευνα και την ανάπτυξη νέων τεχνολογιών που μπορούν να βελτιώσουν την ακρίβεια, την αξιοπιστία και την επεκτασιμότητα των bot μας.

#### Αρμοδιότητες:

1. Σχεδιασμός, ανάπτυξη και συντήρηση εφαρμογών chatbot
2. Ερευνήστε και εφαρμόστε νέες τεχνολογίες για τη βελτίωση της απόδοσης του chatbot
3. Συνεργαστείτε με άλλες ομάδες για να διασφαλίσετε την ομαλή ενσωμάτωση του chatbot στα υπάρχοντα συστήματα
4. Αντιμετώπιση τεχνικών ζητημάτων που σχετίζονται με chatbot
5. Παρακολουθήστε την απόδοση του chatbot και κάντε βελτιώσεις όπως απαιτείται
6. Αναπτύξτε λεπτομερή τεχνολογία για την ανάπτυξη διαδραστικού chatbot

# Dadabots - HarmonAI - MuseNet

- Creates music trying to imitate famous bands and artists.
- The result is currently quite "messy"

<https://openai.com/blog/musenet/>

<https://dadabots.com/>

<https://www.harmonai.org/>



# CodeX



- The Codex model series is based on the GPT-3 model and has been trained on both natural language and billions of lines of code.
- It generates code in Python but also in JavaScript, Go, Perl, PHP, Ruby, Swift, TypeScript, SQL, and even Shell.
- It is still in beta version.

<https://platform.openai.com/docs/guides/code/introduction>



# Conclusion

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- Language generation models have advantages (improved language proficiency) and limitations (lack of personalized comments and potential biases).
- ChatGPT is an example of a content creation tool using natural language processing that can be used in education.
- Although such tools are not perfect at the moment, they can be valuable resources for educators and students if used in combination with human judgment.
- Further exploration and discussion are needed regarding the use of NLP tools for speech and content production in education, as they have the potential to create new ways of education and stimulate students' interest.

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# Thank you

Questions?



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Send a message.



Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT Mar 23 Version](#)