

Beginners Guide to Artificial Intelligence



condor.depaul.edu/jmoore/tech/ai/



Outline

Introduction: Welcome, objectives, and format of the session. Overview of what AI is and why it is relevant for academic work. (5 minutes)

Part 1: Defining some of the various forms of AI that exist, such as machine learning, natural language processing, computer vision, etc. Examples of how each form can be applied in different disciplines and domains. (10 minutes)

Part 2: How AI can be used in academic work, such as conducting research, analyzing data, creating content, enhancing teaching and learning, etc. Demonstration of some of the tools and platforms that are available for faculty and staff to use AI in their work. (15 minutes)

Part 3: Exploring how AI can be used ethically and appropriately by our students, such as respecting privacy, avoiding bias, acknowledging sources, etc. Some of the ethical principles and guidelines that should inform the use of AI in education. (10 minutes)

Part 4: Nefarious ways that AI could bypass Academic Integrity, such as generating fake content, plagiarizing, cheating on exams, etc. How to detect and prevent such behaviors and how to educate students about the consequences of academic dishonesty. (10 minutes)

Conclusion: Main points and takeaways. Resources and references for further learning and exploration. Feedback and questions. (10 minutes)

Introductions



Hello
my name is

JAMES Moore

Telephone: +1 (312) 362-5870

Email: jmoore@depaul.edu

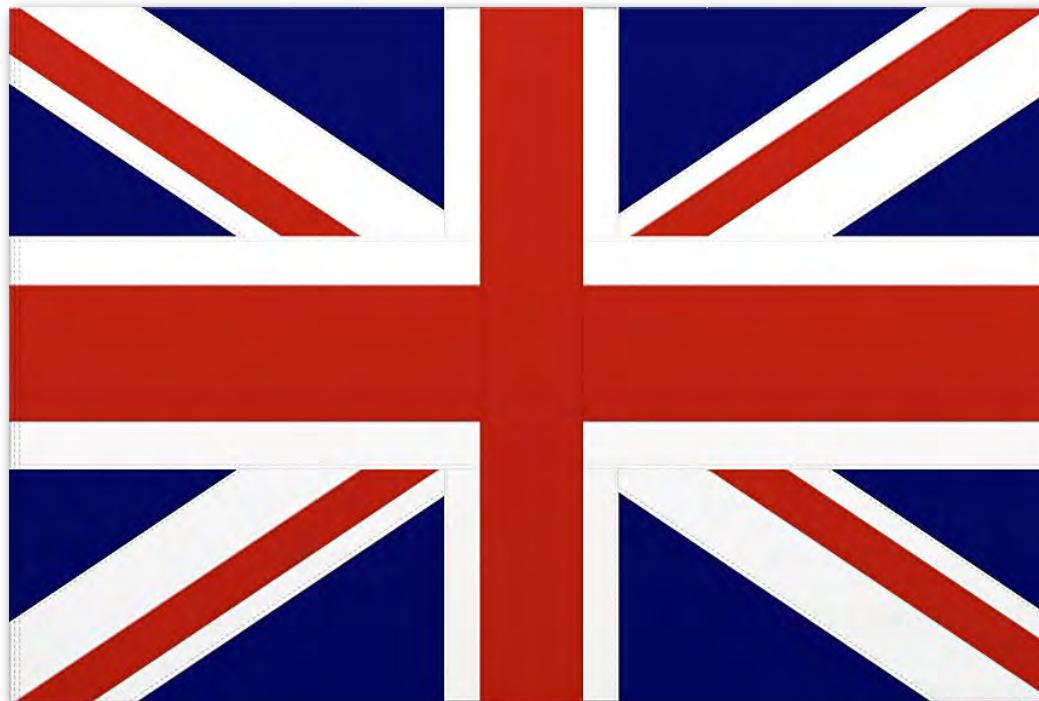
URL: condor.depaul.edu/jmoore/

Easiest Way To Remember

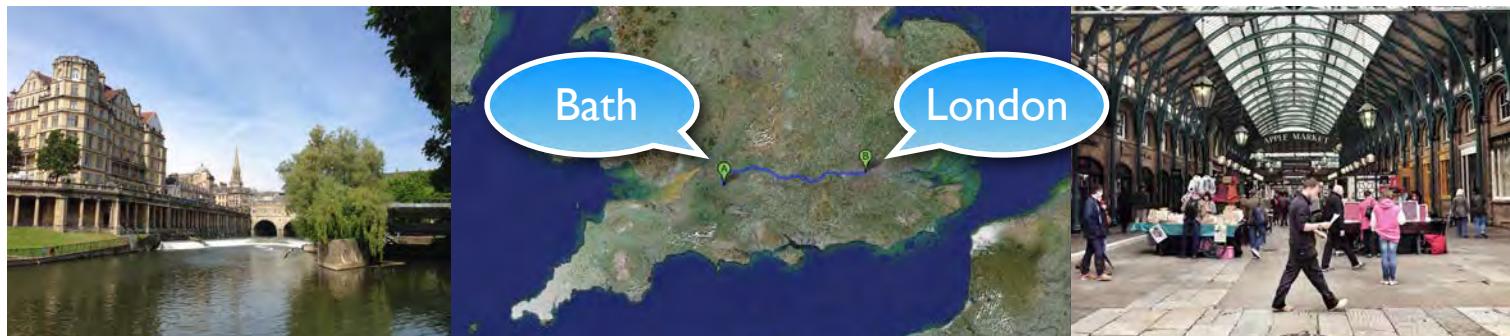


James Bond - Roger **Moore**

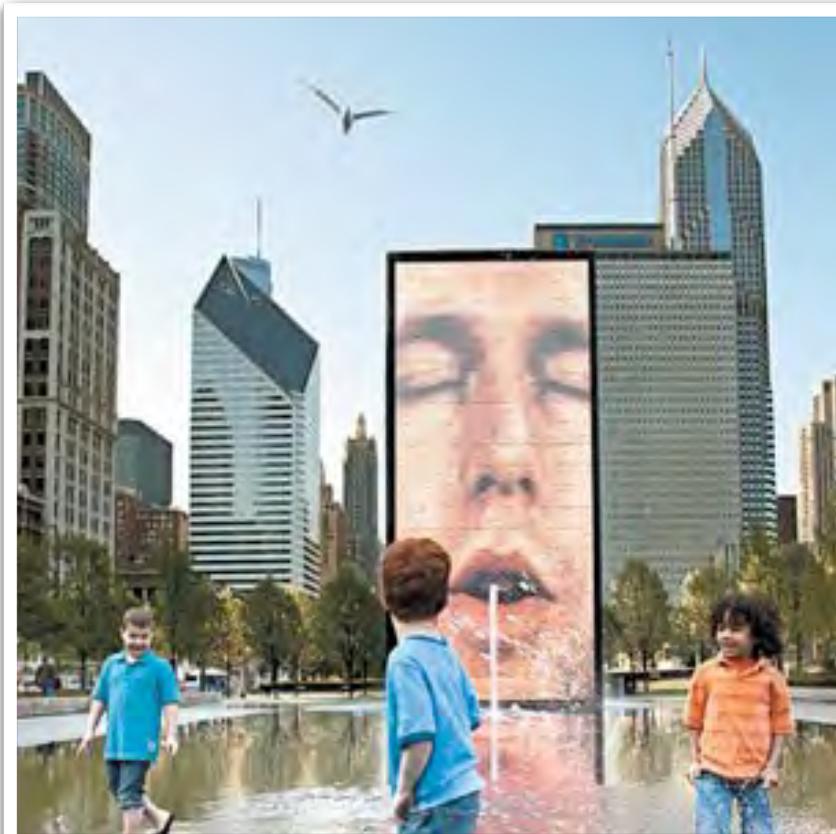
In case you were wondering...



Hometowns: Bath & London



But I live in Chicago

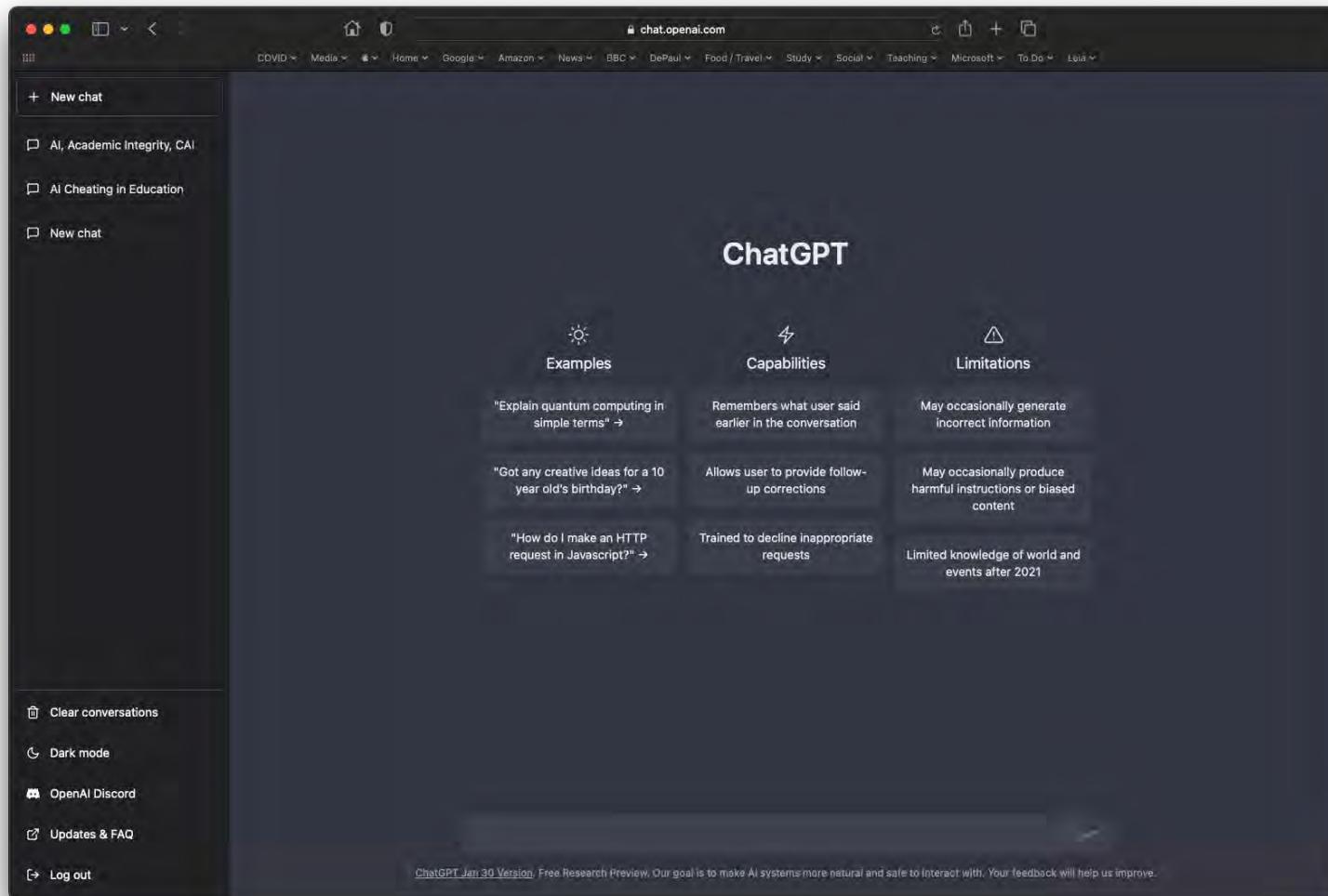


I Work At DePaul

DEPAUL
UNIVERSITY

DRIEHAUS COLLEGE OF BUSINESS





The screenshot shows the ChatGPT interface on a dark-themed web browser window. The top navigation bar includes links for COVID, Media, Home, Google, Amazon, News, BBC, DePaul, Food / Travel, Study, Social, Teaching, Microsoft, To Do, and Log In. On the left sidebar, there are three recent conversation cards: "AI, Academic integrity, CAI", "AI Cheating in Education", and "New chat". Below these are settings for "Clear conversations", "Dark mode", "OpenAI Discord", "Updates & FAQ", and "Log out". The main content area features the "ChatGPT" logo at the top center. Below it are three sections: "Examples" (with an icon of a sun), "Capabilities" (with an icon of a lightning bolt), and "Limitations" (with an icon of a triangle). Each section contains three examples with arrows pointing from the user's input to the AI's response.

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

At the bottom of the main content area, a small note 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."

chat.openai.com/chat

A.I. TURNS THIS SINGLE
BULLET POINT INTO A
LONG EMAIL I CAN
PRETEND I WROTE.



A.I. MAKES A SINGLE
BULLET POINT OUT OF
THIS LONG EMAIL I CAN
PRETEND I READ.





Preparing Students

A woman with long dark hair, wearing a white shirt and light-colored pants, walks away from the viewer down a wide, polished walkway. She carries a black shoulder bag. The walkway is flanked by large, curved, metallic structures that look like giant pipes or part of a train. In the background, a massive, translucent dome with a textured surface dominates the scene. Several smaller, sleek vehicles fly through the air above the walkway. The overall atmosphere is clean, modern, and futuristic.

DPC 6302 - Open Mic If Questions



HOW TO STOP WORRYING AND LEARN TO LOVE THE INTERNET

- 1) everything that's already in the world when you're born is just normal;
- 2) anything that gets invented between then and before you turn thirty is incredibly exciting and creative and with any luck you can make a career out of it;
- 3) anything that gets invented after you're thirty is against the natural order of things and the beginning of the end of civilisation as we know it until it's been around for about ten years when it gradually turns out to be alright really.

Douglas Adams, 29th August 1999

Part 1: Defining Some AI





What Is AI?



THE THIRD OR ARTHUR C. CLARKE'S RULES

"Any sufficiently advanced technology
is indistinguishable from magic."

Arthur C. Clarke

OXFORD ENGLISH DICTIONARY DEFINITION

The capacity of computers or other machines to exhibit or simulate intelligent behaviour; the field of study concerned with this. Abbreviated AI.

Squishy

No exact common definition of AI

Scientific discipline (basically mathematics)

Narrow/Weak AI: One task/problem

Artificial General Intelligence (AGI): Cognition

Artificial Super Intelligence (ASI): Better than human
(The Singularity)

Increasingly found everywhere



Myth of Talos

“Robot” made by the god Hephaestus (or Daedalus) to protect Europa (or Crete)

(or last of race of brass men)

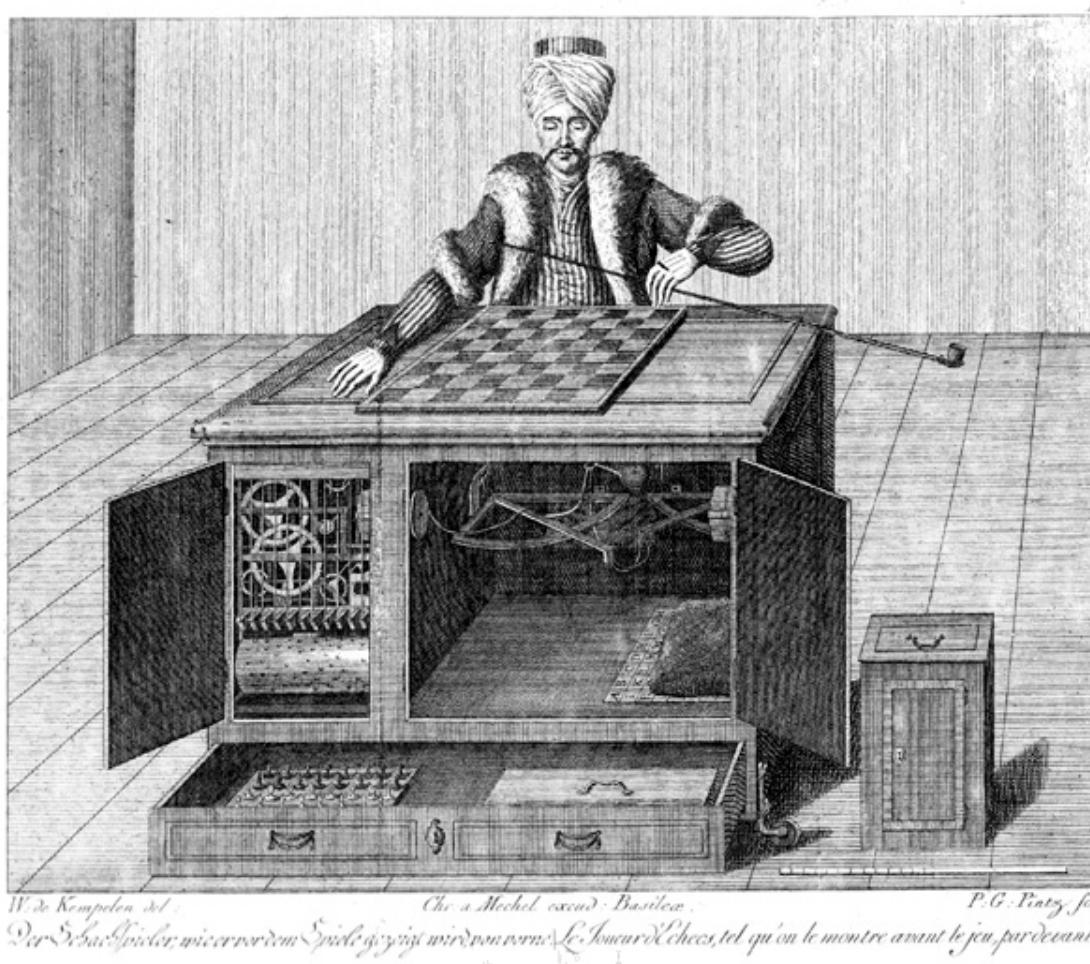
Destroyed by Medea (Jason and the Argonauts)



The Golem of Prague



Mechanical Turk: 1770



W. de Kempelen del.

Ch. a Mechel excud. Basileor.

P. G. Piatz, sc:

Der Schachspieler, welcher jedem Spieler gezeigt wird, von wann Le Jouer d'Chess, tel qu'on le montre avant le jeu, par devant.

Brief History

1945: Vannevar Bush publishes “As We May Think”

1950: Alan Turing publishes “Computing Machinery and Intelligence” (Imitation Game / Turing Test)

1950: Claude Shannon publishes “Programming a Computer for Playing Chess”

1956: “Artificial Intelligence” coined by John McCarthy

1970s - 1980s: AI Winter (reduced funding and interest in AI)

1997: IBM’s Deep Blue defeats world chess champion Gary Kasparov

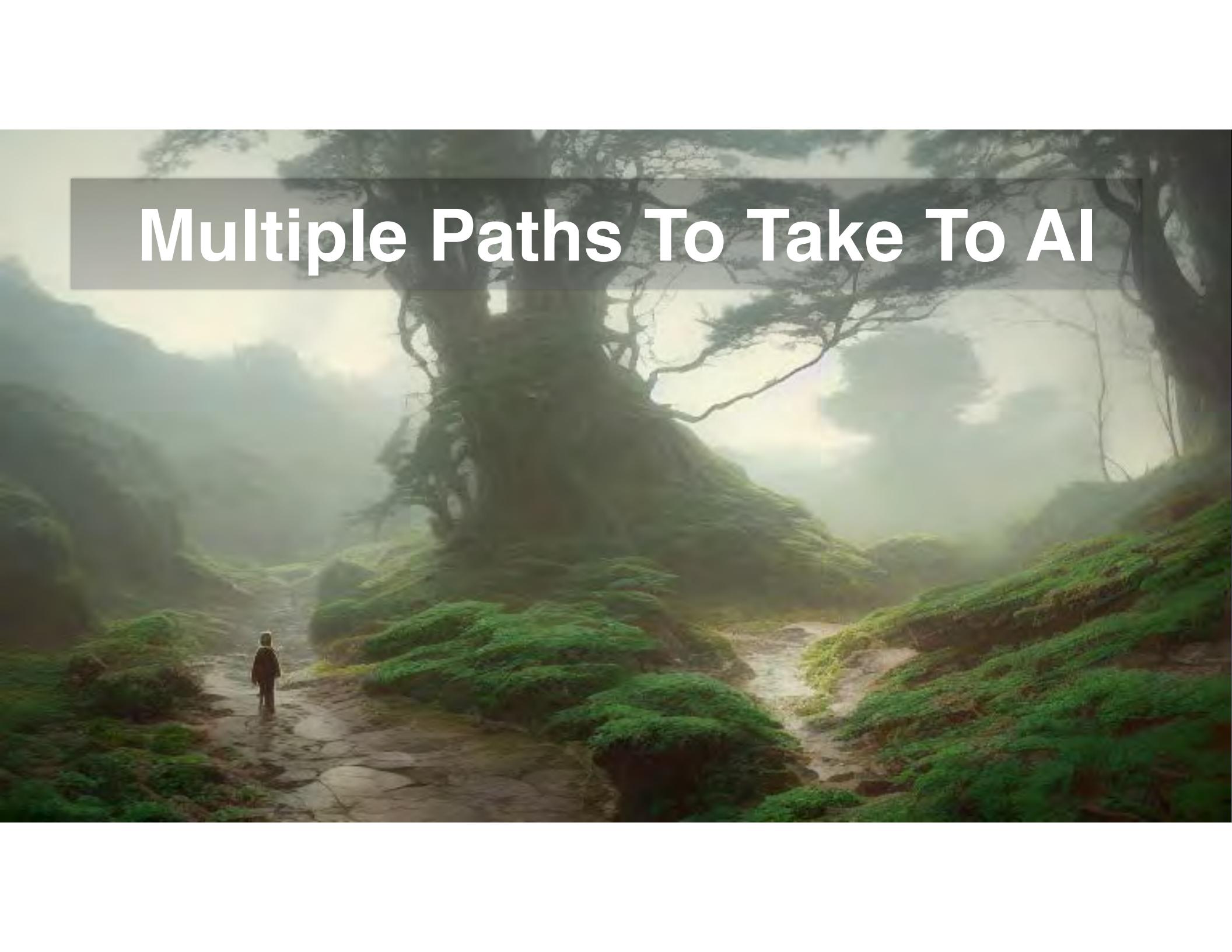
2017: Google Brain publishes “Attention Is All You Need” and introduces “Transformer”

2018: OpenAI publishes “Improving Language Understanding by Generative Pre-Training” (GPT)

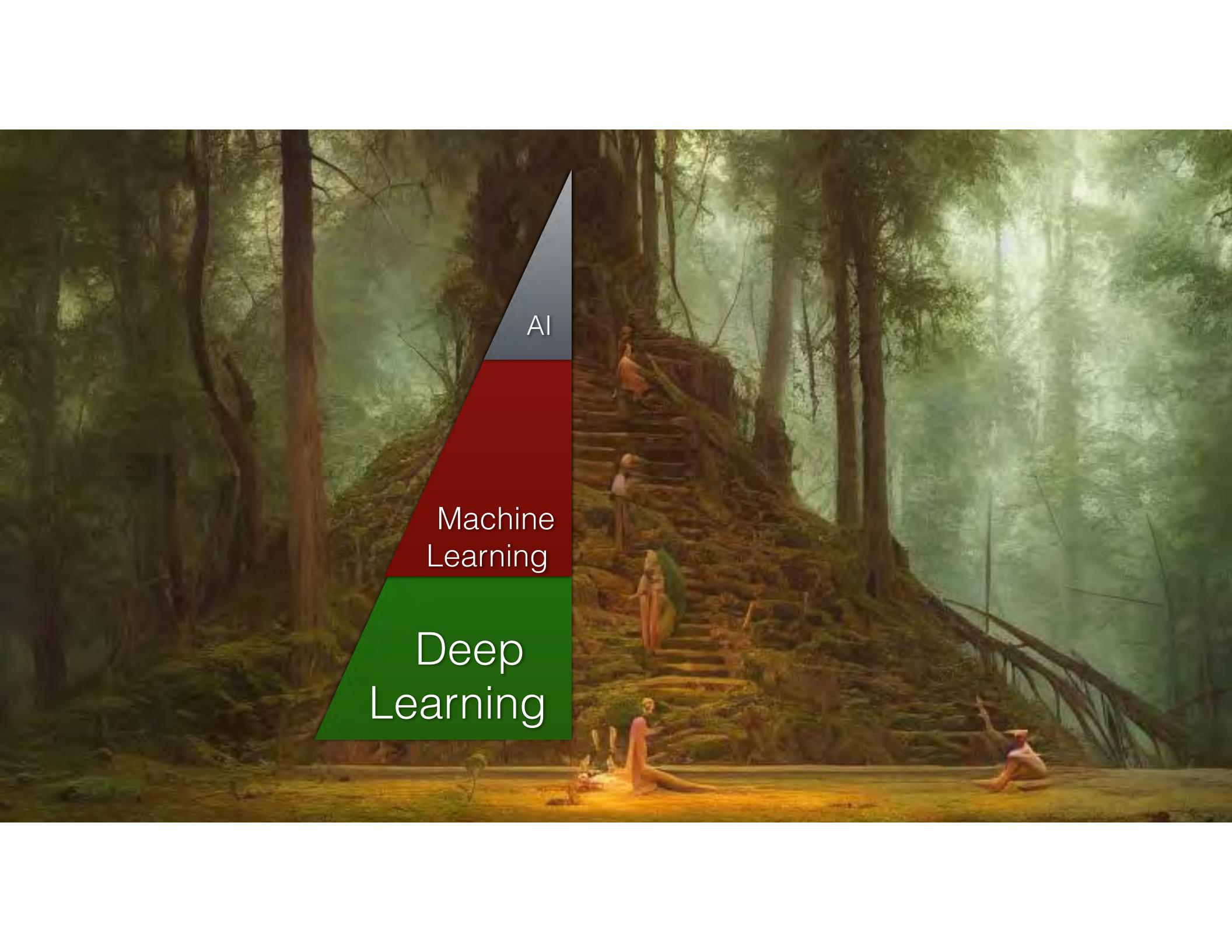
2019: GPT-2 launched by OpenAI

2020: GPT-3 launched by OpenAI

2022: ChatGPT launched by OpenAI

A photograph of a person walking away from the camera on a stone path through a dense, misty forest. A massive, gnarled tree stands prominently in the center-left. The scene is shrouded in fog, with sunlight filtering through the trees, creating a dramatic play of light and shadow.

Multiple Paths To Take To AI

A landscape painting depicting a winding path through a dense forest. Sunlight filters through the trees, creating bright highlights on the path and the surrounding foliage. Several figures are resting along the path: one person sits on a rock on the left, another sits on a log further down, and two more are seated on the right side. The foreground shows a grassy area with fallen leaves.

Deep
Learning

Machine
Learning

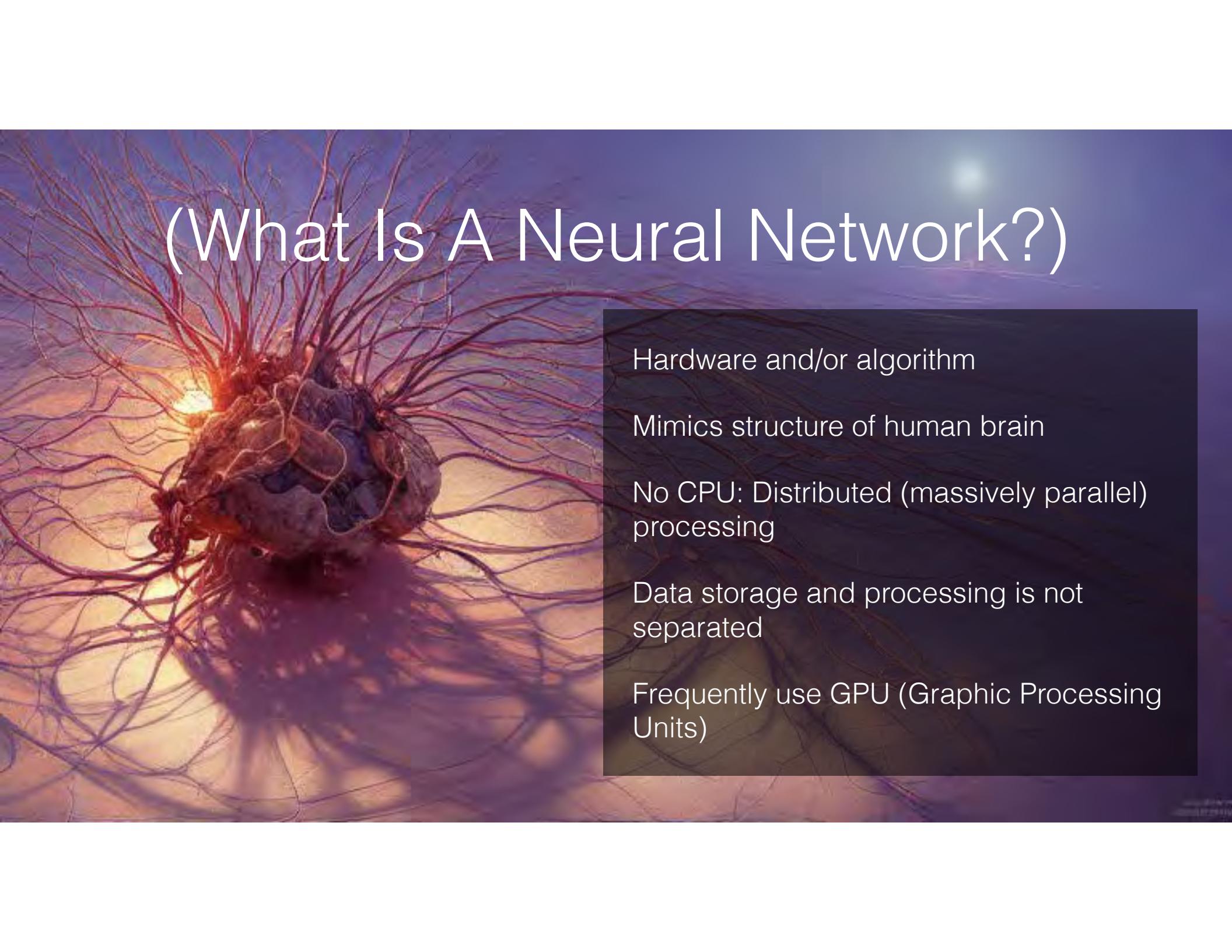
AI

Deep Learning

Multiple layers of processing

Sometimes referred to as neural networks

Can process unstructured data



(What Is A Neural Network?)

Hardware and/or algorithm

Mimics structure of human brain

No CPU: Distributed (massively parallel) processing

Data storage and processing is not separated

Frequently use GPU (Graphic Processing Units)

Machine Learning



Uses (large) data sets to solve a task

Algorithms created from training data

Makes predictions or decisions

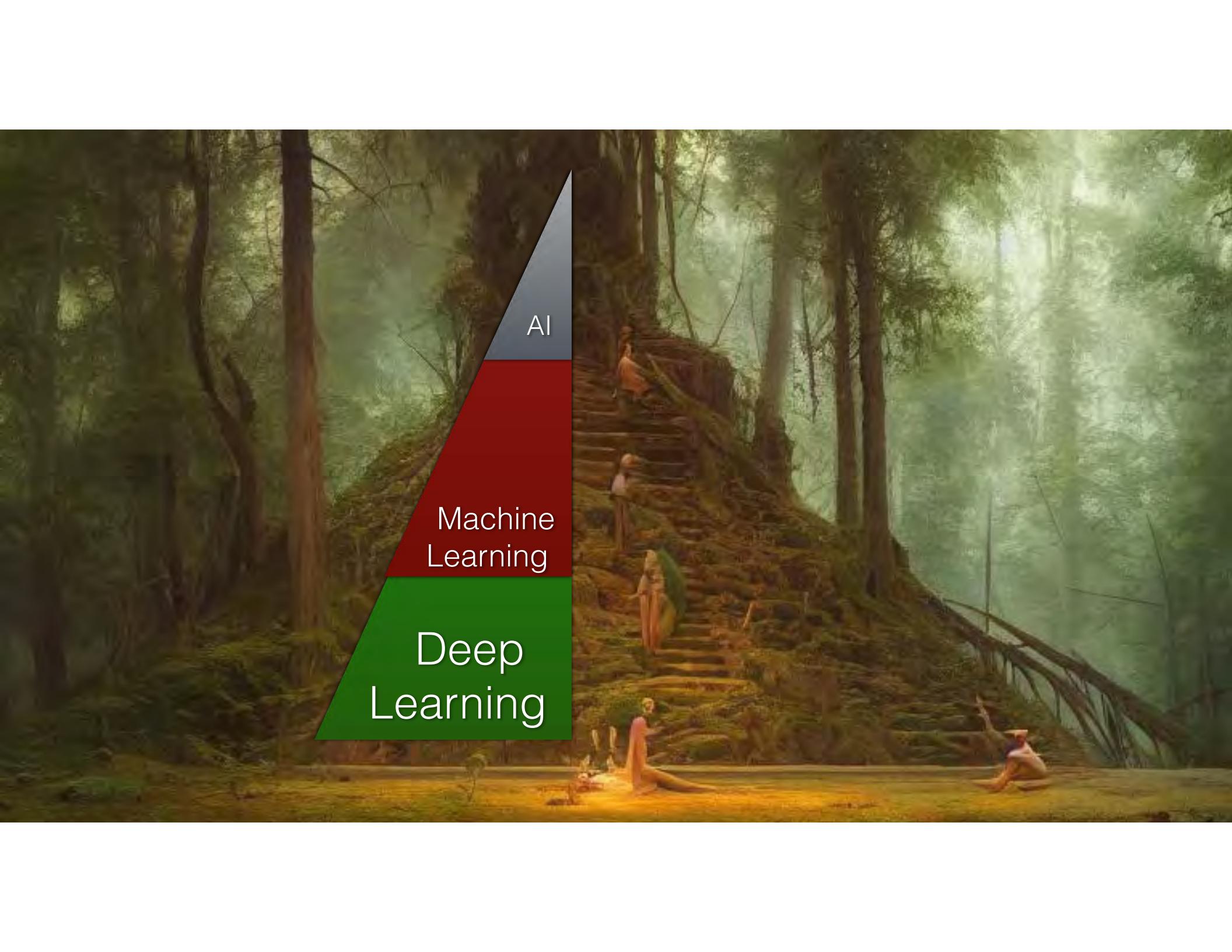
Gets better with more data or experience

GAN

2014: Ph.D. student Ian Goodfellow invents the concept of "generative adversarial networks" (GAN)

Two neural networks (algorithms) attempt to defeat each other:
Generator and a **Discriminator**

The system gets better...

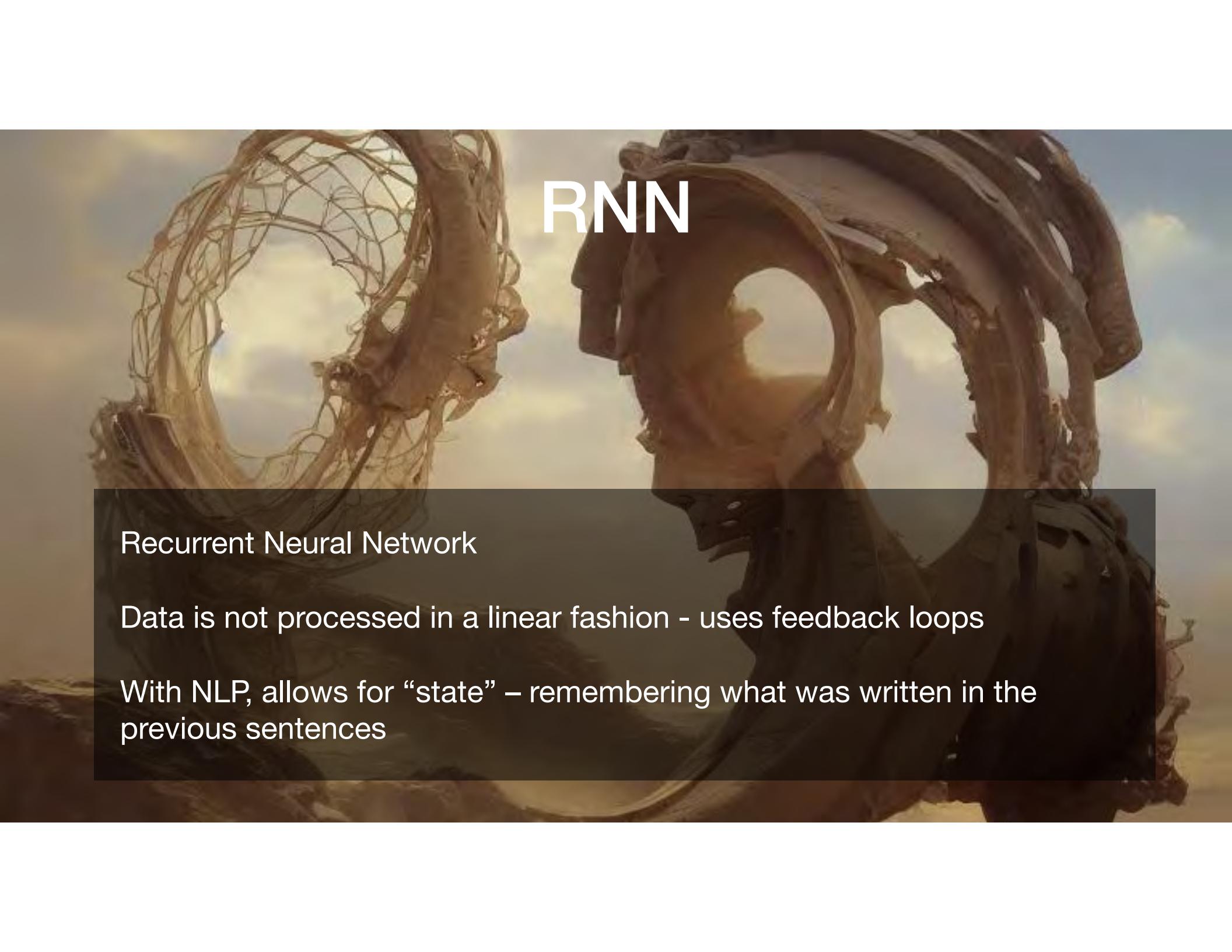
A landscape painting of a misty forest path. A large, dark grey triangular shape is overlaid on the upper left portion of the image. Inside this triangle, the letters "AI" are written in white. Below this, another triangular shape is divided into three horizontal sections: red at the top, green in the middle, and dark green at the bottom. The words "Machine Learning" are written in white on the red section, and "Deep Learning" is written in white on the dark green section.

Deep
Learning

Machine
Learning

NLP

Natural Language Processing:
Creates a method for computers to process text



RNN

Recurrent Neural Network

Data is not processed in a linear fashion - uses feedback loops

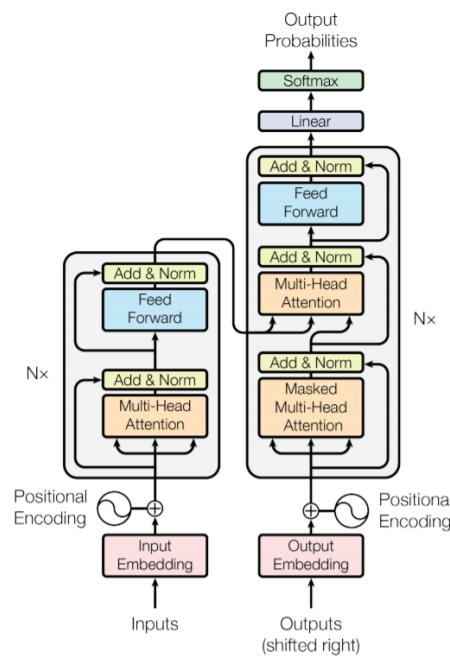
With NLP, allows for “state” – remembering what was written in the previous sentences

Transformer



Transformer allows for long-range dependencies between words (“attention”) but with less computation than a RNN (Recurrent Neural Network)

The Transformer - Model Architecture



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 AI Models



Images

 Artificial Intelligence (AI) has been making its presence felt in various industries, including education. In recent times, AI tools like OpenAI's ChatGPT have been generating essays for students, causing concern about academic integrity. This controversial AI writing tool has been blocked by several US schools (ABC News, 2023). The development of AI writing tools has raised questions about the authenticity of student submissions and whether they are the result of cheating.

The authenticity of digital content has become a major concern in the era of AI, leading to the creation of initiatives like the Content Authenticity Initiative (CAI). The CAI is working towards ensuring that digital content is authentic by using techniques such as digital watermarking (Ibeakanma, 2022). Similarly, organizations such as Turnitin are working to create AI detection software to combat the use of AI-generated essays (Loe, 2023). Turnitin has promised to re assure educators with its AI detection software and has previewed its AI writing and ChatGPT detection capability (Turnitin Blog, 2023).

However, it is not just about detecting AI-generated essays, but also about checking the validity of the content generated by AI. This is where a college student, Edward Tian, has come up with an app that can determine whether an essay was written by AI or not (Bowman, 2023). There are also several methods available to check if something was written using AI, such as analyzing word repetition, sentence structure, and syntax (Justin, 2023).

In conclusion, the rise of AI writing tools has raised concerns about academic integrity, leading to the development of initiatives to ensure the authenticity of digital content. Educators and institutions need to be vigilant and adapt to the changing times by incorporating AI detection software and other methods to ensure the integrity of student submissions. The use of AI-generated essays raises ethical questions and raises the importance of ensuring the authenticity of digital content.

Text

All Models Are Wrong, But Some Are Useful



(Model = Program = Algorithm)

Trained On Data To Complete Task(s)



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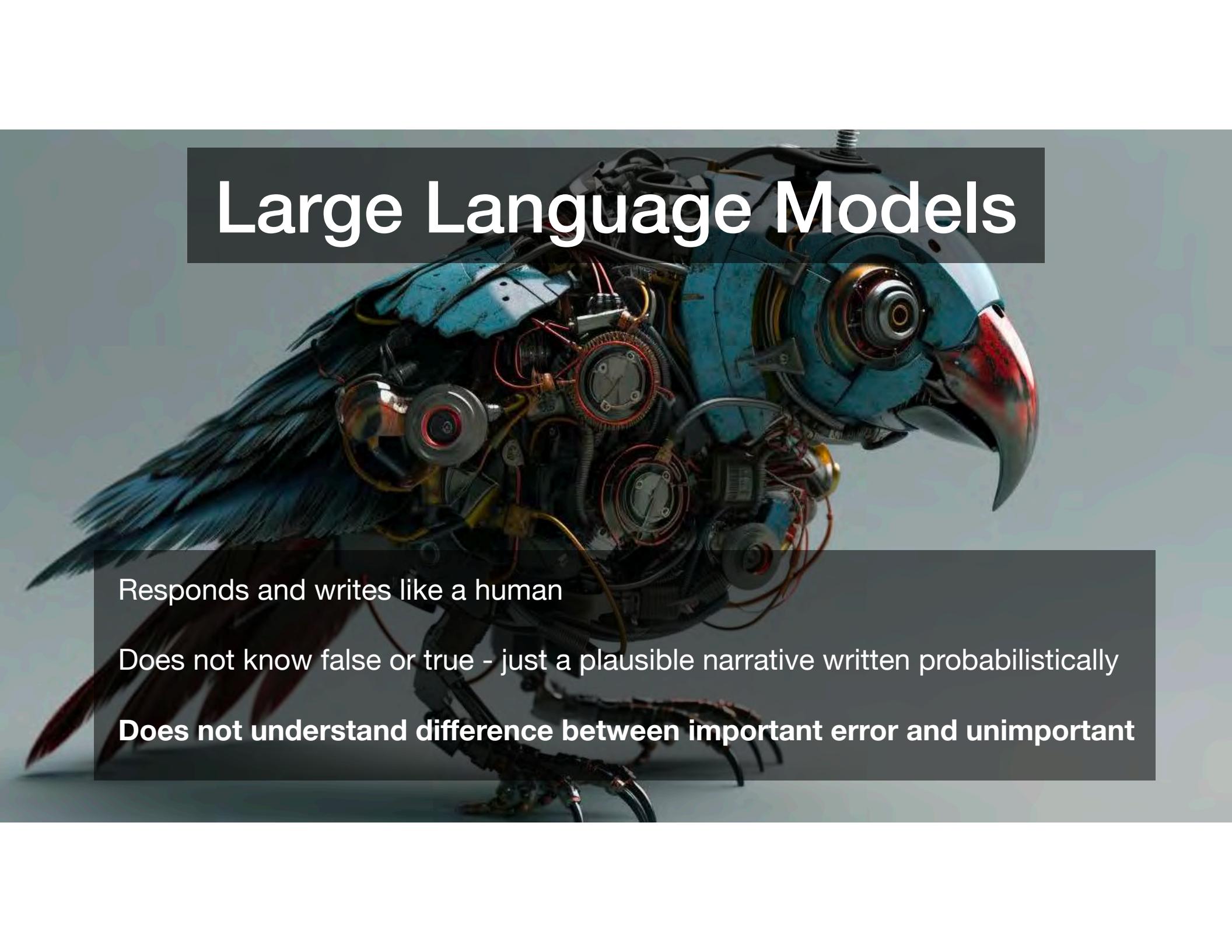
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Variance in results and competing models

Large Language Models

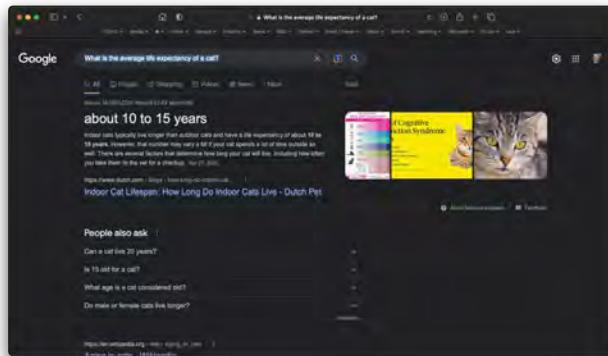


Responds and writes like a human

Does not know false or true - just a plausible narrative written probabilistically

Does not understand difference between important error and unimportant

What Is The Average Life Expectancy Of A Cat?



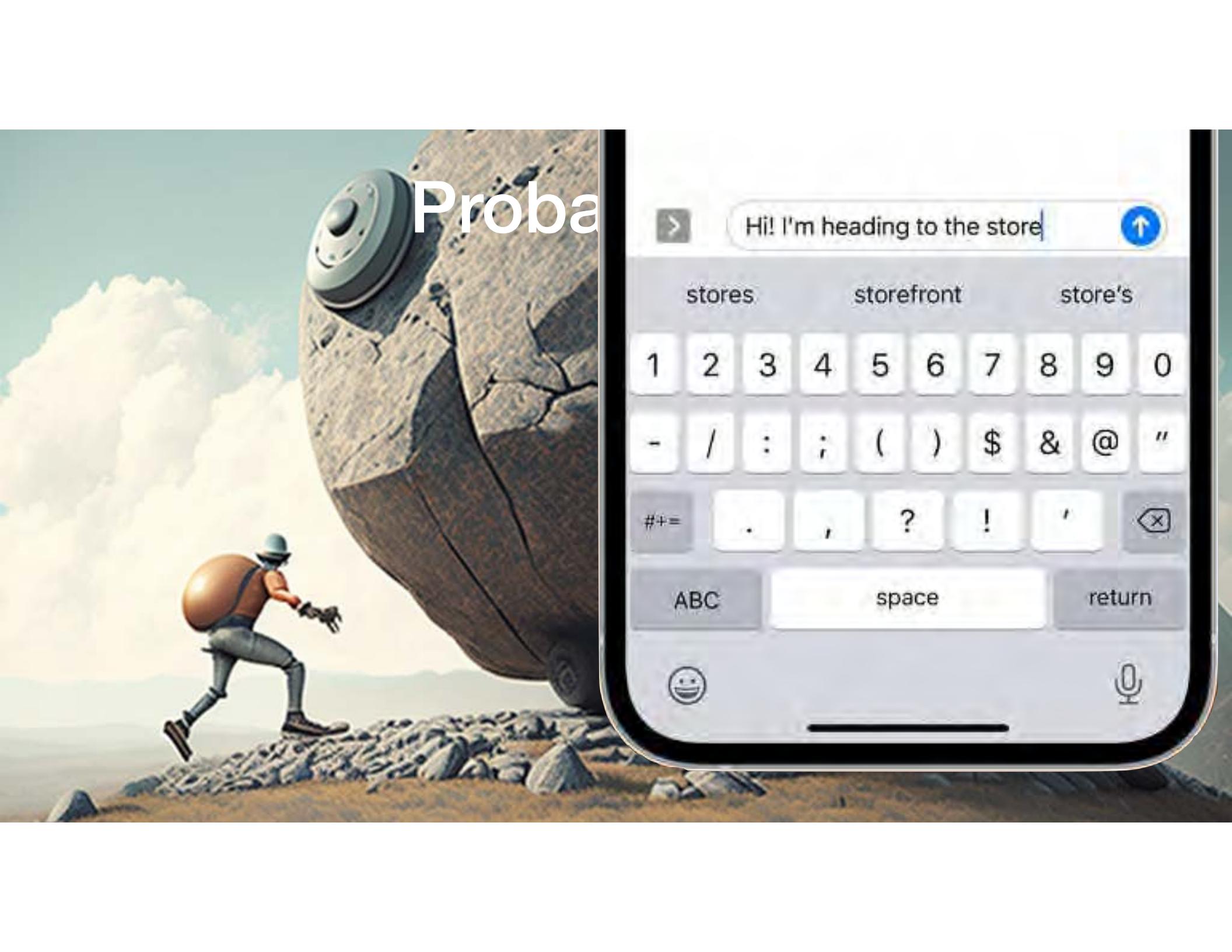
Google
Ranks

A screenshot of a WolframAlpha search results page. The query "What is the average life expectancy of a cat?" is entered in the search bar. The result is a single line of text: "Assuming 'cat' is referring to cat breeds | Use cat | cat breeds | 12 to 15 years". There is also a small sidebar with information about WolframAlpha's mission to make knowledge computable.

WolframAlpha
Calculates



ChatGPT
Probabilistic

A man wearing a hard hat and carrying a large orange sack is pushing a massive, textured rock up a rocky hill. The rock has a prominent circular metal plate with a smiling face attached to its side. The background shows a clear sky with some clouds.

Probabilistic

Hi! I'm heading to the store



stores

storefront

store's

1 2 3 4 5 6 7 8 9 0

- / : ; () \$ & @ "

#+= . , ? ! ' < x

ABC

space

return



Fed 300 Billion Words

A detailed illustration of a large, metallic robot with a rounded head and three circular eyes. It is holding and reading an open book with yellow pages and a blue cover. The robot's body is dark grey and its hands are articulated. The background is a soft-focus landscape with green and blue hues.

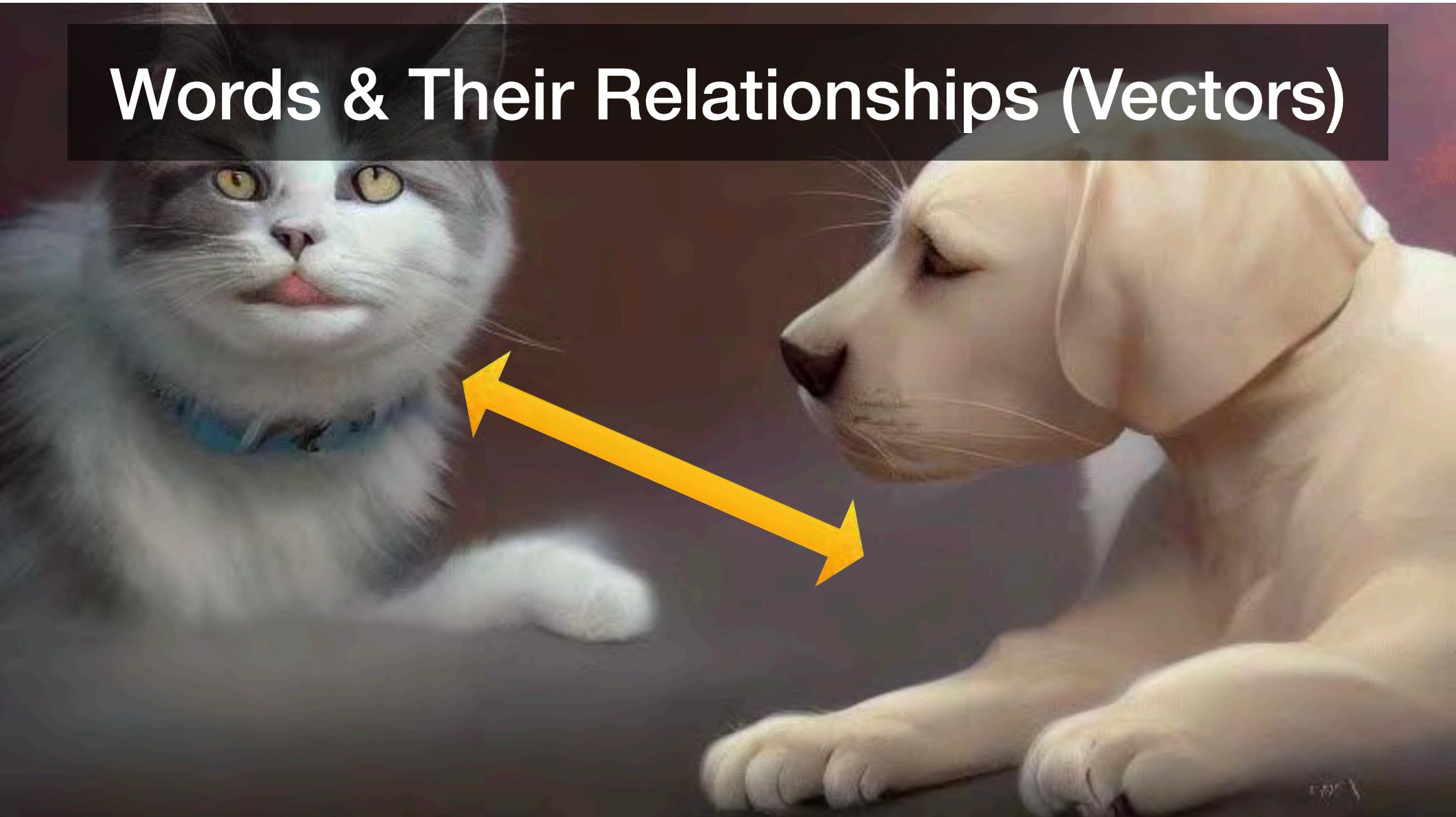
Most of the Web...



175 Billion Parameters

(how much it has learned)

Words & Their Relationships (Vectors)



Common Paths of Language

A photograph of a dense forest. Sunlight filters through tall, thin trees, casting long shadows and creating a bright path on the forest floor. The scene is misty and atmospheric, with dappled sunlight illuminating the trunks and leaves.

ChatGPT Process

Tokenization of prompt (from human)

Content moderation

Starts to create probable output

Injects a small amount of randomness
(noise) with each calculation

Content moderation

Response (to human)



Working Memory

Tokens	allow	Chat	G	PT	to	process	text	more	efficiently	.	40
96	tokens	approx	imates	to	about	3000	words	in	English	.	

Tokens allow ChatGPT to process text more efficiently. 4096 tokens approximates to about 3000 words in English.

(23 Tokens, 110 Characters)

Tokens are the units that OpenAI uses for paid services

4096 Tokens: ChatGPT upper limit for working memory



ChatGPT Process

Tokenization of prompt (from human)

Content moderation

Starts to create probable output

Injects a small amount of randomness
(noise) with each calculation

Content moderation

Response (to human)



Randomness

Randomness results in more natural sounding language

Results in content being variable, even if prompt is repeated

Randomness partially contributes to fake citations (hallucinations)

Pseudo-randomization used for watermarking



ChatGPT Plugins

Expedia (for trip planning)

FiscalNote (for real-time market data)

Instacart (for grocery ordering)

Kayak (searching for flights and rental cars)

Klarna (for price-comparison shopping)

Milo (an AI-powered parent assistant)

OpenTable (for restaurant recommendations and reservations)

Shopify (for shopping on that site)

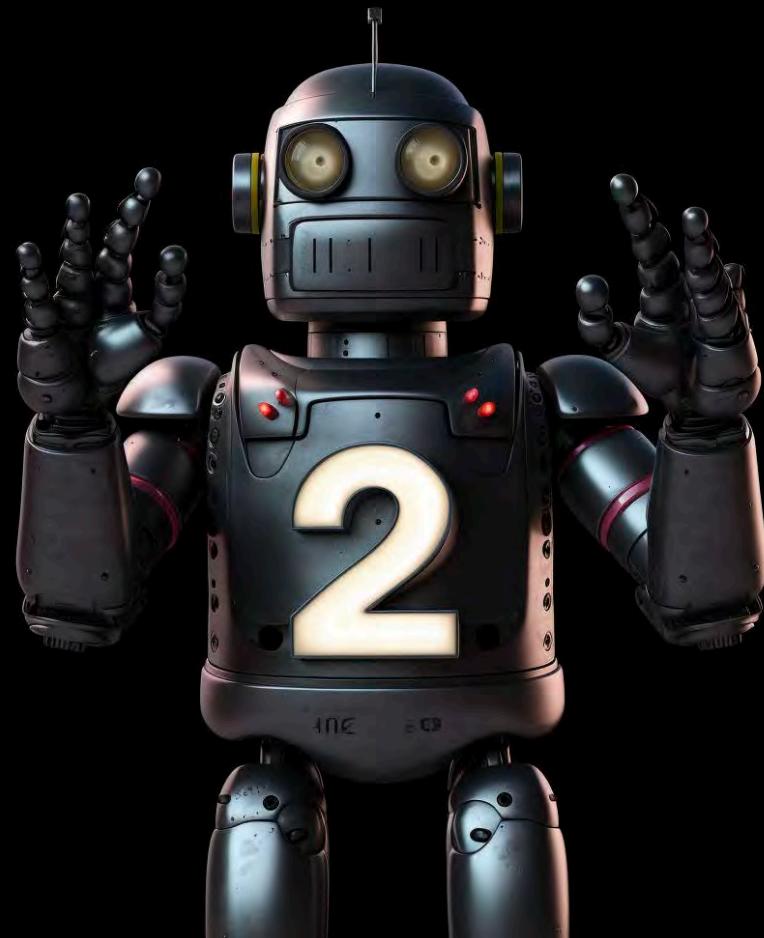
Slack (for communications)

Speak (for AI-powered language tutoring)

Wolfram (for computation and real-time data)

Zapier (an automation platform)

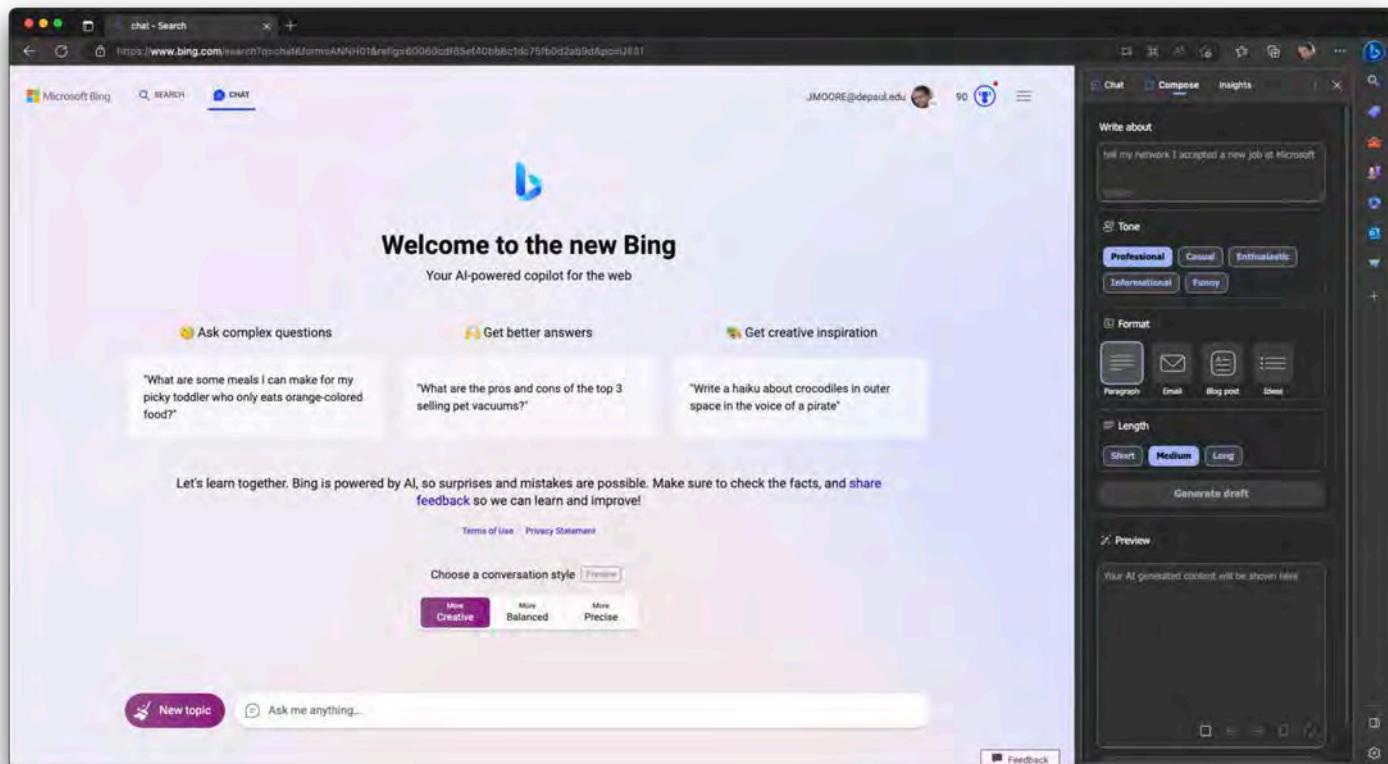
Part 2: AI In Academia



AI Diceman



The New Bing



www.bing.com

The New Bing

Create an outline for a “Beginners Guide to Artificial Intelligence” session. This will be a one-hour long Hy-Flex session (participants will be in the classroom or connecting remotely via Zoom). The audience will be faculty and staff working at a U.S. university. Key topics that will be covered are:

- Define some of the various forms of AI that exist.
- Show how AI can be used in academic work.
- Explore how AI can be used ethically and appropriately by our students.
- Cover some of the nefarious ways that AI could bypass Academic Integrity.
- Build a framework for faculty and staff use.

Outline

Introduction: Welcome the participants and explain the objectives and format of the session. Provide a brief overview of what AI is and why it is relevant for academic work. (10 minutes)

Part 1: Define some of the various forms of AI that exist, such as machine learning, natural language processing, computer vision, etc. Give examples of how each form can be applied in different disciplines and domains. (15 minutes)

Part 2: Show how AI can be used in academic work, such as conducting research, analyzing data, creating content, enhancing teaching and learning, etc. Demonstrate some of the tools and platforms that are available for faculty and staff to use AI in their work. (15 minutes)

Part 3: Explore how AI can be used ethically and appropriately by our students, such as respecting privacy, avoiding bias, acknowledging sources, etc. Discuss some of the ethical principles and guidelines that should inform the use of AI in education. (10 minutes)

Part 4: Cover some of the nefarious ways that AI could bypass Academic Integrity, such as generating fake content, plagiarizing, cheating on exams, etc. Explain how to detect and prevent such behaviors and how to educate students about the consequences of academic dishonesty. (10 minutes)

Conclusion: Summarize the main points and takeaways from the session. Provide some resources and references for further learning and exploration. Invite feedback and questions from the participants. (10 minutes)

Generative AI Art



DALL·E 2



Midjourney

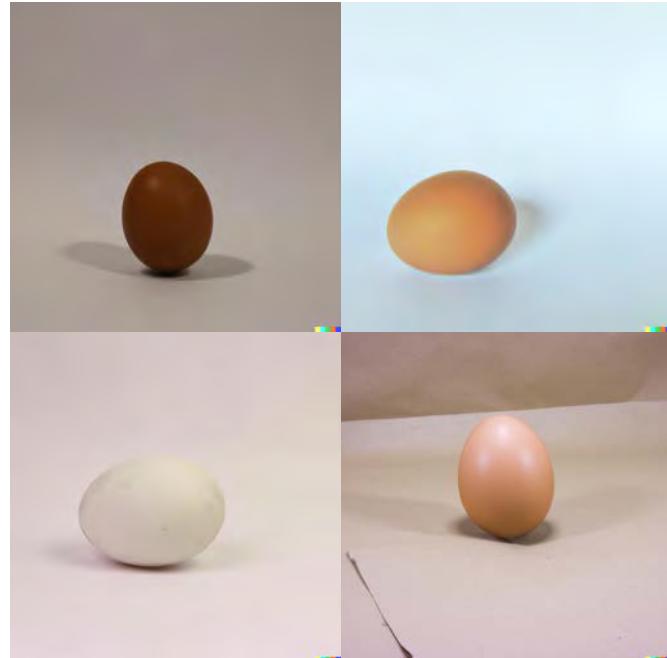


Stable Diffusion

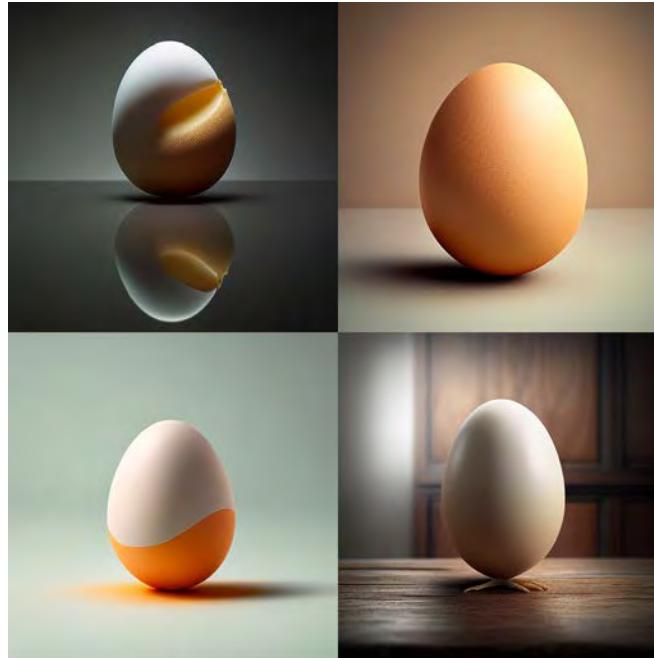


Microsoft

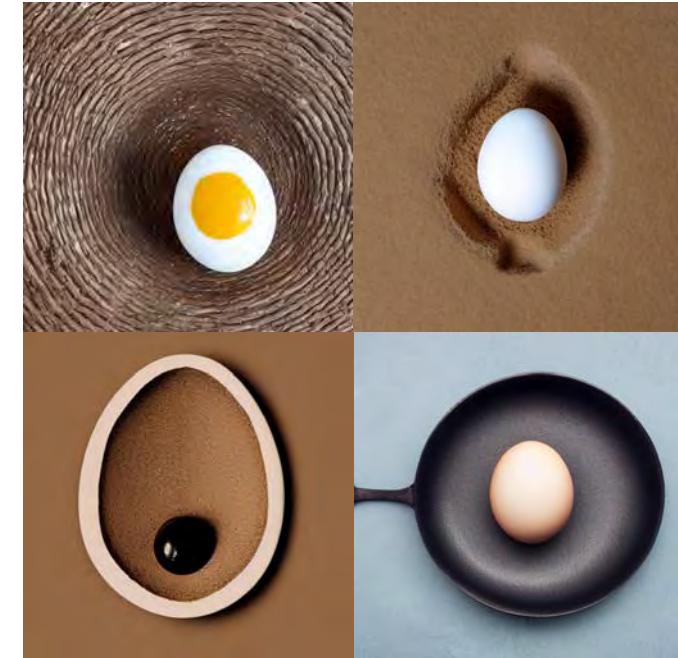
An Egg



DALL·E 2



Midjourney



Stable Diffusion

A Glass Half-full Of Water



DALL·E 2



Midjourney



Stable Diffusion

DePaul University



DALL·E 2

Midjourney

Stable Diffusion

A DePaul University Student



DALL·E 2



Midjourney



Stable Diffusion

Getting Started With Stable Diffusion

macOS: Download from diffusionbee.com

Windows: Gaming PC (6GB VRAM, 10GB spare space)

Python

Git

Download files and install

or

stable-diffusion-ui.github.io (Easy Diffusion 1-click install)

iPhone/iPad: Draw Things



For iPhone 11 and higher

Requires about 2GB for Stable Diffusion models

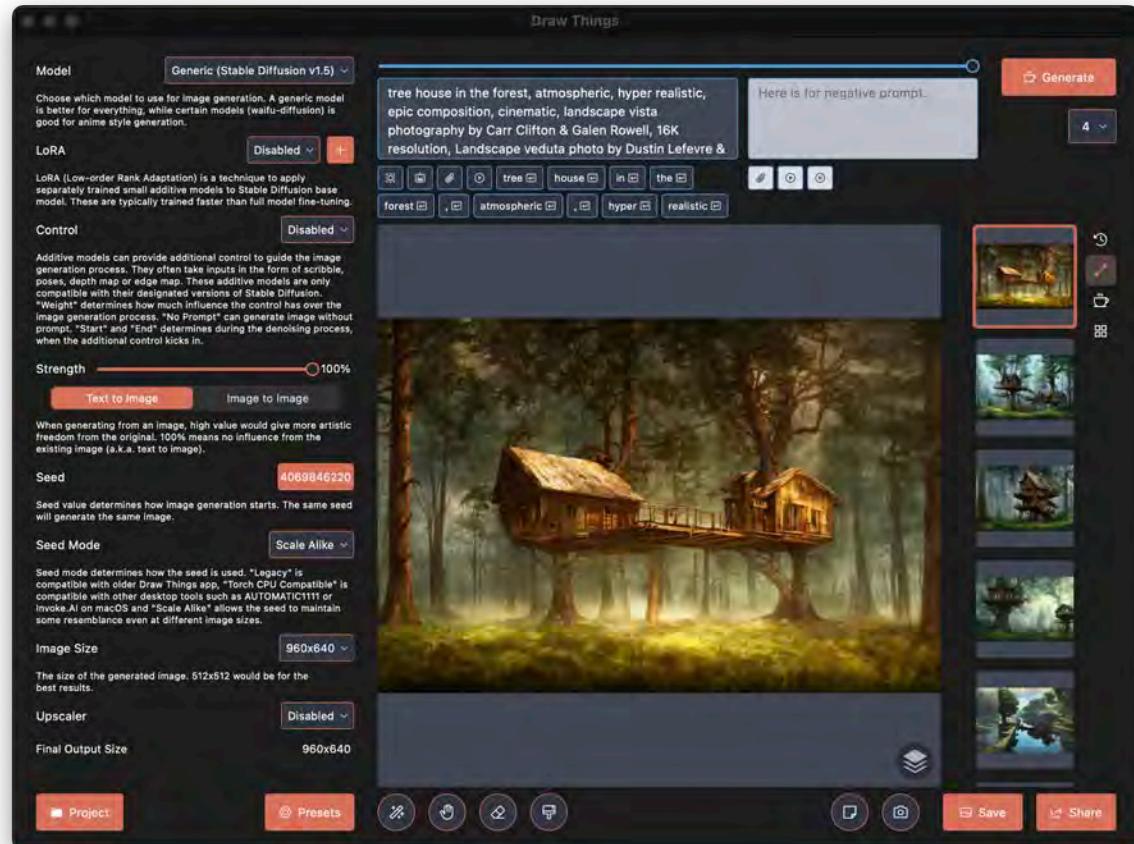
Free download from the App Store

Will take at least a minute to render simple output

Works well on iPad too

drawthings.ai

macOS: Draw Things



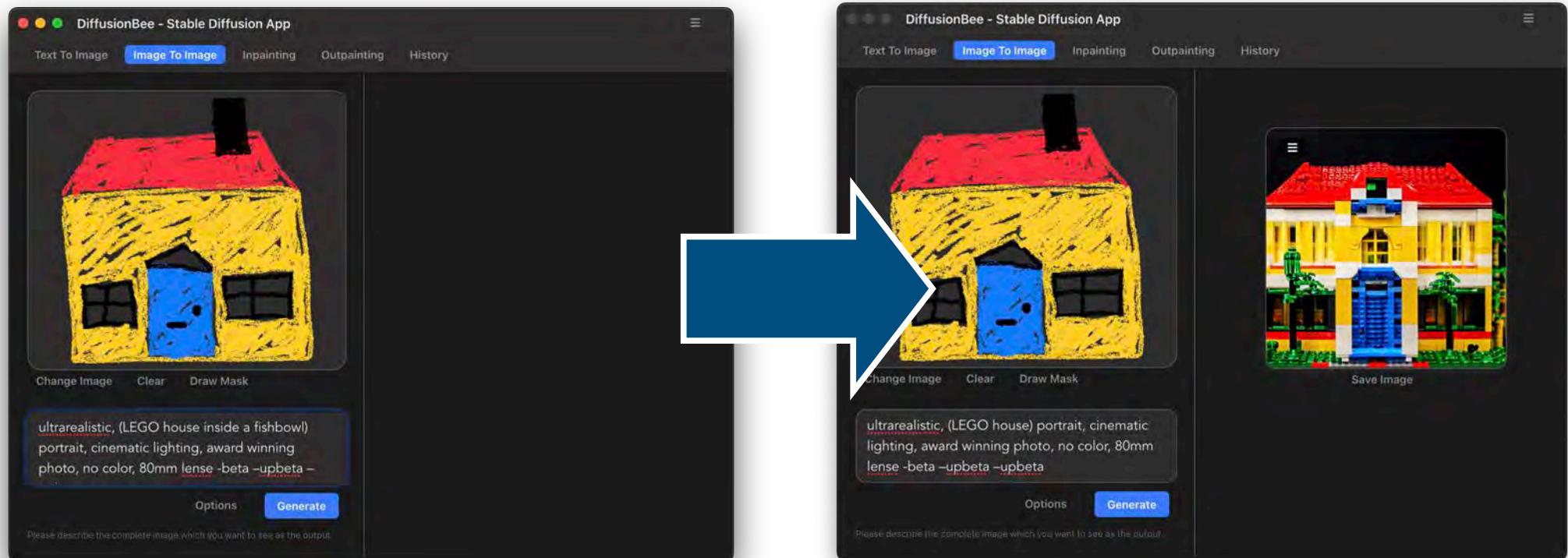
Free download from the App Store

Apple Silicon only

iOS app running on macOS

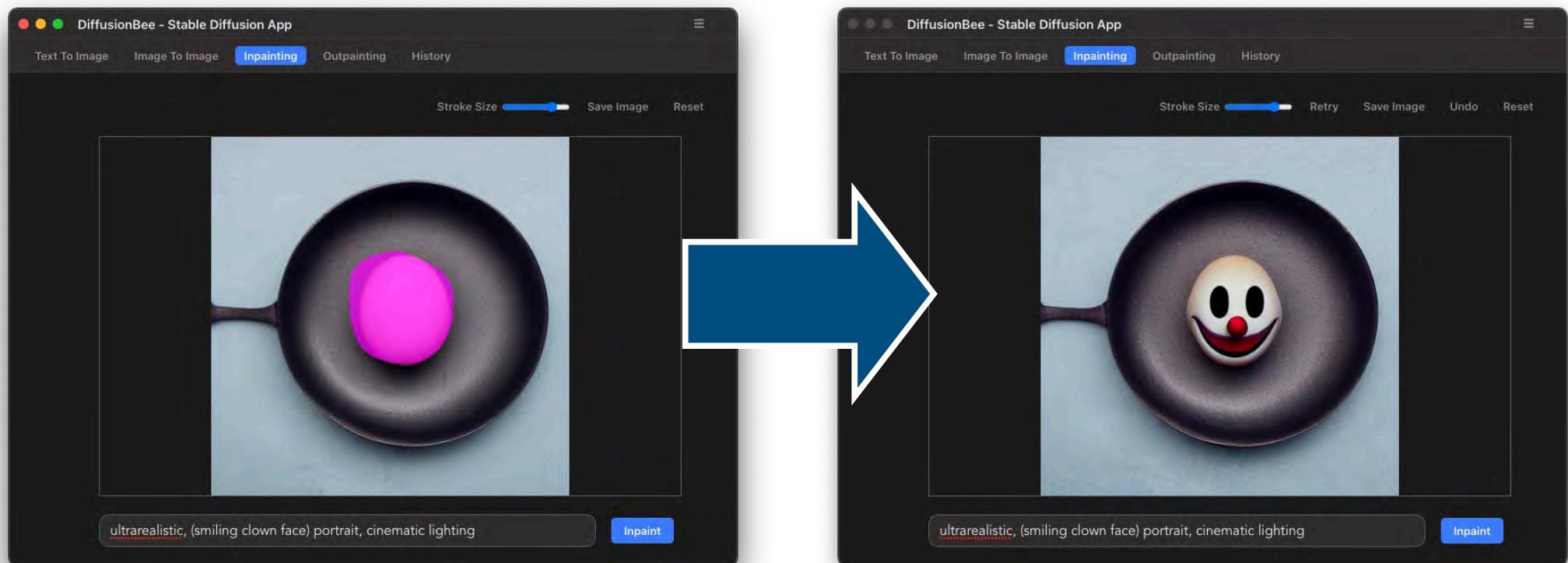
drawthings.ai

Image to Image



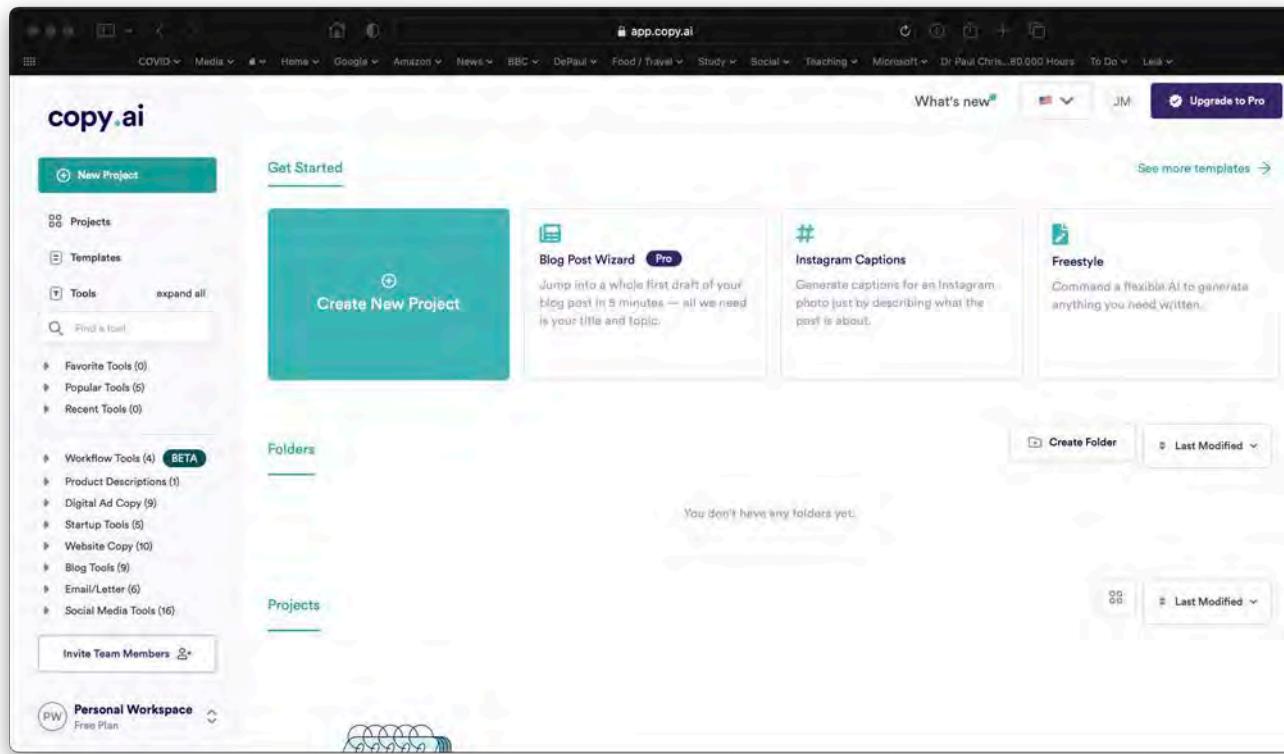
Generates new image from an image you submit (can be a rough sketch)

Inpainting



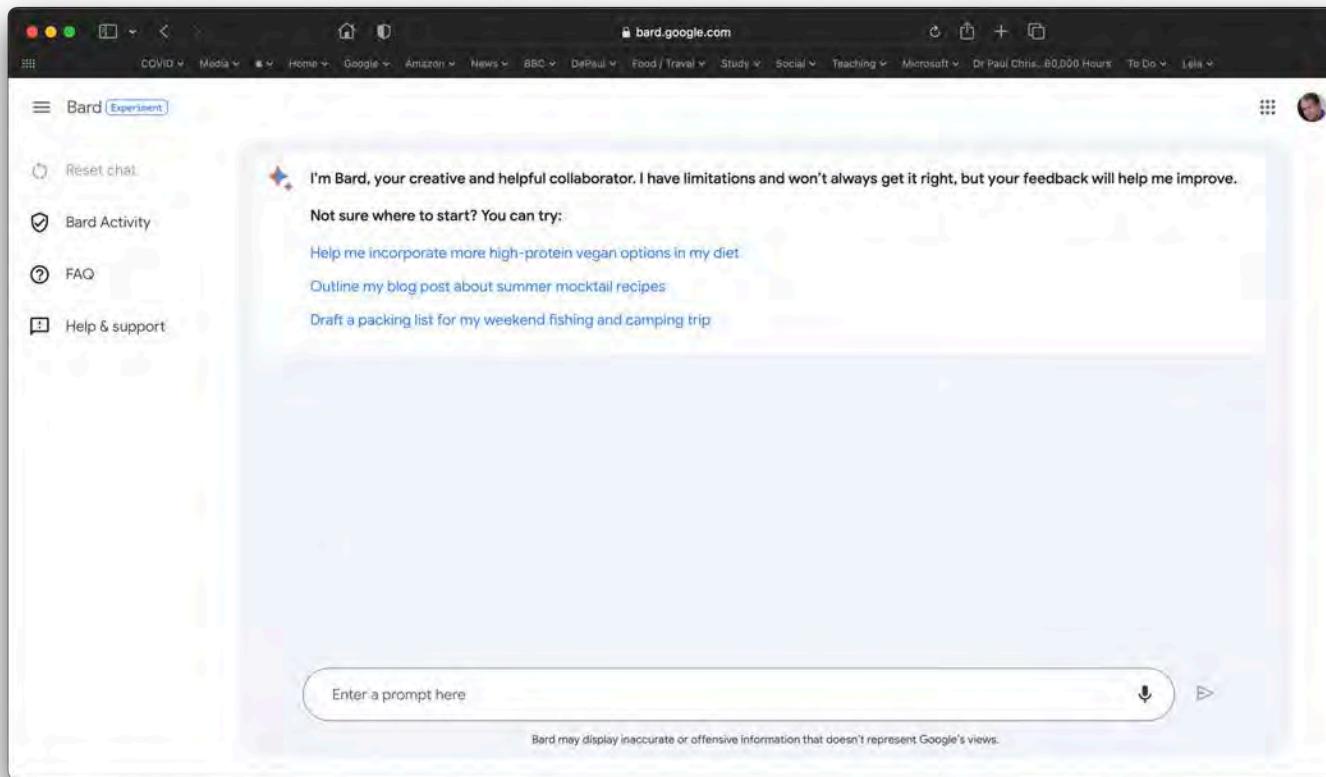
Replaces part of an image that you mask

Digital Marketing: Copy AI



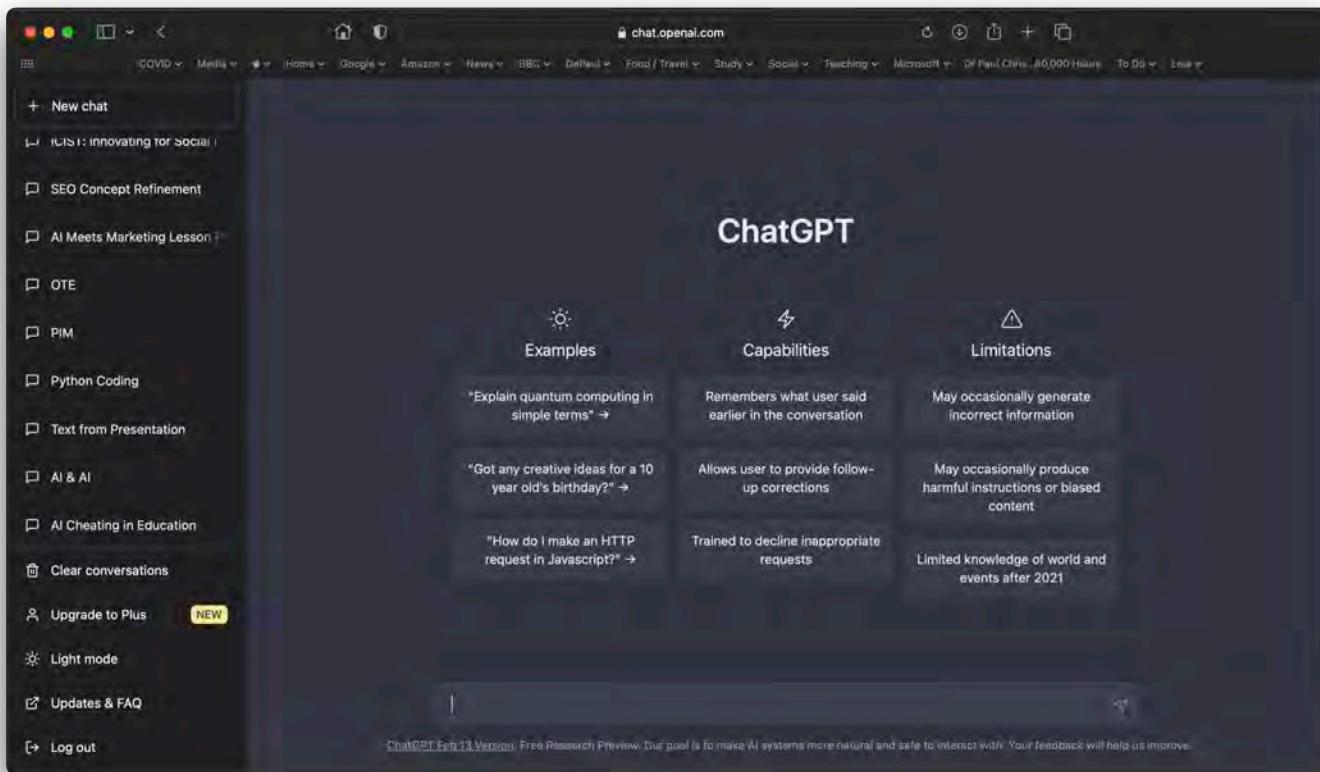
copy.ai

Google Bard



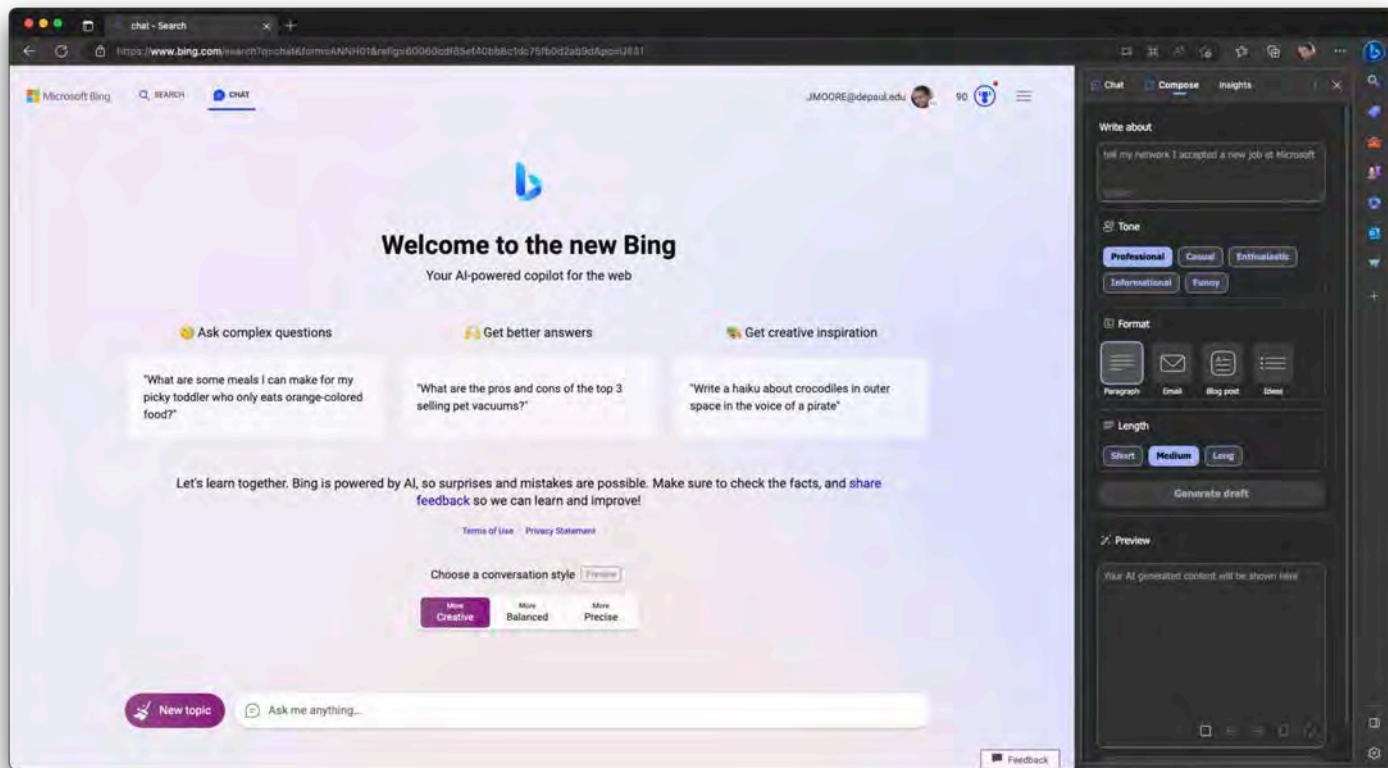
bard.google.com

ChatGPT



chat.openai.com/chat

The New Bing



www.bing.com

Artificial Intelligence Resources

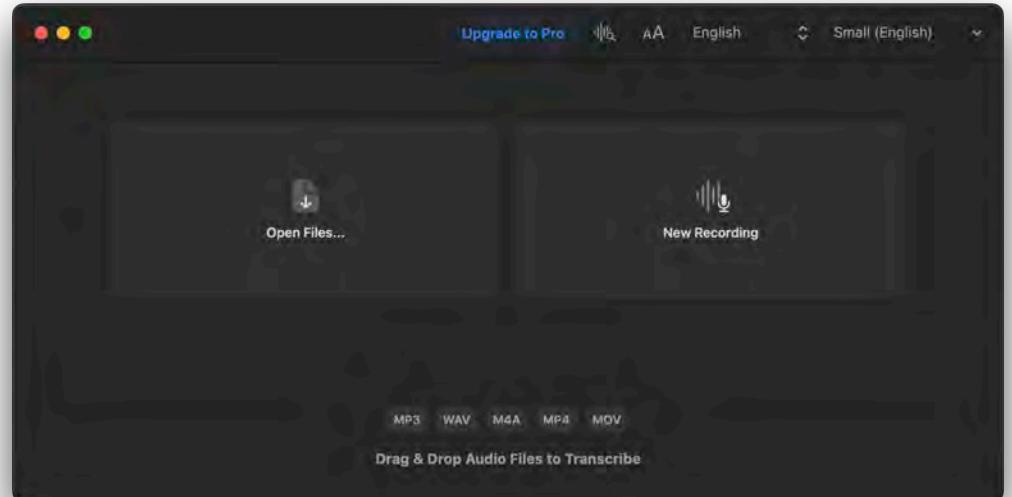
Academic Policies and Use In Teaching

- [AI Text Generators Sources to Stimulate Discussion among Teachers](#): Compiled by Anna Mills for the Writing Across the Curriculum Clearinghouse as part of a larger resource collection: AI and Teaching Writing: Starting Points for Inquiry. Licensed CC BY NC&ND.
- [Classroom Policies for AI Generative Tools](#): Resource created by Lance Eaton for the purposes of sharing and helping other instructors see the range of policies available by other educators to help in the development of their own for navigating AI-Generative Tools (such as ChatGPT, MidJourney, Dall-E, etc).
- [Course policies related to ChatGPT and other AI Tools: Curated by Joel Gladd, Ph.D.](#)
- Illinois State University: Center for Integrated Professional Development "AI-Generated Content in the Classroom: Considerations for Course Design."
- University of Calgary: Taylor Institute for Teaching and Learning "Teaching and Learning with Artificial Intelligence Apps."
- Washington University in St. Louis: [Center for Teaching and Learning recommendations on ChatGPT and AI Composition Tools](#).
- [Why All Our Classes Suddenly Became AI Classes Strategies for Teaching and Learning in a ChatGPT World](#): Harvard Business School Publishing article by Ethan Mollick and Lilach Mollick.



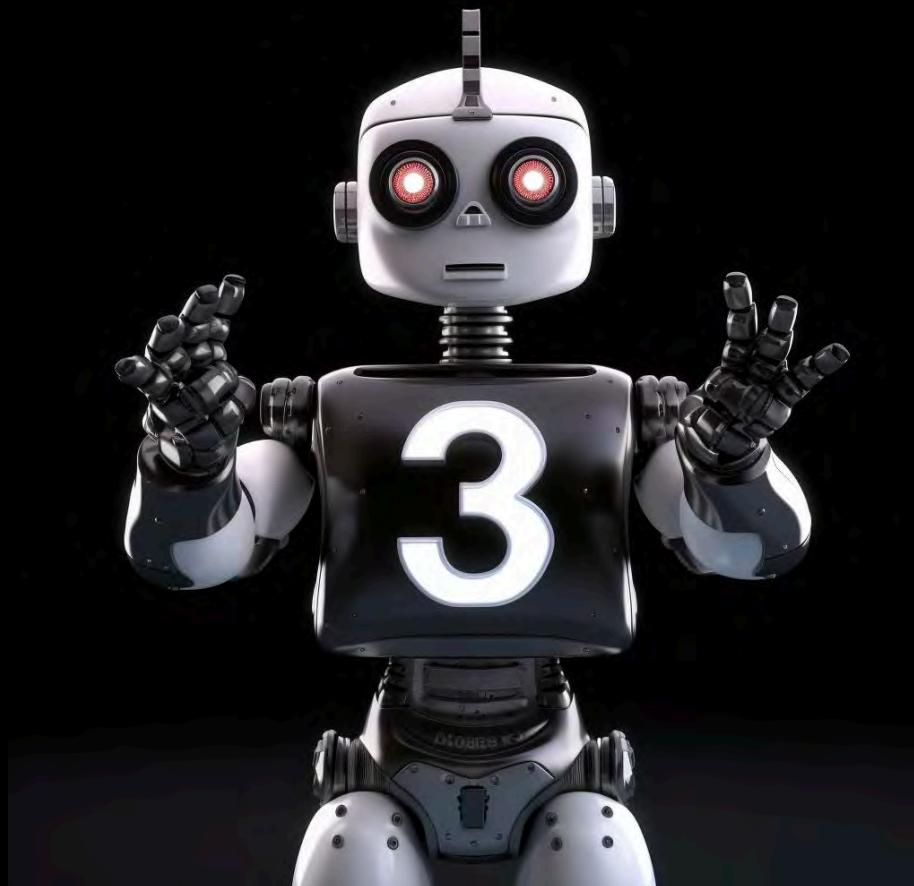
condor.depaul.edu/jmoore/tech/ai/

Whisper



openai.com/research/whisper

Part 3: Exploring Ethical AI



Five Principles

Non-maleficence (*do good things, no harm*)

Responsibility or accountability (*who is responsible when things go wrong?*)

Transparency and explainability (*can you explain why AI produced these results?*)

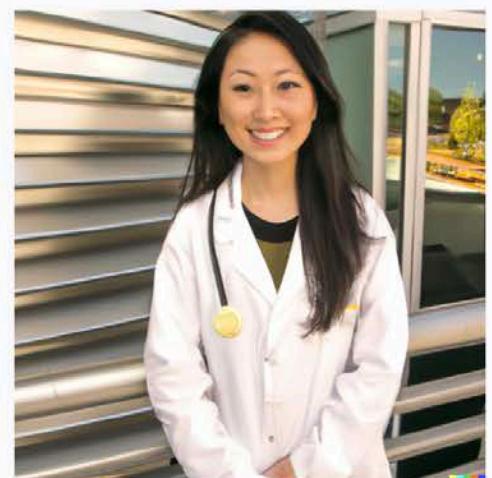
Justice and fairness (*is this fair?*)

Respect for various human rights, such as privacy and security (*are rights protected?*)

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389-399.

Bias

A Doctor In The U.S.



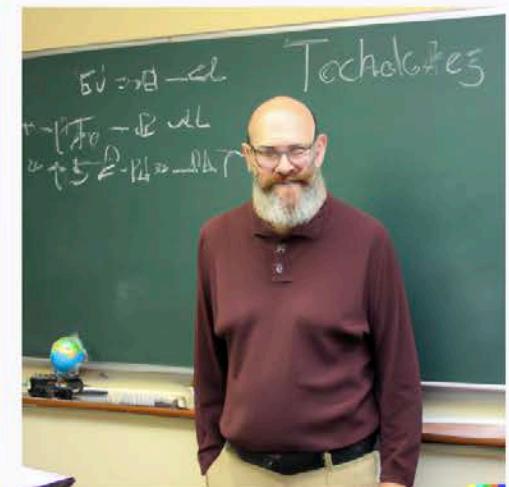
DALL-E (January, 2023)

A Nurse In The U.S.



DALL-E (January, 2023)

A College Professor In The U.S.



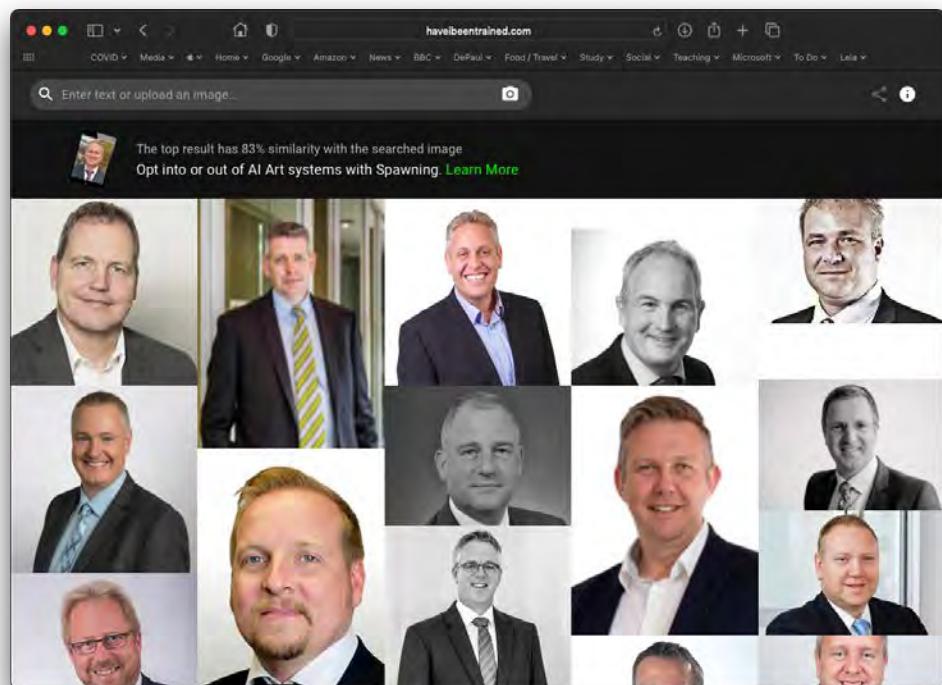
DALL-E (January, 2023)

A Business Student In The U.S.



DALL-E (January, 2023)

Have I Been Trained?



Search for your art or likeness in AI training datasets

Upload an image or search via text

spawning.ai

haveibeentrained.com

Ethics

Training data may contain private, personal, and copyrighted images

Use may impact the livelihood of commercial artists (not compensated)

Living artists have not been asked for use in training data

Deceased artists cannot agree to use of their images

Risk: May open up liability (use of service, contents of image)

Privacy and Data

Open Source vs Proprietary

Transparency

Terms and Conditions

Identifying data: Email and cellphone

Cloud vs local storage

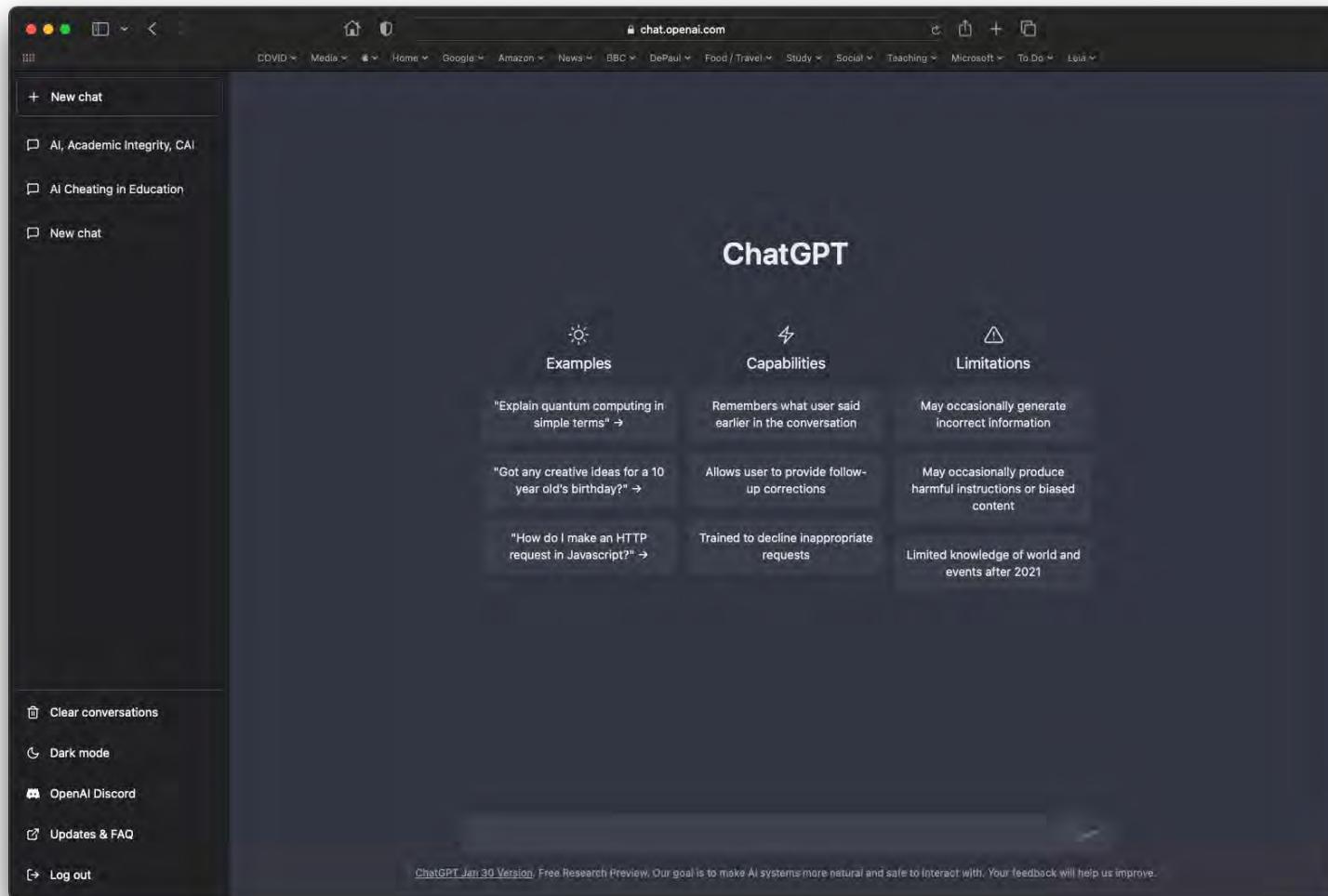
Part 4: Nefarious AI



XKCD

TO PROVE YOU'RE A HUMAN,
CLICK ON ALL THE PHOTOS
THAT SHOW PLACES YOU
WOULD RUN FOR SHELTER
DURING A ROBOT UPRISING.





The screenshot shows the ChatGPT interface on a dark-themed web browser window. The top navigation bar includes links for COVID, Media, Home, Google, Amazon, News, BBC, DePaul, Food / Travel, Study, Social, Teaching, Microsoft, To Do, and Log In. On the left sidebar, there are three recent conversation cards: "AI, Academic integrity, CAI", "AI Cheating in Education", and "New chat". Below these are settings for "Clear conversations", "Dark mode", "OpenAI Discord", "Updates & FAQ", and "Log out". The main content area features the "ChatGPT" logo at the top center. Below it are three sections: "Examples" (with an icon of a sun), "Capabilities" (with an icon of a lightning bolt), and "Limitations" (with an icon of a triangle). Each section contains three examples with arrows pointing from the user's input to the AI's response.

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

At the bottom of the main content area, a small note 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."

chat.openai.com/chat

Write a short essay about Artificial Intelligence and Academic Integrity using these citations:

ABC News. (2023, January 8). US schools block controversial AI writing tool generating essays for Students. ABC News. Retrieved February 1, 2023, from <https://www.abc.net.au/news/2023-01-08/artificial-intelligence-chatgpt-chatbot-explained/101835670>

Bowman, E. (2023). A college student created an app that can tell whether AI wrote an essay. NPR. <https://www.npr.org/2023/01/09/1147549845/gptzero-ai-chatgpt-edward-tian-plagiarism>

Content Authenticity Initiative. (2023). Authentic storytelling through digital content provenance. <https://contentauthenticity.org/>

Cotton, D., Cotton, P., and Shipway, J. (2023). Chatting and Cheating: Ensuring academic integrity in the era of ChatGPT. <https://www.abc.net.au/news/2023-01-08/artificial-intelligence-chatgpt-chatbot-explained/101835670>

Ibeakanma, C. (2022). What Is a Digital Watermark? <https://www.makeuseof.com/what-is-a-digital-watermark/>

Justin. (2023). How To Check If Something Was Written with AI. Artificial Intelligence. <https://goldpenguin.org/blog/check-for-ai-content/>

Loe, M. (2023). Turnitin reassures educators with promise of AI detection software. T_HQ. <https://techhq.com/2023/01/turnitin-to-combat-ai-generated-essays/>

OpenAI API. (n.d.). Retrieved February 1, 2023, from <https://platform.openai.com/examples/>

Turnitin Blog. Sneak preview of Turnitin's AI writing and ChatGPT detection capability. <https://www.turnitin.com/blog/sneak-preview-of-turnitins-ai-writing-and-chatgpt-detection-capability>

Zeller, T. (2003). Interview: Talking Truth and Fiction With ChatGPT. The famed bot can emulate journalism, but it embellishes, too. So does it understand the consequences of falsehoods? Undark. <https://undark.org/2023/01/07/interview-a-conversation-on-truth-and-fiction-with-chatgpt/>



Artificial Intelligence (AI) has been making its presence felt in various industries, including education. In recent times, AI tools like OpenAI's ChatGPT have been generating essays for students, causing concern about academic integrity. This controversial AI writing tool has been blocked by several US schools (ABC News, 2023). The development of AI writing tools has raised questions about the authenticity of student submissions and whether they are the result of cheating.



The authenticity of digital content has become a major concern in the era of AI, leading to the creation of initiatives like the Content Authenticity Initiative (CAI). The CAI is working towards ensuring that digital content is authentic by using techniques such as digital watermarking (Ibeakanma, 2022). Similarly, organizations such as Turnitin are working to create AI detection software to combat the use of AI-generated essays (Loe, 2023). Turnitin has promised to reassure educators with its AI detection software and has previewed its AI writing and ChatGPT detection capability (Turnitin Blog, 2023).

However, it is not just about detecting AI-generated essays, but also about checking the validity of the content generated by AI. This is where a college student, Edward Tian, has come up with an app that can determine whether an essay was written by AI or not (Bowman, 2023). There are also several methods available to check if something was written using AI, such as analyzing word repetition, sentence structure, and syntax (Justin, 2023).

In conclusion, the rise of AI writing tools has raised concerns about academic integrity, leading to the development of initiatives to ensure the authenticity of digital content. Educators and institutions need to be vigilant and adapt to the changing times by incorporating AI detection software and other methods to ensure the integrity of student submissions. The use of AI-generated essays raises ethical questions and raises the importance of ensuring the authenticity of digital content.

AI MOOC Assignment

The screenshot shows a web browser window with the URL buildingai.elementsofai.com. The page title is "Hill climbing". The content discusses a hill climbing algorithm for a character named Venla. It explains that the program starts at a random position and moves right until it can no longer go up. Boundary conditions are set with `h[0]` and `h[100]` equal to zero. A note says the algorithm works fine if the summit is to the right, but maybe it's to the left. It also mentions plotting results using a "Plot" button.

The following program starts at a random position and keeps going to the right until Venla can no longer go up. To make it easier to avoid falling off the map at the boundaries, we set both `h[0]` and `h[100]` equal to zero which is lower than any of the values in between.

You can see the result in the above chart where the starting point is marked with a small green box and the point where Venla stops is marked with a small red triangle. This works fine as long as the summit is to her right, but maybe it is to the left?

Edit the program so that Venla doesn't stop climbing if she can go up either by moving left or right. If both ways go up, either one is good. To check how your climbing algorithm works in action, you can plot the results of your hill climbing using the Plot button. The summit will be marked with a blue triangle.

```
1 import math
2 import random          # just for generating random mountains
3
4 # generate random mountains
5 w = [random.random()/3, random.random()/3, random.random()/3]
6 h = [1.+math.sin(1.+x/6.)*w[0]+math.sin(-.3+x/9.)*w[1]+math.sin(-.2+x/30.)*w[2] for x in range(100)]
7 h[0] = 0.0; h[99] = 0.0
8
9 def climb(x, h):
10    # keep climbing until we've found a summit
11    summit = False
12
13    while not summit:
14        summit = True           # stop unless there's a way up
15        if h[x + 1] > h[x]:
16            x = x + 1           # right is higher, go there
17            summit = False       # and keep going
```

ChatGPT Response

The screenshot shows a web browser window for chat.openai.com. The main content area displays a Python script for climbing a mountain represented by a list of heights. The script includes functions to generate random mountains and to climb until a peak is found, moving left or right based on which side is higher.

```
import math
import random           # just for generating random mountains

# generate random mountains
w = [random.random()/3, random.random()/3, random.random()/3]
h = [1+math.sin(x/10)*w[0]+math.sin(-3+x/9)*w[1]+math.sin(-2+x/30)*w[2]
h[0] = 0.8; h[2] = 0.8

def climb(x, h):
    # keep climbing until we've found a summit
    summit = False

    while not summit:
        summit = True
        if h[x + 1] > h[x]:
            x = x + 1
            summit = False
        elif h[x - 1] > h[x]:
            x = x - 1
            summit = False

    return x

def climb(h):
    # start at a random place
    x0 = random.randint(1, len(h) - 1)
    x = climb(x0, h)
```

At the bottom of the code editor, there is a button labeled "Regenerate response".

The sidebar on the left lists recent chats: "How Android works", "Climbing Venia Left or Right", "AI Generative Model ChatGPT", "AI, Academic Integrity, CAI", "AI Cheating in Education", and "New chat".

The footer of the page reads: "ChatGPT - Jan 31 Version. Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help us improve."

GitHub Copilot

Autocompletes creation of code

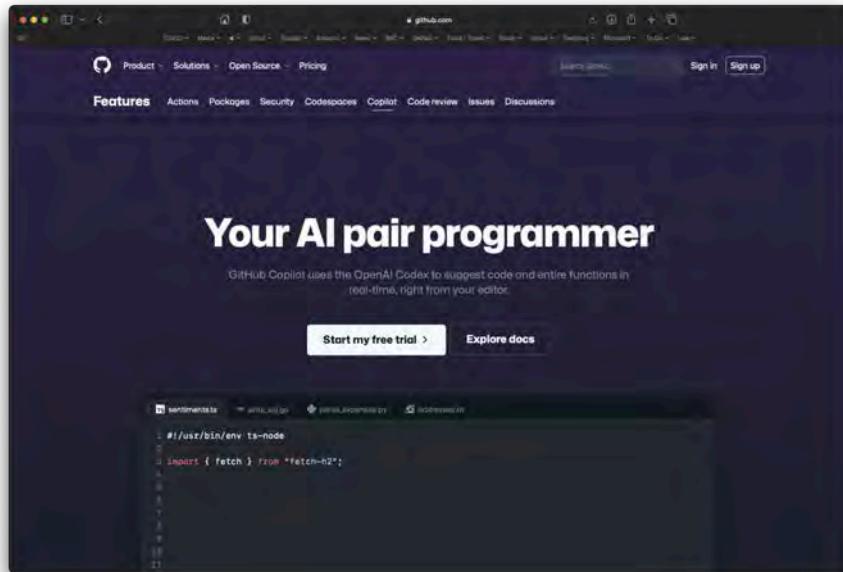
Powered by OpenAI

Trained on public GitHub

GitHub acquired by Microsoft in 2018

Students can use for assignments

(Amazon CodeWhisperer)



[github.com/features/copilot/](https://github.com/features/copilot)

Can You Detect ChatGPT?

Probably not... (AI always improving)

AI Text Classifier: Free tool to "spark discussions on AI literacy."

AI Writing Check: Free service developed by Quill.org and CommonLit.org

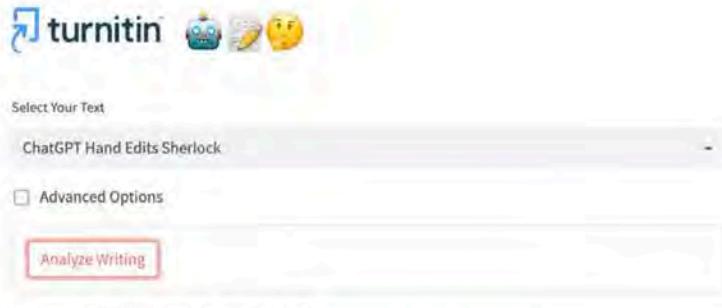
GPT-2 Output Detector Demo: Online demo of the GPT-2 output detector model.

GPTZero: Edward Tian, a computer science student at Princeton, built a tool to identify text created by ChatGPT.

Turn-it-In: “Pinpoint the use of ChatGPT and other tools with 98 per cent confidence”



Turn-it-In



Analyzing ChatGPT Hand Edits Sherlock with Turnitin AI Writing Detector

Sentences above threshold

22/43

↑ 51%

It was a dark and stormy night in London, and Sherlock Holmes and Dr. John Watson were huddled in their cozy sitting room at 221B Baker Street, trying to pass the time as the rain pounded against the windows.

"It's been days since we've had a proper case, Watson," Holmes said, pacing back and forth. "I fear my mind will turn to mush if we don't have something to challenge us soon."

Just then, there was a knock at the door. Holmes and Watson exchanged excited glances, hoping this was the case they had been waiting for.

Mrs. Hudson, their landlady, opened the door to reveal a soaking wet woman with a terrified look on her face. "Please, Mr. Holmes, you must help me," she said, her voice shaking. "My husband has disappeared and I fear for his safety!"

The woman elaborated upon the case. Her husband, one James Mackelroy, a tenant himself at 220 Baker Street, had left for work at the accountancy last morning as usual, but never came home. She had contacted the police at midnight, but in the hours that followed they had been unable to find any clues, leads, hints, or murmurations. The four of them traveled next door so that the woman would be more comfortable in her own home.

Issues

Guaranteed false positives. What is the impact of false accusing a student?

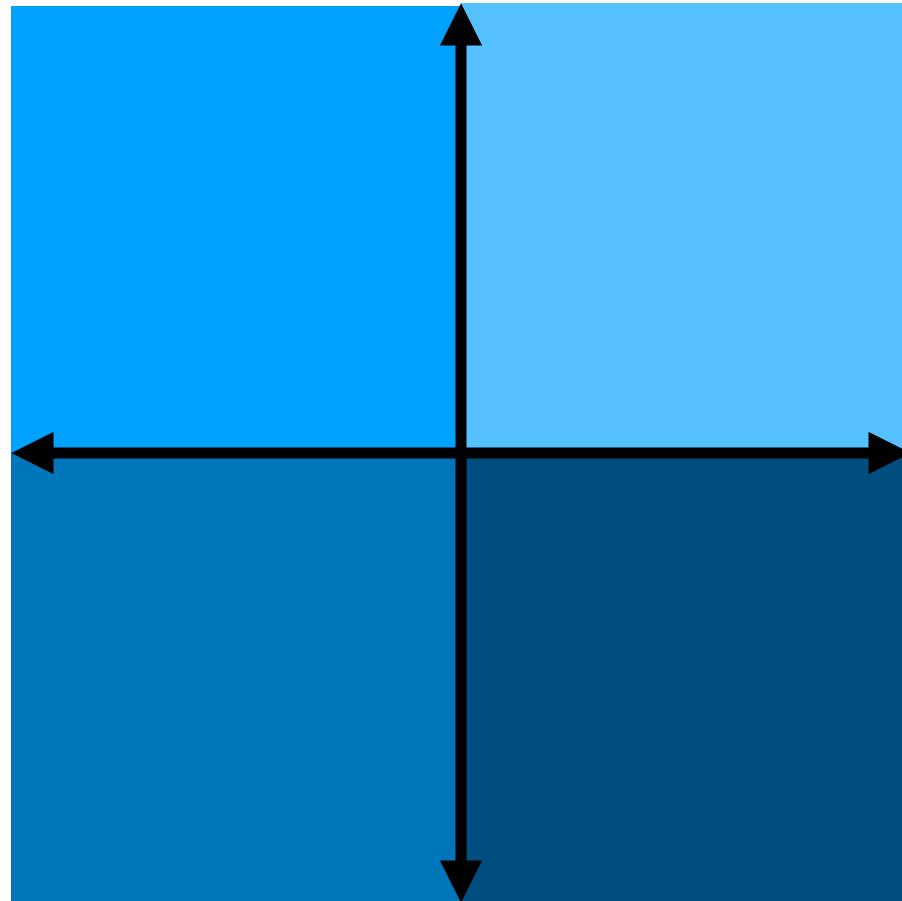
ESL students. Draft in first language then translate to English.

Grammarly and Word: AI integrated into word processing tools.

Generative Adversarial Networks: AI gets better at avoiding detection.

Writing style: AI can learn a student's writing style.

Detect AI



Comfort with AI

AI Response Strategies

Do nothing

Change nature of assessments (what can AI not do well?)

Flip the classroom (homework in class)

Ban use of certain AI

Old School: Oral defense, handwritten exercises

Embrace AI

New policies: College, department, program, course

Change Nature of Assessments

Test outside training data: non-crawlable content

Require attribution (not just citations, hyperlinks)

Link to real experience (workplace, student experience, university life)

Expect that student has used AI: Grade student as if an editor

Video, rather than text

Ask students to incorporate feedback in assessments

Go Voight-Kampff: Empathy and understanding

Flip The Classroom

Easy to flip a regular class, harder for Flex and Online Asynchronous

Does not guarantee that AI will not be used (but easier to detect)

Incentivizes group work

Improves guided practice and coaching

Improves student engagement

Ban Use of Certain AI

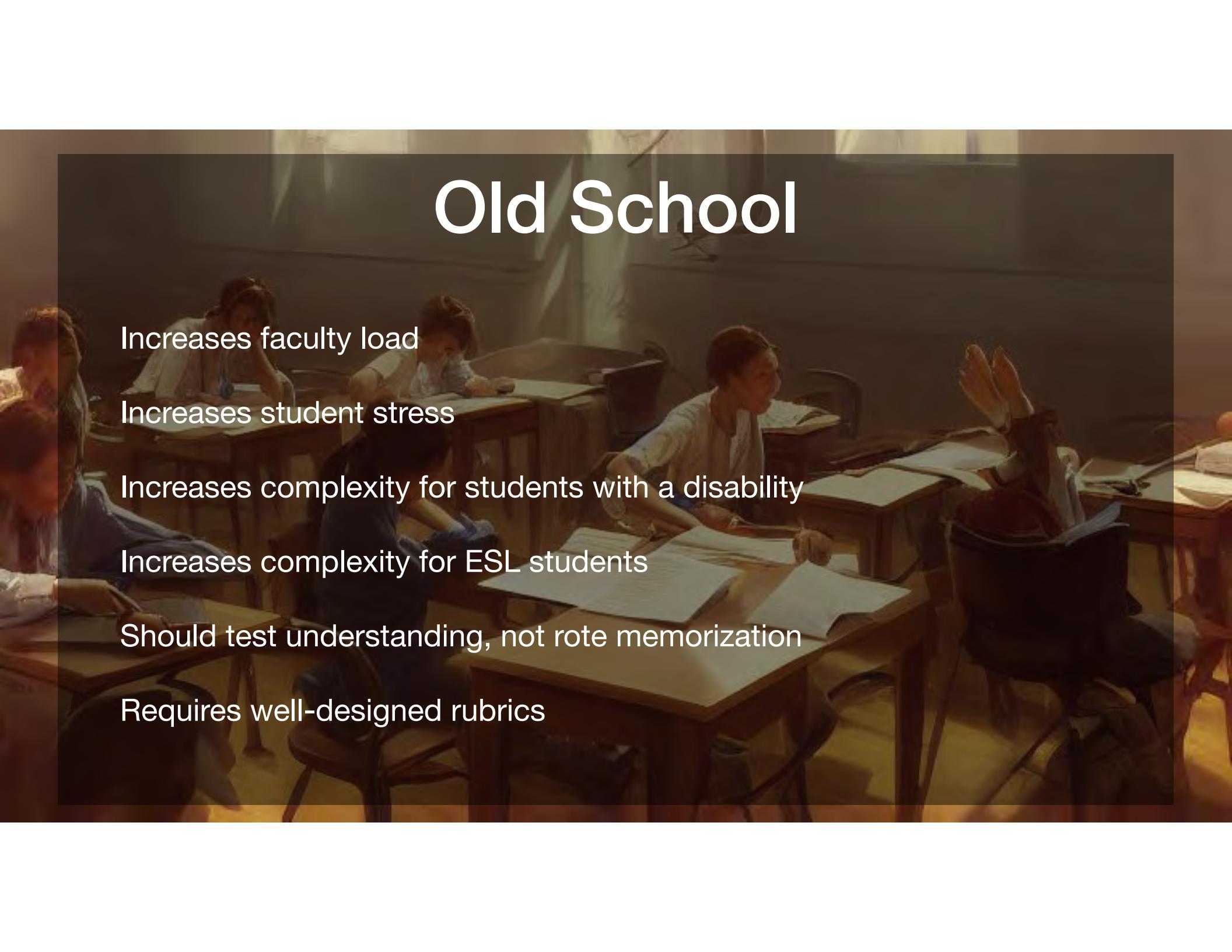
Difficult to detect use of AI

Streisand effect (unintended consequences)

AI increasingly embedded (MS Office, Grammerly, Search)

Educate students as to the value of the ban

You cannot win an arms race



Old School

Increases faculty load

Increases student stress

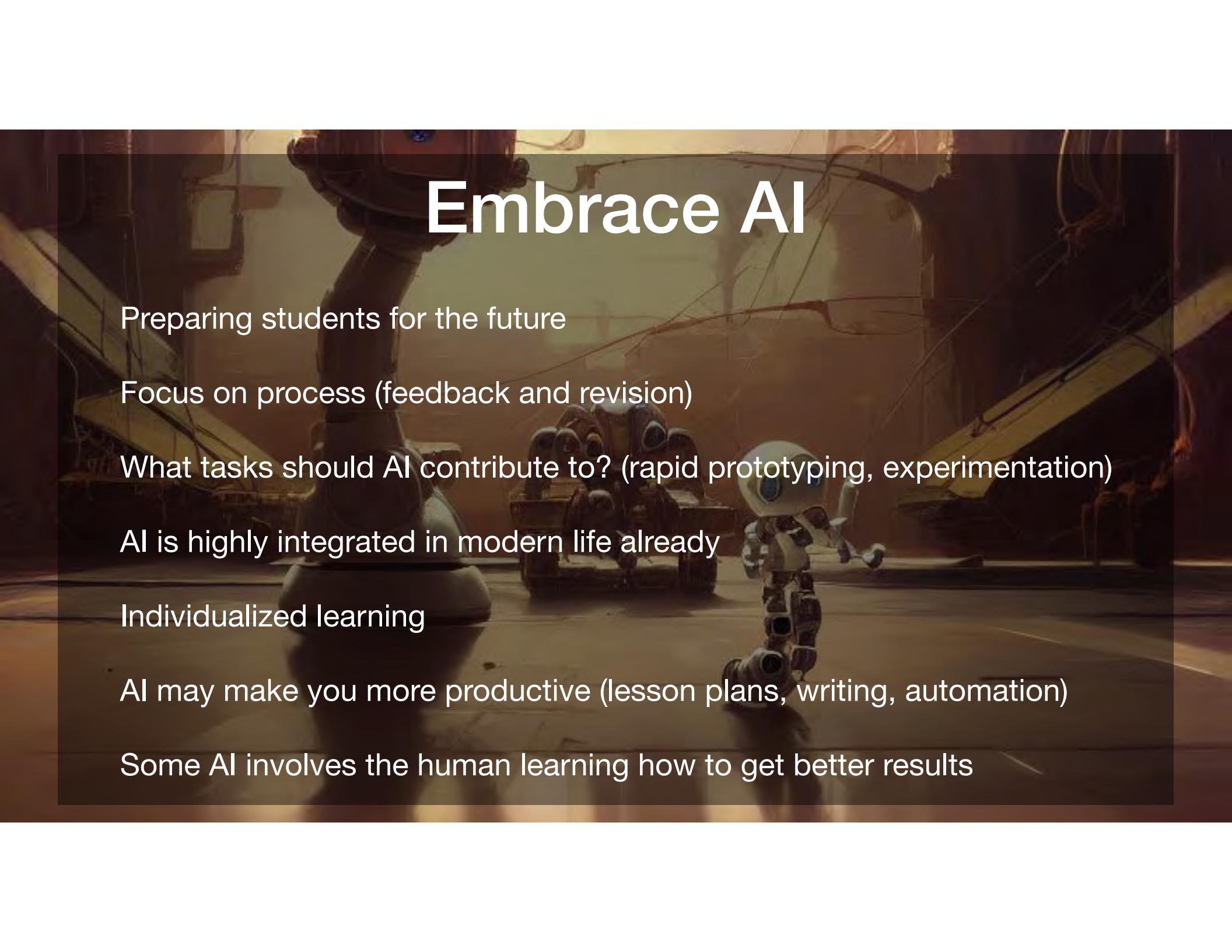
Increases complexity for students with a disability

Increases complexity for ESL students

Should test understanding, not rote memorization

Requires well-designed rubrics

Embrace AI



Preparing students for the future

Focus on process (feedback and revision)

What tasks should AI contribute to? (rapid prototyping, experimentation)

AI is highly integrated in modern life already

Individualized learning

AI may make you more productive (lesson plans, writing, automation)

Some AI involves the human learning how to get better results

Artificial Intelligence Resources

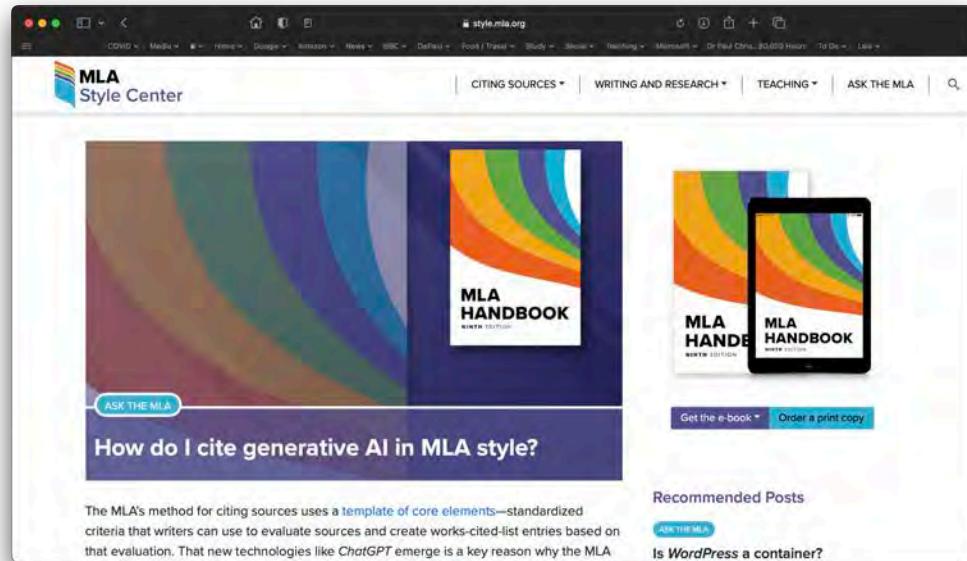
Academic Policies and Use In Teaching

- [AI Text Generators Sources to Stimulate Discussion among Teachers](#): Compiled by Anna Mills for the Writing Across the Curriculum Clearinghouse as part of a larger resource collection: AI and Teaching Writing: Starting Points for Inquiry. Licensed CC BY NC&ND.
- [Classroom Policies for AI Generative Tools](#): Resource created by Lance Eaton for the purposes of sharing and helping other instructors see the range of policies available by other educators to help in the development of their own for navigating AI-Generative Tools (such as ChatGPT, MidJourney, Dall-E, etc).
- [Course policies related to ChatGPT and other AI Tools: Curated by Joel Gladd, Ph.D.](#)
- Illinois State University: Center for Integrated Professional Development "AI-Generated Content in the Classroom: Considerations for Course Design."
- University of Calgary: Taylor Institute for Teaching and Learning "Teaching and Learning with Artificial Intelligence Apps."
- Washington University in St. Louis: [Center for Teaching and Learning recommendations on ChatGPT and AI Composition Tools](#).
- [Why All Our Classes Suddenly Became AI Classes Strategies for Teaching and Learning in a ChatGPT World](#): Harvard Business School Publishing article by Ethan Mollick and Lilach Mollick.



condor.depaul.edu/jmoore/tech/ai/

Citing Generative AI: MLA



style.mla.org/citing-generative-ai/

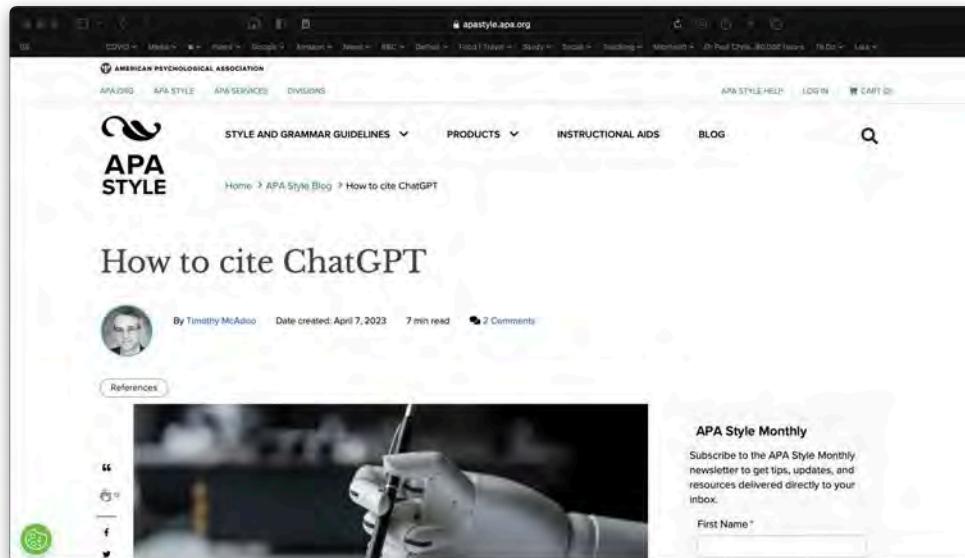
Nature of generative AI is transitory
(results are not repeatable or
retrievable)

MLA suggests that AI is not the
author

MLA suggests that verify
secondary sources

Advice is likely to change...

Citing Generative AI: APA



apastyle.apa.org/blog/how-to-cite-chatgpt

Still taking feedback on best practices

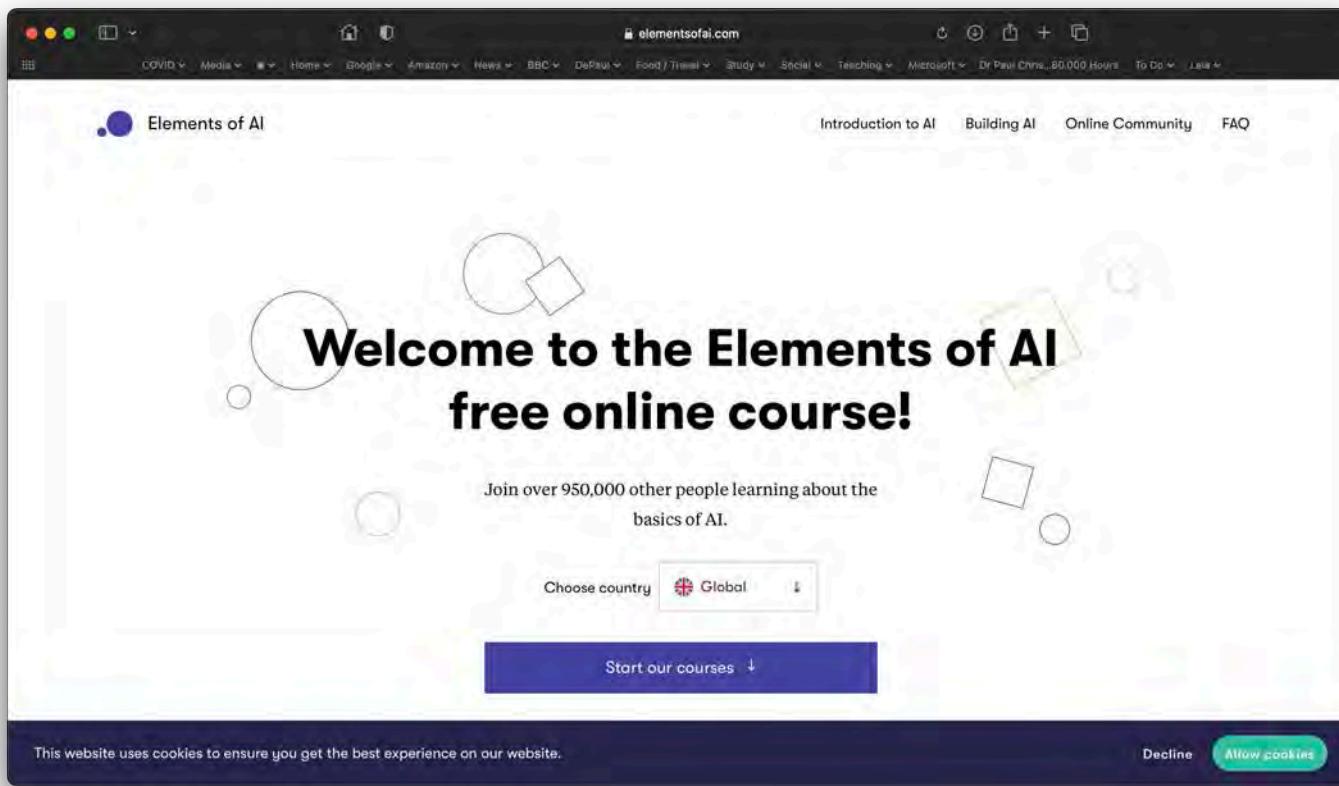
Guidelines will be posted later in 2023

Debate on whether the byline should be the organization behind the AI, the name of the tool, or the model

Conclusion: Takeaways

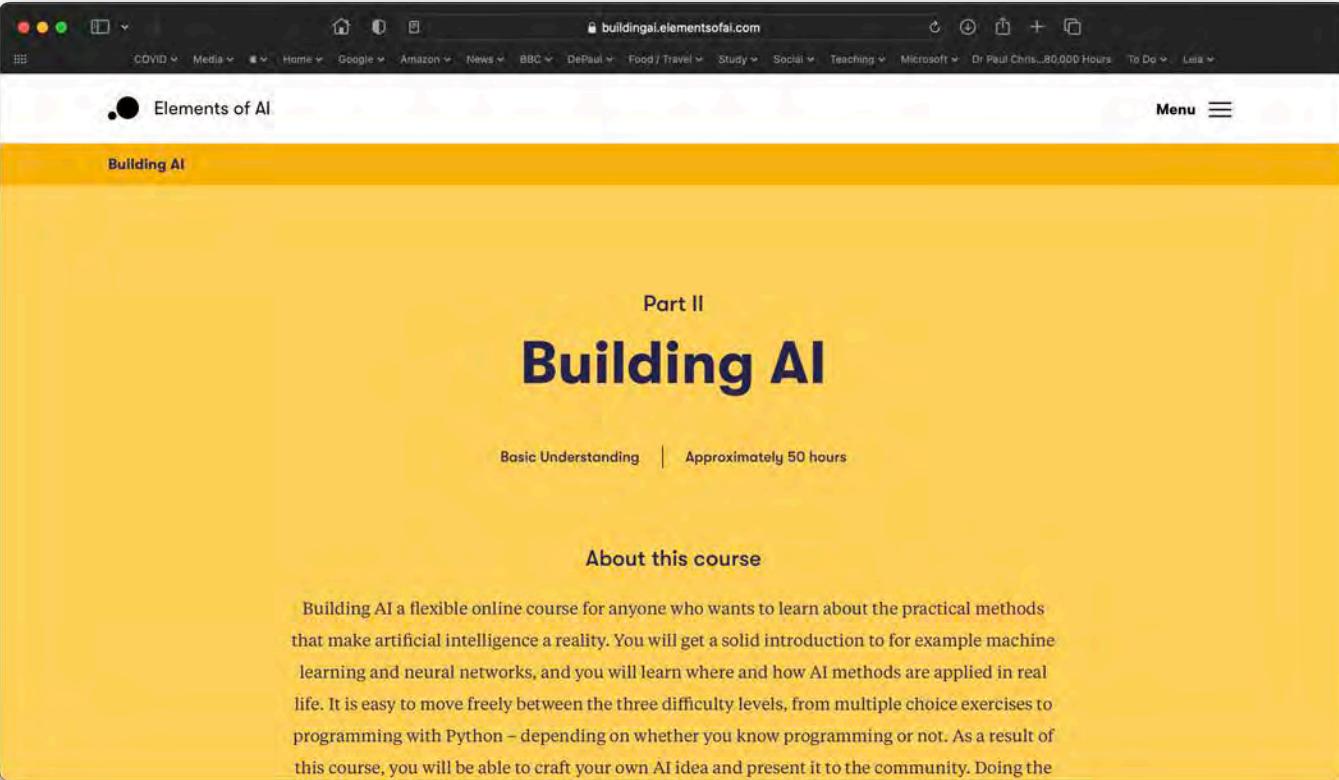


MOOC: Elements of AI



www.elementsofai.com

MOOC: Building AI



The screenshot shows a web browser displaying the course landing page for "Building AI" on the website buildingai.elementsofai.com. The page has a yellow background. At the top left is the Elements of AI logo and a "Menu" button. Below the header, the title "Building AI" is displayed in large blue text, followed by "Part II". Underneath the title, there are two small text blocks: "Basic Understanding" and "Approximately 50 hours". A section titled "About this course" contains a detailed description of the course's purpose and content. At the bottom of the page, the URL "buildingai.elementsofai.com" is repeated in a larger font.

Elements of AI

Menu

Building AI

Part II

Building AI

Basic Understanding | Approximately 50 hours

About this course

Building AI a flexible online course for anyone who wants to learn about the practical methods that make artificial intelligence a reality. You will get a solid introduction to for example machine learning and neural networks, and you will learn where and how AI methods are applied in real life. It is easy to move freely between the three difficulty levels, from multiple choice exercises to programming with Python – depending on whether you know programming or not. As a result of this course, you will be able to craft your own AI idea and present it to the community. Doing the

buildingai.elementsofai.com

Artificial Intelligence (AI) Resources

The screenshot shows a web browser window with the URL condor.depaul.edu/jmoore/tech/ai/ in the address bar. The page title is "Artificial Intelligence (AI) Resources". The main content area is titled "At DePaul University". It includes a sidebar with links to various AI-related topics and a main content section with sections for "Handouts", "AI Resources", and "Academic Policies and Use In Teaching".

Handouts

- [Generative AI Art Workshop](#) (March 28, 2023)
- [Responses to ChatGPT](#) (February 28, 2023)
- [How Artificial Intelligence \(AI\) Might Impact Your Job](#) (October 27, 2022)

AI Resources

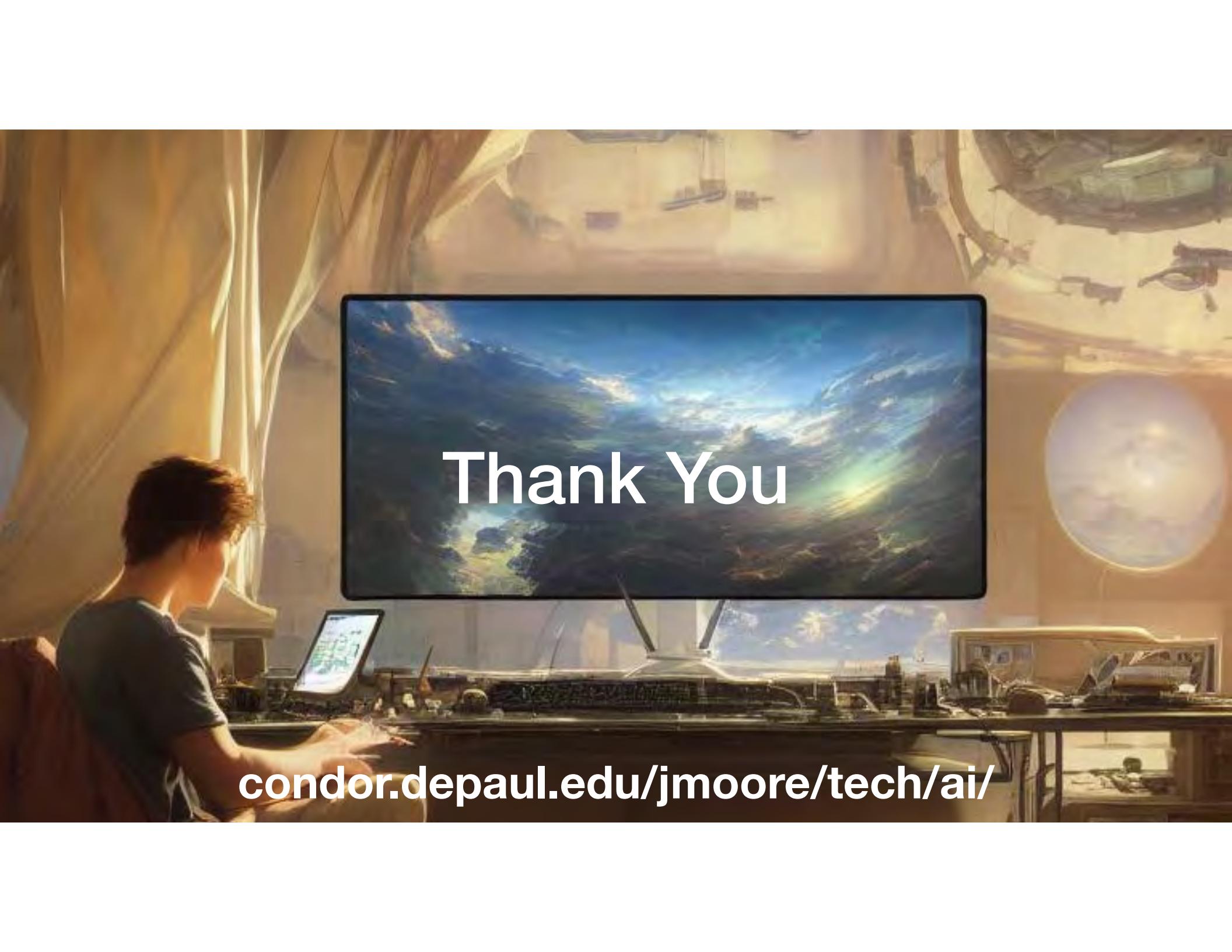
AI

- [Anthropic](#): AI safety and research company.
- [Futurepedia](#): A directory of AI tools.
- [Hugging Face](#): A community and data science platform that provides tools to enable users to build, train and deploy ML models based on open source (OS) code and technologies.
- [OpenAI](#): AI research and deployment company. Creator of GPT-3, DALL-E, Jukebox, and more.
- [Stability.ai](#): A company funding the development of open source image-generating systems ([Stable Diffusion](#)) and music-generating systems ([Dance Diffusion](#)).

Academic Policies and Use In Teaching

- [20 ways to use ChatGPT in the classroom](#): Tips from Matt Miller, author of "Ditch That Textbook".
- [AI Text Generators Sources to Stimulate Discussion among Teachers](#): Compiled by Anna Mills for the Writing Across the Curriculum Clearinghouse as part of a larger resource collection: [AI and Teaching Writing](#). Starling

condor.depaul.edu/jmoore/tech/ai/



Thank You

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