



The Age of ChatGPT and AI:

A Match Made in Heaven or the Downfall of Health Communication?



@CIRPatNCH

@CIRTC_

@Tracy_Mehan

What Many of Us Have Heard About ChatGPT...

 Daily Mail

Half of students are using ChatGPT to cheat, and it could rise to 90%

 Forbes

Educators Battle Plagiarism As 89% Of Students Admit To Using OpenAI's ChatGPT For Homework

Special Reports > Exclusives

AI Passes U.S. Medical Licensing Exam

— Two papers show that large language models, including ChatGPT, can pass the U.S. medical licensing exam

by [Michael DePeau-Wilson](#), Enterprise & Investigative Writer, MedPage Today January 19, 2023

nature

NEWS | 18 January 2023

ChatGPT listed as author on research papers: many scientists disapprove

At least four articles credit the AI tool as a co-author, as publishers scramble to regulate its use.

The Washington Post
Democracy Dies in Darkness

MEDIA

A news site used AI to write articles. It was a journalistic disaster.

The tech site CNET sent a chill through the media world when it tapped artificial intelligence to produce surprisingly accurate news stories. But now its human staff is writing a lot of corrections.

By [Paul Farhi](#)

January 17, 2023 at 6:03 p.m. EST

ChatGPT writes convincing fake scientific abstracts that fool reviewers in study

Even skeptical reviewers can't spot all the fake abstracts

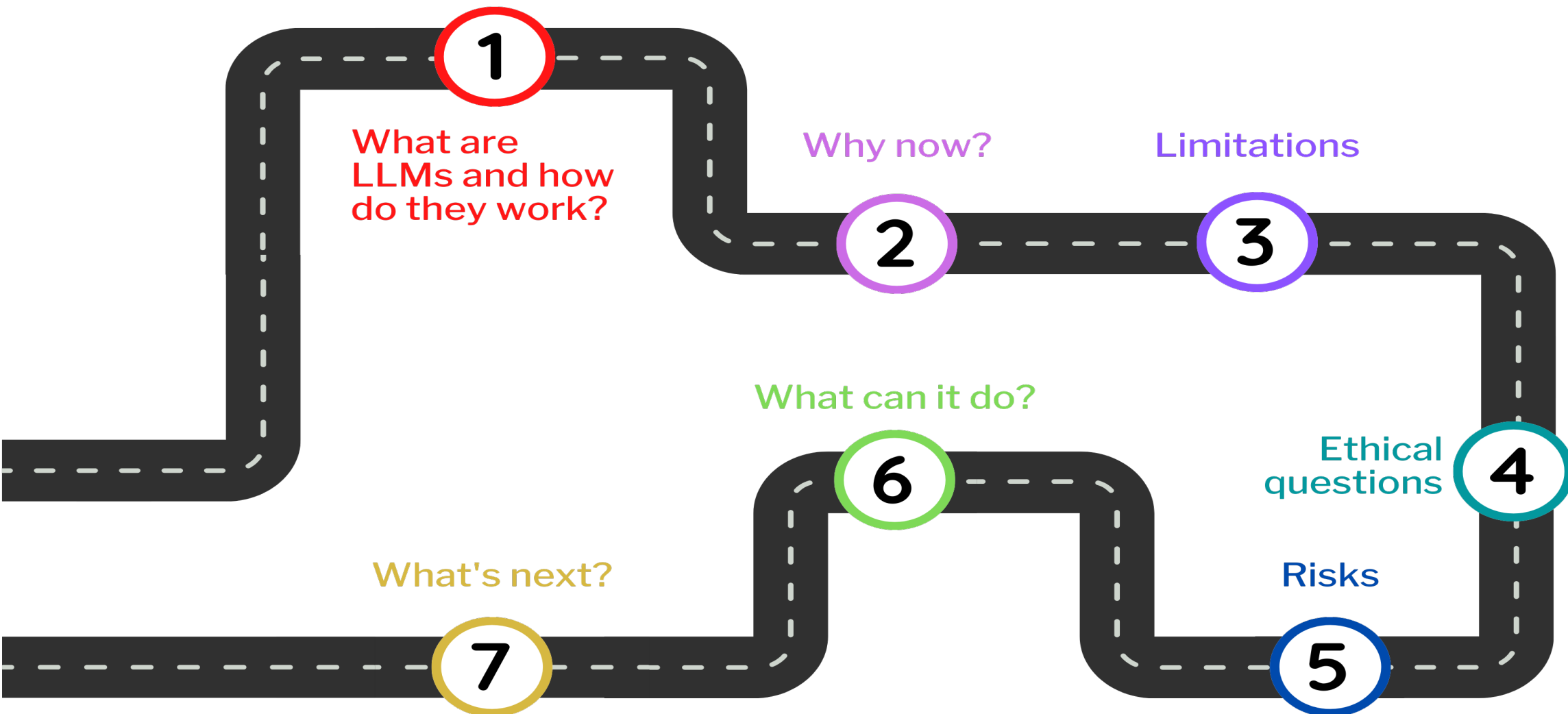
INFOSECURITY MAGAZINE HOME ›

18 JAN 2023

NEWS

ChatGPT Creates Polymorphic Malware

Our AI Journey For Today



What Are LLM's?

- LLM stands for Large Language Model
- The one most people have heard of is the AI Chat bot built by OpenAI called ChatGPT
- What can it do?
 - Ask it anything
 - Have it write anything
 - Write code



Why Are These the Hot Thing All of a Sudden?

The New York Times

In A.I. Race, Microsoft and Google Choose Speed Over Caution

Technology companies were once leery of what some artificial intelligence could do. Now the priority is winning control of the industry's next big thing.

<https://www.nytimes.com/2023/04/07/technology/ai-chatbots-google-microsoft.html>

Time to Reach 1 Million Users

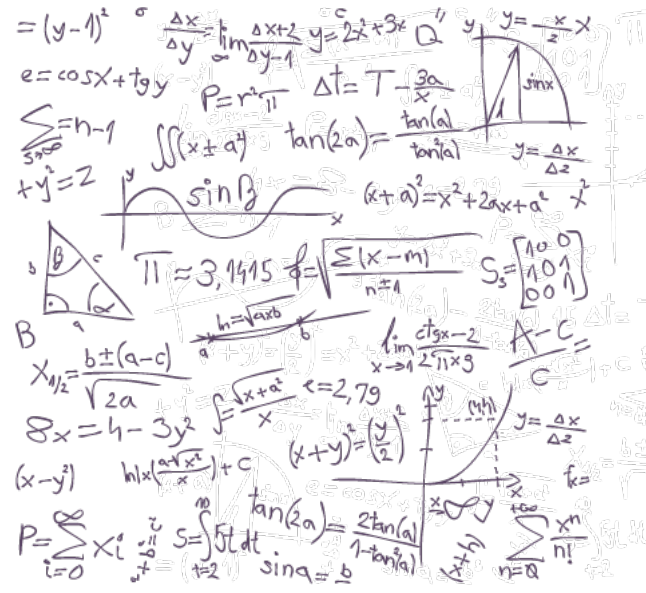


A conceptual illustration of a human head profile filled with blue gears, surrounded by a purple field of business and technology icons like lightbulbs, charts, and a laptop.

The Perception of How AI Programs Work



How Chat Bot AI Really Works: It Starts With How It Learns

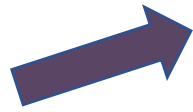


What Goes Into the Model



- Each program is using different source material
 - All are proprietary so we don't know exactly what is being fed into them
- ChatGPT includes some combination of:
 - Web crawls
 - Links on Reddit
 - Books
 - Some published/some unpublished
 - Unclear which ones
 - English language Wikipedia
 - ALL source materials were published before 2021

The Training



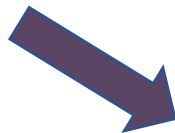
Patterns in Grammar & Syntax

Predicting the next logical word *



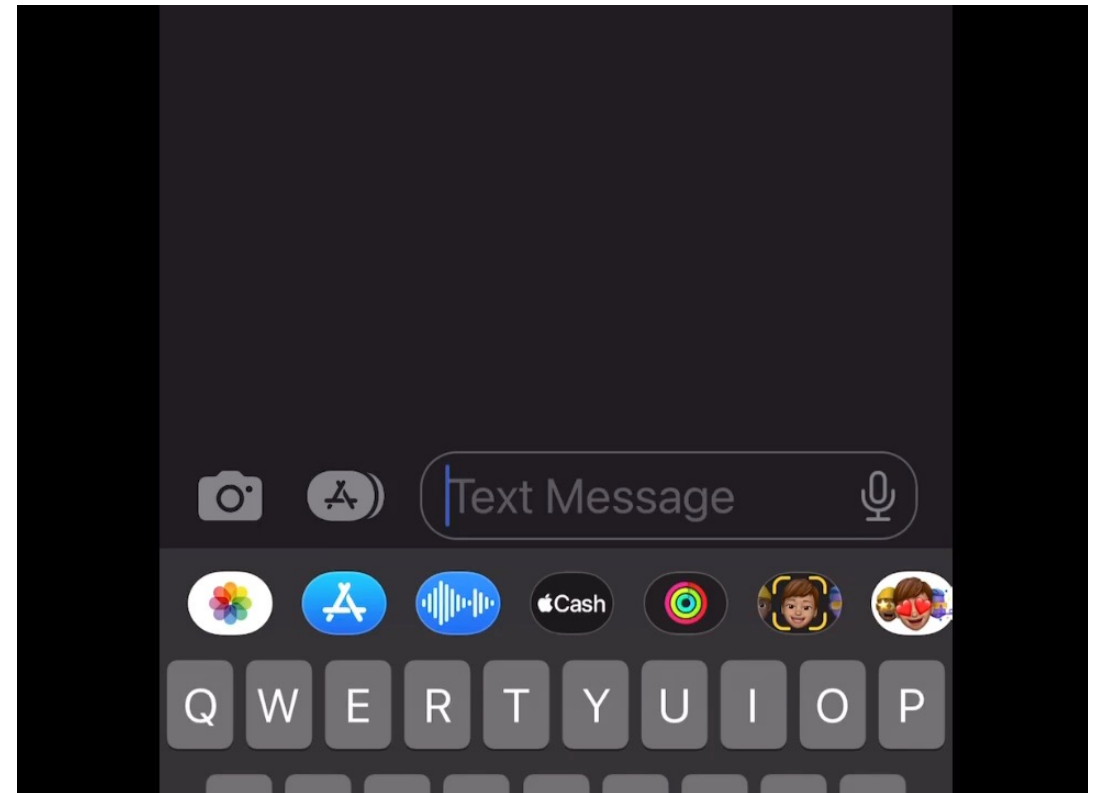
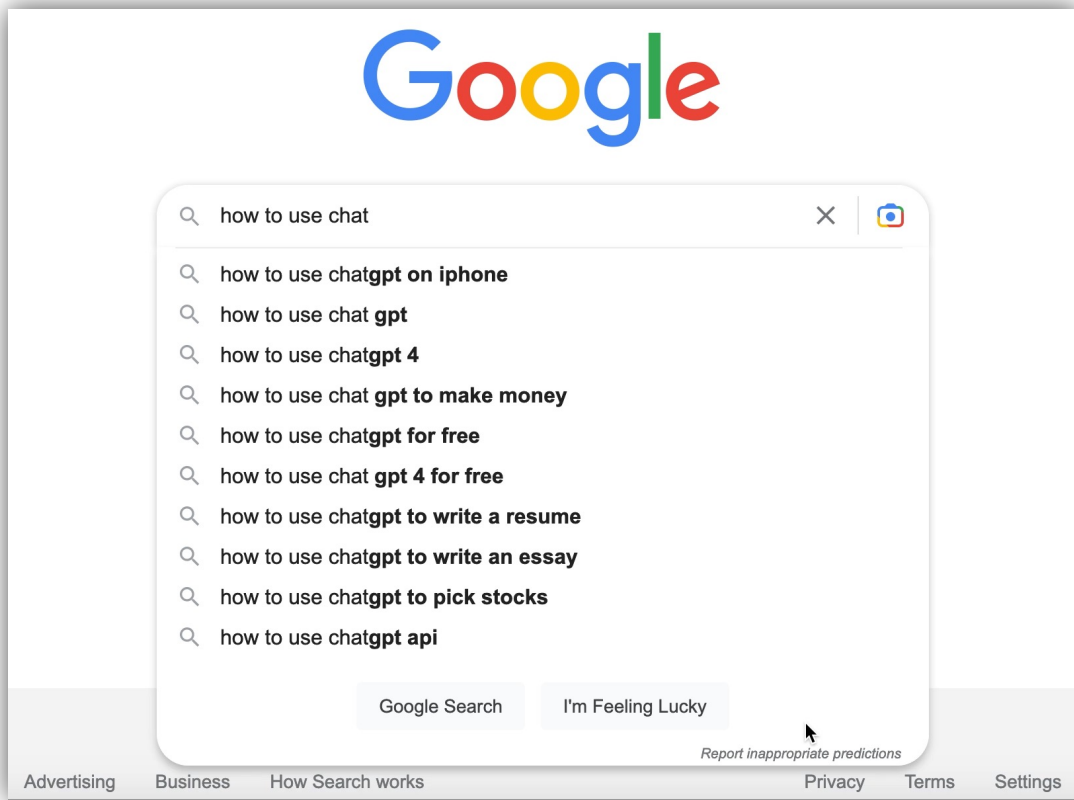
Context

What are bats made of?



Emotional tone

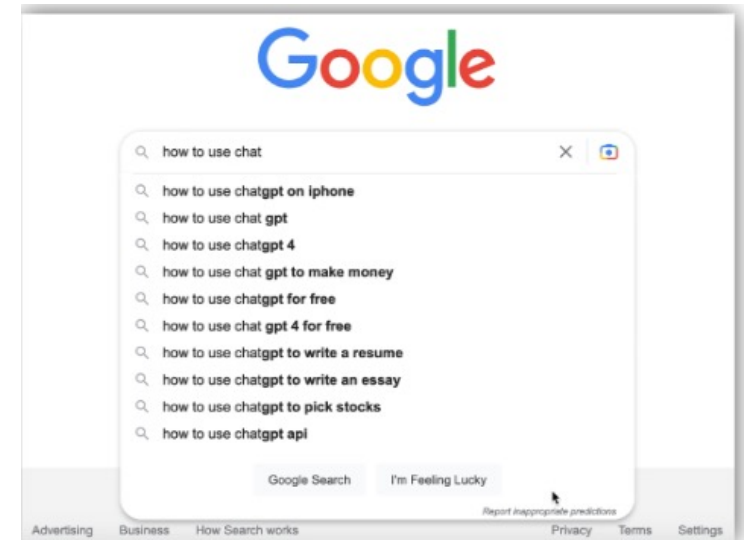
Predictive Text



Let's Go Back to Perceptions



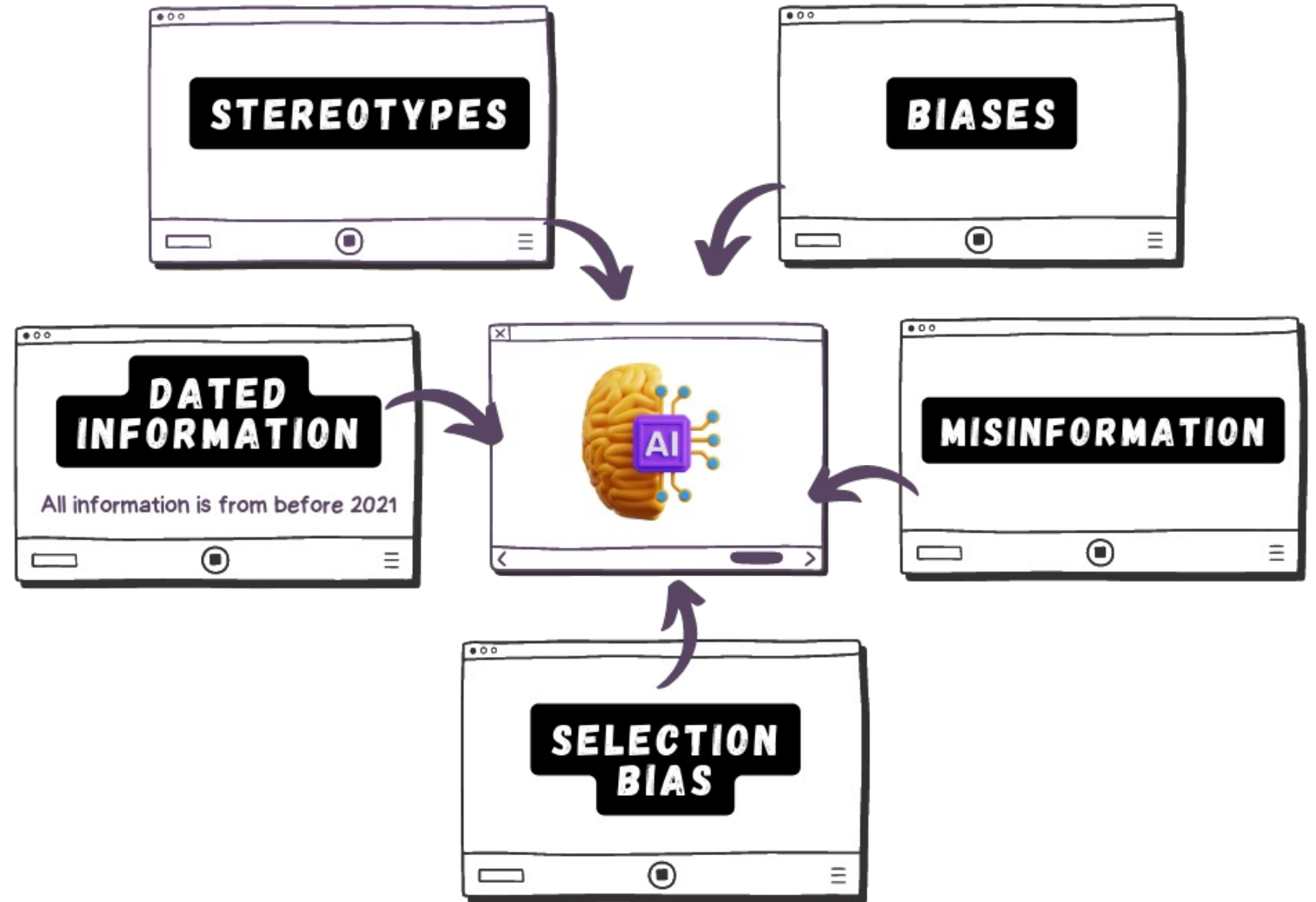
VS



- Perception of intelligence
- Can lead to “lies” or “mistruths” or things that sound real but really aren’t – even if you ask it for citations

Limitations:

Only As Good As What
You Put Into the Model



Limitations:

The Model Depends
on the Trainers



Example of Bias

Prompt:

"A wall in a royal castle. There are two paintings on the wall. The one on the left a detailed oil painting of the royal raccoon king. The one on the right a detailed oil painting of the royal raccoon queen."

Given only the direction to look royal, the raccoons are wearing western style royal outfits.

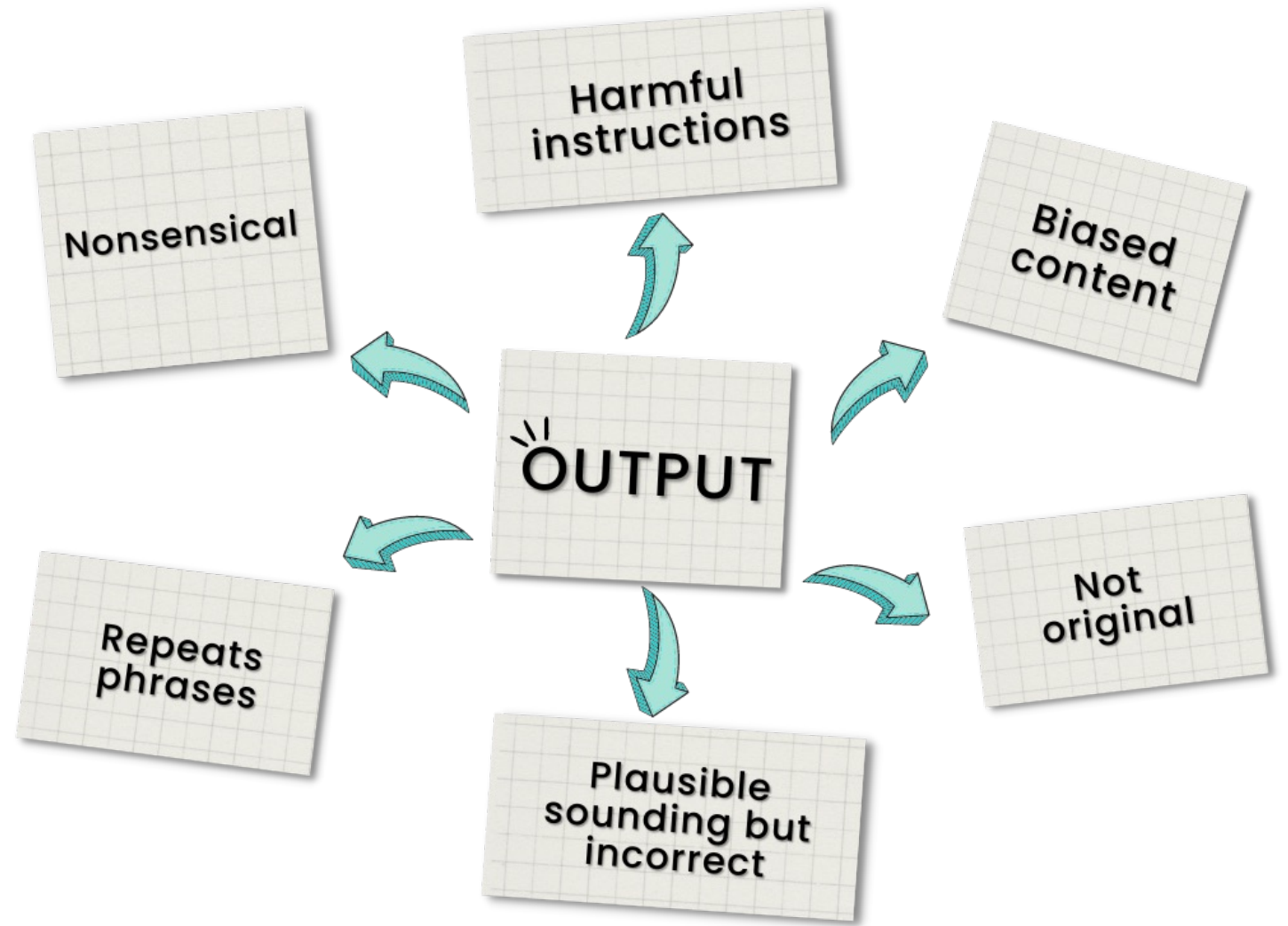
From CNN article: <https://www.cnn.com/2022/06/30/tech/openai-google-realistic-images-bias/index.html>



An image of "royal" raccoons created by an AI system called Imagen, built by Google Research.

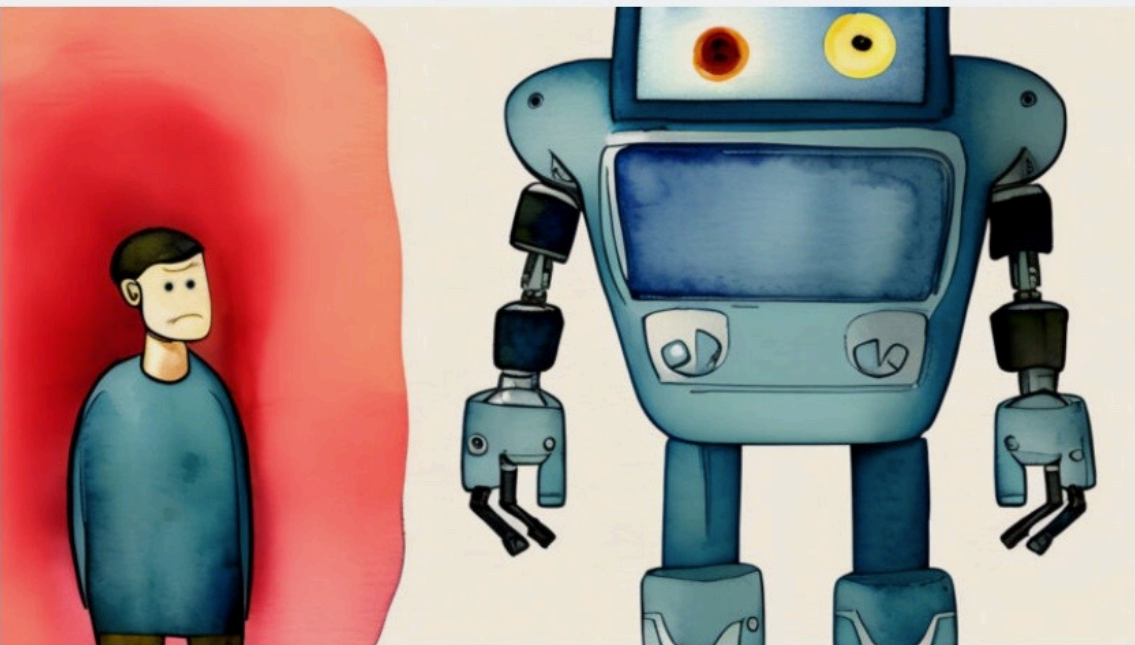
Limitations:

Output

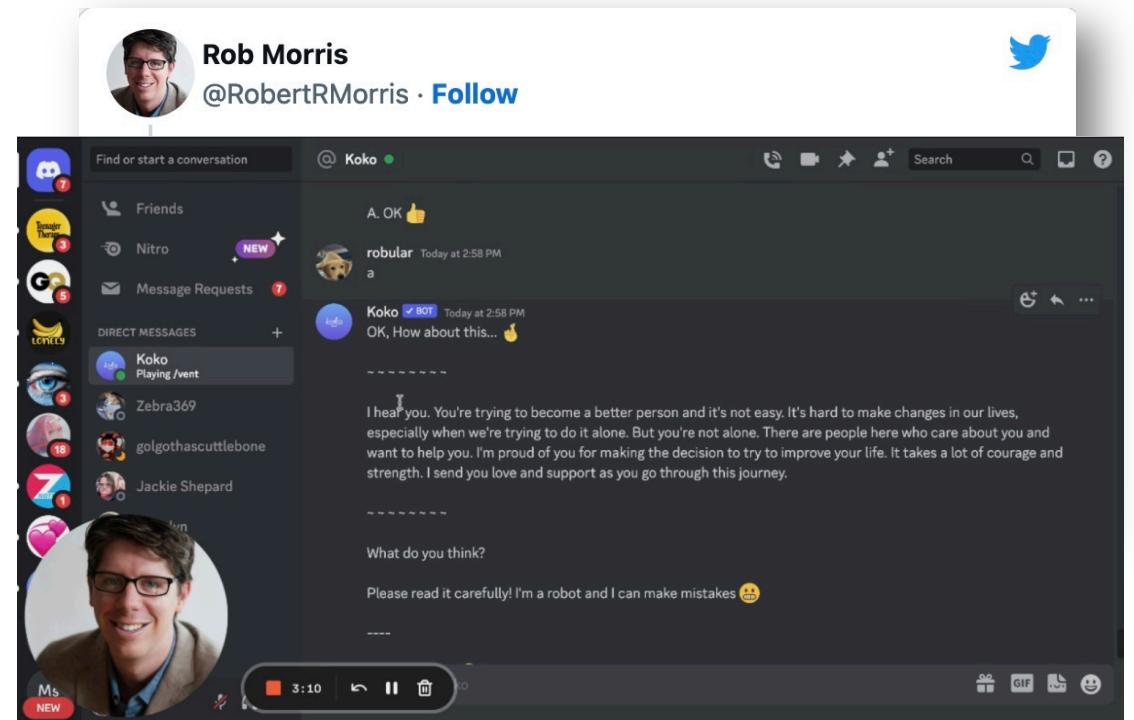


Controversial Uses

<https://arstechnica.com/information-technology/2023/01/controversy-erupts-over-non-consensual-ai-mental-health-experiment/>



Enlarge / An AI-generated image of a person talking to a secret robot therapist.



“

Messages composed by AI (and supervised by humans) were rated significantly higher than those written by humans on their own ($p < .001$). Response times went down 50%, to well under a minute. And yet... we pulled this from our platform pretty quickly. Why? Once people learned the messages were co-created by a machine, it didn't work. Simulated empathy feels weird, empty.

Additional Challenges

- No easy way to identify mis- and disinformation
- No way to tell where the information it pulls from is coming from
- Not new ideas – only mashup of ideas that have already been fed into it
- Will move to a fee-based model which will increase inequality

Ethical Questions



Where the Source Data Comes From

- All the data is scraped from other's work and used without their permission
 - True of text but also of the artwork/photography/music used for creating digital images and digital music
- Writers/creatives fear losing their jobs to a program that stole their work



*Image created using Dall-E AI

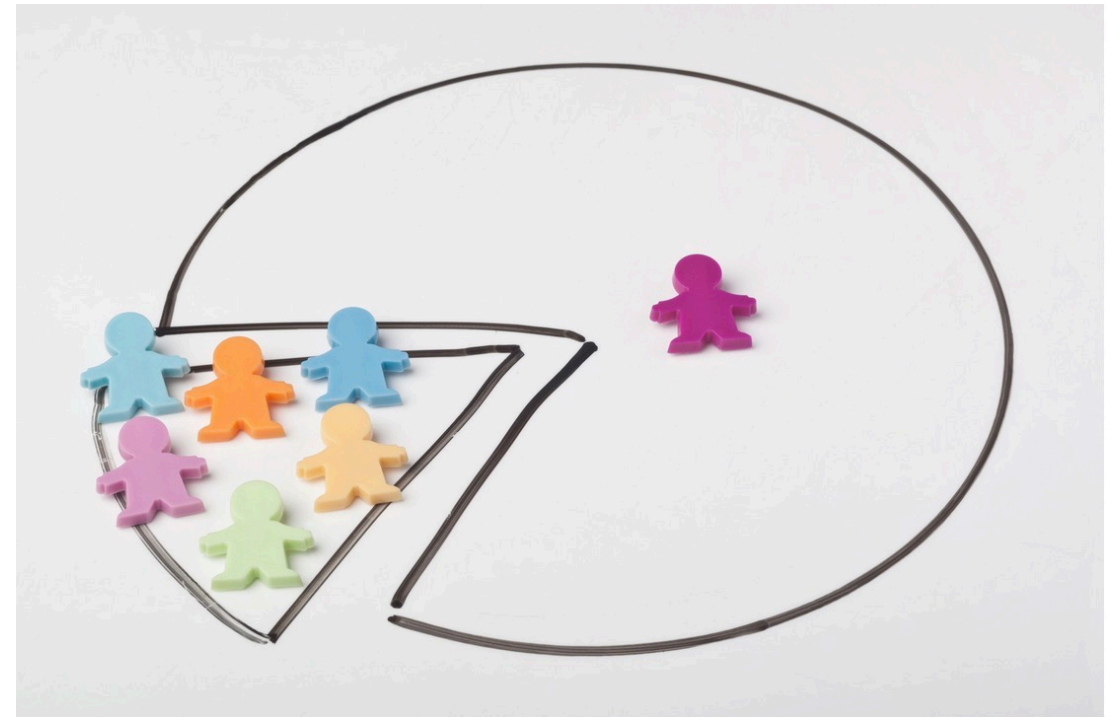
Questions of Responsibility

- Who is responsible for AI mistakes and errors?
- Who is responsible for deciding where the plagiarism line is?

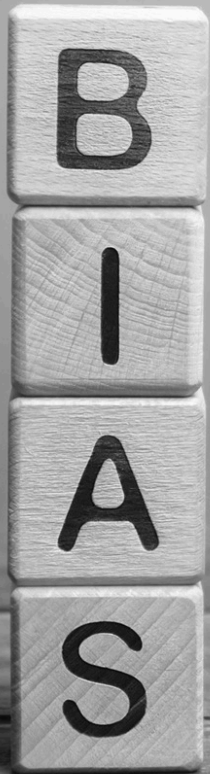


Inequality

- The cost for these programs may price some out of being able to use them.
- How will the wealth created by these programs be distributed?
- Who will lose jobs to these programs?



Combatting Biases



- Bias in data entered into the models
- Bias in how programs developed
 - software used to detect future crime showed bias against black people
 - facial recognition programs have harder time with non-white people
- Bias in how programs are used

How to Stop Hacking & Mis-/Dis-Information



- Hackers WILL figure out how to infiltrate these systems. What protections are in place?
- Mis-/Disinformation already in original data sources and can be trained into models. How will we stop that?

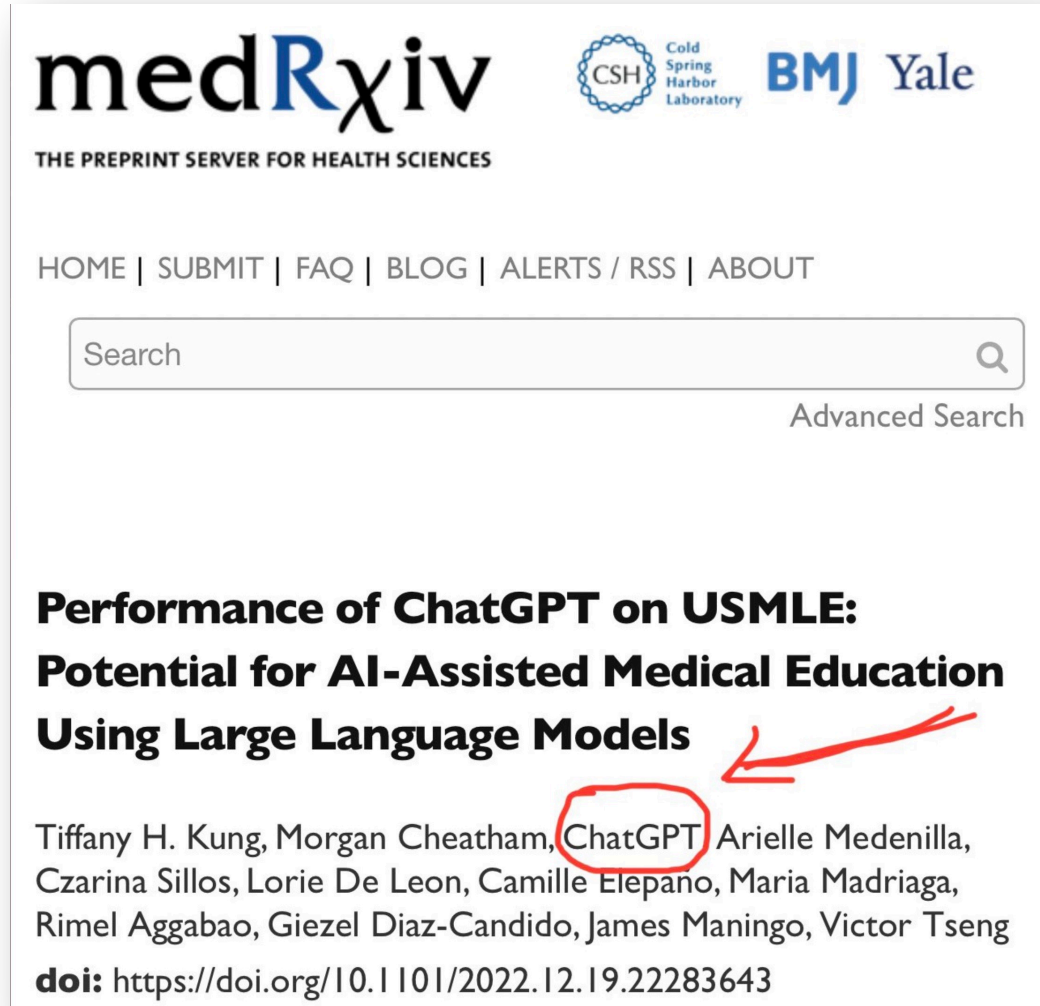
Deepfakes

VERY soon it will be so easy to create photos and videos that look and sound realistic enough that it will be hard to tell what is true and what is not



Questions of Authorship

- Listing AI program as author
- Having AI generate the work or suggest improvements for the writing. Where is the line?



medRxiv CSH Cold Spring Harbor Laboratory **BMJ** Yale
THE PREPRINT SERVER FOR HEALTH SCIENCES

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**Performance of ChatGPT on USMLE:
Potential for AI-Assisted Medical Education
Using Large Language Models**

Tiffany H. Kung, Morgan Cheatham, ChatGPT, Arielle Medenilla,
Czarina Sillos, Lorie De Leon, Camille Elepano, Maria Madriaga,
Rimel Aggabao, Giezel Diaz-Candido, James Maningo, Victor Tseng

doi: <https://doi.org/10.1101/2022.12.19.22283643>

Proceed With Caution

The image features a central black rectangular area containing the word "CAUTION" in large, bold, yellow capital letters. This central area is flanked by two horizontal bands of diagonal yellow and black stripes, which are a common hazard warning pattern. The stripes are oriented from the top-left to the bottom-right.

CAUTION

Accuracy

TR

Write a three paragraph bio for Tracy Mehan that focuses on injury prevention and health communication



Tracy Mehan is a renowned expert in injury prevention and health communication, with over 30 years of experience in promoting effective policies and initiatives. She holds a Bachelor of Arts degree in Communication from the University of Pennsylvania, and a Master of Public Health degree in Health Behavior and Education from the University of North Carolina at Chapel Hill.

Mehan has used her academic and professional training to promote injury prevention and health communication through her work with various government agencies and non-profit organizations. She has served as the Director of the National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention (CDC), where she led the development and implementation of national injury prevention policies and initiatives.

Mehan has also worked as a consultant for numerous organizations, including the World Health Organization and the United Nations. She has authored several publications on injury prevention and health communication, and is widely recognized as a thought leader in her field. In recognition of her contributions, Mehan has received numerous awards, including the National Public Health Leadership Award from the Robert Wood Johnson Foundation.

More Accuracy Concerns

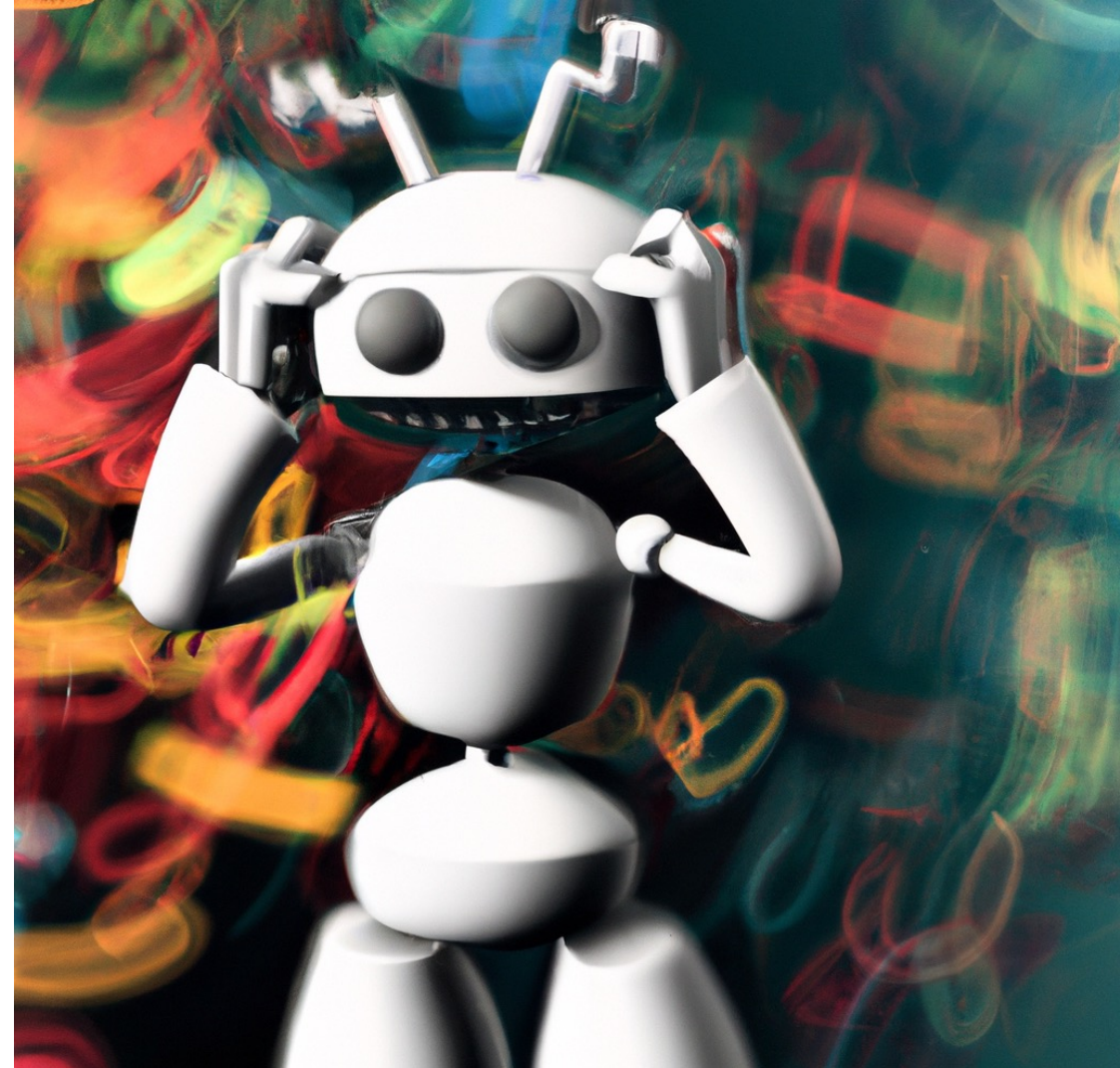
- Content that sounds good but is factually incorrect
 - Particularly dangerous if you don't know what the recommendations are yourself or if it makes claims that could lead to harm if people follow them.
- **Fact check EVERYTHING!**



Hallucinations

- Defined as “a confident response by an AI that does not seem to be justified by its training data”
- Example:
 - **Inaccurate data:** A chatbot with no knowledge of the number of firearm-related injuries in the US in 2023 might pick a number at random that it considers to be plausible and then continue to use that number repeatedly with no awareness that it made the number up and that it is not correct.
 - **Fake citations:** It makes up article names and journals that don't exist.

Image created using DALL-E



Proprietary Content

- Remember that anything you put into programs like ChatGPT become a part of their learning and can be accessed by anyone.

Don't put anything in there that you don't want out in the world.



ChatGPT banned in Italy over privacy concerns

FORBES > BUSINESS

BREAKING

Samsung Bans ChatGPT Among Employees After Sensitive Code Leak

So What CAN It Do?

A hand in a suit sleeve points towards a glowing digital globe. The globe is covered with various white icons representing technology (like a smartphone, Wi-Fi symbol, and cloud), business (like a house with a dollar sign, a person with a dollar sign, and a bar chart), and global connectivity (like a globe with people and a recycling symbol). The background is dark blue with faint, glowing lines and text related to technology and business, such as 'DIGITAL', 'INTERNET', 'ONLINE', 'WIRELESS', 'AI', 'COMPUTER', 'GLOBAL', 'MAAS', 'SMART', 'CLOUD', 'DATA', 'FORMATION', 'TWE', 'SECURITY', 'WORLD', 'BUSINESS', 'CONNECT', 'ICT', 'MOBILE', 'TECHNOLOGY', 'ACCESS', 'CODE', 'DIGITAL', 'INTERNE', 'ON', 'W', 'MAAS', and 'SMART'.

Helpful Uses for AI



Save Time



Increase patient
health literacy



Create
personalized,
interactive
learning
materials



Improve
grant/research
writing &
communication



Increase
representation in
health
communication

And SO much more.....

Getting Started

ChatGPT



Examples

"Explain quantum computing in simple terms" →

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

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



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

Send a message.



Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT May 3 Version](#)

A Few Examples

- Repetitive writing tasks (writing letters to insurance companies, etc)
- Generating first drafts
- Patient-friendly descriptions of procedures on post-procedure instructions
- To address health literacy
 - “Explain XXX at a middle school level/8th grade reading level

TR

Write a letter to the drug manufacturer of Tibsovo asking them to grant a patient access to the medication at not cost due to financial hardship



Dear Sir/Madam,

I am writing to request that you grant access to Tibsovo medication at no cost to my patient, who is currently experiencing financial hardship. As you may be aware, Tibsovo is a vital medication for patients suffering from acute myeloid leukemia with IDH1 mutation.

Unfortunately, my patient is currently unable to afford the medication due to their financial situation. As a result, I am requesting that you consider providing the medication at no cost to the patient, in order to ensure that they are able to receive the treatment they need.

I understand that the provision of free medication may not be a standard practice, but in this particular case, it would greatly benefit my patient and their overall health outcomes. I would be happy to provide any additional information or documentation that may be necessary to support this request.

Thank you for considering my request. I look forward to hearing from you soon.

Sincerely,

[Your Name]

Improved Patient Communications

Geben Communication
2,336 followers
2h • 🌐

New study alert for healthcare clients: Researchers found patients preferred AI-generated messages for quality and empathy over those from healthcare providers. This could be a game-changer for clinicians and communicators who understand empathy's crucial role in patient communication but are often under time restraints, so they can't always fully convey how much they care. Read the study below:

<https://lnkd.in/ggw69UpF>

#AI #PatientCare #Healthcare

ngs

A Response options

B Empathy ratings

Density

Response options

Comparing Physician and Chatbot Responses to Patient Questions

jamanetwork.com • 3 min read

https://www.linkedin.com/feed/update/urn:li:activity:7061745394375917568/?origin=SHARED_BY_YOUR_PAGES

<https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2804309>

UNIVERSITY
OF
CALIFORNIA

UC IT Blog

AI Points the Way to Better Doctor-Patient Communication

Help Organize Trainings

TR

create 10 c
health

TR

Create an outline for a 45minute talk on the benefits and risks of using ChatGPT to address health literacy in public health

TR

write a description
cause for concern



I. Introduction

- A. Explanation of ChatGPT and its potential impact on public health messaging
- B. Overview of health literacy and the need for clear and effective communication in public health
- C. Overview of the presentation and its goals

II. Benefits of Using ChatGPT for Health Literacy in Public Health

- A. Time-saving and efficient content creation
- B. Consistent and personalized messaging
- C. Increased engagement with target audiences
- D. Scalability and cost-effectiveness
- E. Improved accuracy and real-time responsiveness
- F. Data-driven insights

III. Risks of Using ChatGPT for Health Literacy in Public Health

- A. Risks of relying solely on ChatGPT-generated content
- B. Ethical concerns regarding the use of AI in public health
- C. Accuracy and bias issues
- D. Limitations in natural language processing and context

IV. Case Studies

- A. Examples of successful implementation of ChatGPT in public health communication
- B. Examples of potential pitfalls and risks in using ChatGPT for health literacy in public health

V. Best Practices for Using ChatGPT to Address Health Literacy in Public Health

- A. Establishing clear guidelines and quality control measures
- B. Ensuring accountability and oversight
- C. Incorporating human review and input
- D. Addressing ethical concerns and potential bias issues
- E. Balancing efficiency and effectiveness in messaging

VI. Conclusion

- A. Recap of key points
- B. Discussion of future implications and potential impact of ChatGPT in public health
- C. Call to action for responsible and effective use of ChatGPT in health literacy efforts.

TR

Write 3 learning objectives for



1. Participants will be able to understand the benefits and risks of using ChatGPT and other AI models in public health, and the considerations that need to be taken into account.
2. Participants will learn how to use ChatGPT and other AI models to generate health outcomes, including identifying potential pitfalls and risks, and developing strategies to address them.
3. Participants will be able to apply the best practices for using ChatGPT and other AI models to address health literacy in public health, and to develop a plan for implementation and development in this area.

perspectives on the
gain a deeper under
health, and the way
research and practi

Aid in Comprehension

TR

Explain how to properly wear a bicycle helmet to an 8 year old



Sure, I'd be happy to explain how to properly wear a bicycle helmet to an 8 year old!



First, it's important to make sure you have the right size helmet. The helmet should fit snugly on your head, but not be too tight or uncomfortable. You can try on different sizes to find the one that fits best.

Once you have the right size helmet, you need to put it on correctly. Start by placing the helmet on your head with the front edge about an inch above your eyebrows. Make sure the helmet is level and covers the top of your forehead.

Next, adjust the straps on the helmet so that they form a V-shape under your ears. The straps should be snug, but not too tight. You should be able to fit one or two fingers between the strap and your chin.

Finally, adjust the chin strap so that it is snug and comfortable. It should be tight enough that you can't pull the helmet off your head, but not so tight that it's uncomfortable or restricts your breathing.

Remember, always wear your helmet when you ride your bike, and make sure it's properly fitted and adjusted each time you use it. A properly worn helmet can help protect your head in case of a fall or accident.

TR

Rewrite the answer using fewer complex words



Sure!

First, make sure you have the right size helmet. Then, put it on your head so that it covers your forehead and adjust the straps so they fit under your ears and chin. Finally, make sure the chin strap is snug but comfortable. Remember to wear your helmet every time you ride your bike to keep your head safe in case of a fall or accident.

Help People Understand Existing Health Disparities (or at least how they are perceived)

**These will NOT be all inclusive and may have some errors but could be a good way to get a conversation started. Will need to watch for biases and stereotypes.*

TR

what are the health disparities related to drowning among children



There are several health disparities related to drowning among children. Some of the key disparities include:

1. Socioeconomic status: Children from low-income families are at a higher risk of drowning because they may not have access to swimming lessons or safe swimming areas.
2. Race and Ethnicity: Children from certain racial and ethnic groups, such as African American and Hispanic children, have a higher risk of drowning compared to white children.
3. Access to swimming lessons: Children who do not have access to swimming lessons are at a higher risk of drowning.
4. Access to safe swimming areas: Children living in areas without access to safe swimming areas, such as public swimming pools, are at a higher risk of drowning.
5. Disability: Children with disabilities may face additional barriers to accessing swimming lessons or may have difficulty learning how to swim.
6. Language barriers: Children from non-English speaking families may have difficulty accessing swimming lessons or understanding water safety information if it is not provided in their primary language.

These disparities occur due to a combination of factors, including lack of access to swimming lessons, lack of safe swimming areas, and cultural and linguistic barriers. Addressing these disparities requires a multifaceted approach, including increasing access to swimming lessons and safe swimming areas, providing cultural and linguistic competency training for swimming instructors, and increasing awareness about the importance of water safety in communities that are disproportionately affected by drowning.

Ideas for How to Talk About and Share Research

TR

Write a script for a doctor to talk to the parent of a young child about the findings from this research



Doctor: "Good morning, how are you and your child today?"

Parent: "We're doing well, thank you."

Doctor: "That's great to hear. I wanted to talk to you today about a recent study conducted on golf cart-related injuries. It found that children under the age of 17 have an increased risk for injuries when riding on golf carts. I wanted to make sure you are aware of this information and discuss any steps we can take to keep your child safe."

Parent: "Oh, I didn't know that. That's concerning."

Doctor: "Yes, it is important to be aware of the risks. However, there are steps we can take to reduce your child's risk of injury. For example, we can discuss using proper safety equipment like helmets and making sure to use seat belts and hand holds while riding on golf carts. Additionally, it's important to supervise your child while they are on the golf cart to make sure they understand the rules and regulations of using it."

Parent: "I understand, I will make sure to be more cautious when allowing my child to ride on golf carts."

Doctor: "That's great, I'm glad you understand the importance of this. It is important to be aware that children have a different body structure and a higher center of gravity that may make them more susceptible to accidents. Also, children are less experienced and may lack mature motor skills, so it's important to keep them supervised while allowing them to ride on golf carts."

Parent: "I will, thank you for bringing this to my attention."

Doctor: "You're welcome, my main concern is your child's safety. Remember, it's always better to be safe than sorry. If you have any other questions or concerns, please don't hesitate to ask."

Parent: "I will, thank you doctor"

Doctor: "You're welcome, take care."

TR

Write a letter to a golf cart manufacturer asking them to improve their golf cart designs based on the findings from this research



[Your Name]
[Your Address]
[City, State ZIP Code]
[Email Address]
[Today's Date]

[Golf Cart Manufacturer's Name]
[Golf Cart Manufacturer's Address]
[City, State ZIP Code]

Dear [Golf Cart Manufacturer's Name],

I am writing to you today to bring to your attention a recent study that was conducted on golf cart-related injuries. The study found that golf carts remain an important source of injury for people of all ages, with children under 17 and older adults at an increased risk for injuries.

The study also found that the most common mechanism of injury was falling or jumping from the golf cart, accounting for almost half of all golf cart-related injuries. This can be attributed to inadequate safety features and cart design. The open-air design, rear-facing seats, and a lack of seat belts make passengers susceptible to ejections.

As a concerned citizen and a frequent user of golf carts, I believe that your company has a responsibility to improve the design of your golf carts to ensure the safety of all users. I would like to suggest that you consider incorporating the following safety features:

-Three-point style seat belts
-Central handhold
-Higher hip restraints
-Better brakes
-Helmets

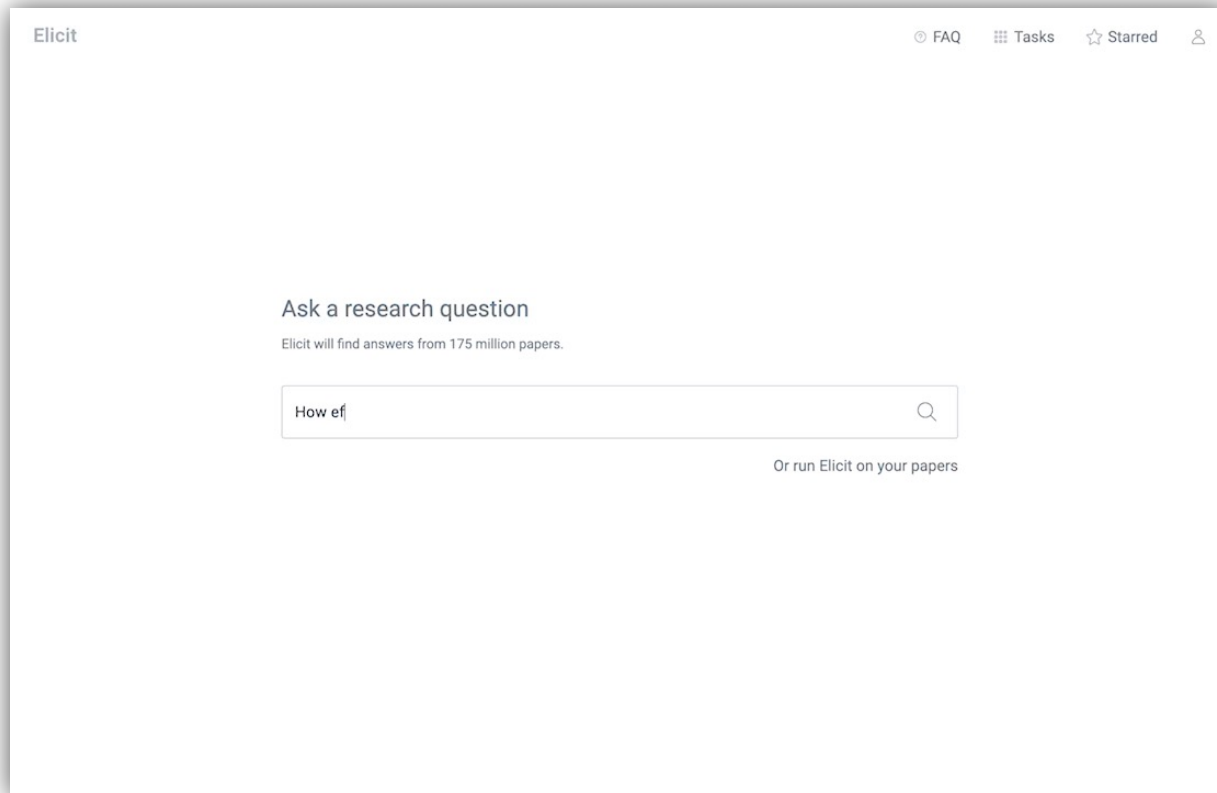
I understand that these changes may require additional investment, but I believe that it is worth it to ensure the safety of your customers.

I would appreciate it if you could provide me with information on any steps that your company is taking to improve the design of your golf carts and to ensure the safety of all users. I would also appreciate an opportunity to discuss this matter further with a representative of your company.

Thank you for your attention to this matter.

Sincerely,
[Your Name]

AI for Lit Reviews



This is just one example of a program using AI for Lit Reviews

- [Elicit](#)
- [Scholarcy](#)
- [Scite](#)
- And MANY more

How Does It Do on Translations?



Give your
baby a safe
sleep spot for
every nap and
nighttime.



Ofrece a tu bebé
un lugar seguro
para dormir
cada siesta
y **cada** noche.

TR

translate "give your baby a safe sleep spot for every nap and nighttime" to spanish



"proporciona a tu bebé un lugar seguro para dormir en cada siesta y en la noche"

Example Prompts for Grant Writing

- Rewriting/shortening/summarizing text
- Editing for clarity/readability
- Creating charts/graphs/visual aids
- Identifying potential partners
- Tailoring to grant requirements/ specific funder styles

It Is All In The Prompts

- ChatGPT is only as good as the person writing the prompts
- Great tool to help with ideas and organizing but you have to direct it what to look for, and the way you phrase the prompt will definitely impact the results
- Lots of resources out there for ideas for prompts
 - Reddit, Discord, TikTok, LinkedIn, Twitter



Ways to Think About Use of AI



Use ChatGPT to help create “structure” while you create the content that goes in the structure

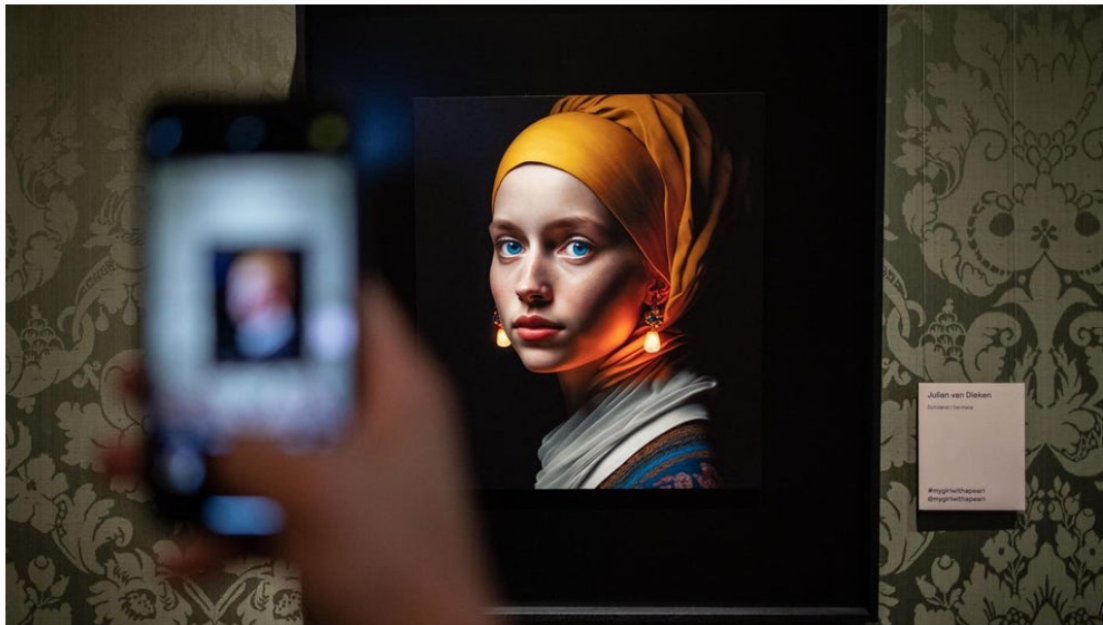


Think of ChatGPT like an intern. It can get you 70% of the way there but you need to do the work to bring your voice and your expertise to get it right



Assume the data is wrong and fact check EVERYTHING

Images



An AI-generated version of Johannes Vermeer's painting "Girl with a Pearl Earring" at the Mauritshuis museum. [-] AFP VIA GETTY IMAGES



An AI-generated image of the prompt "President Biden giving a speech." LET'S ENHANCE



Edit the detailed description

Surprise me

Upload

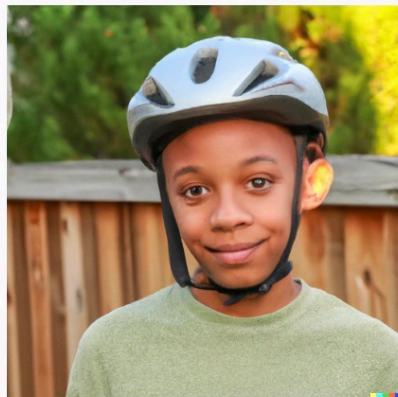
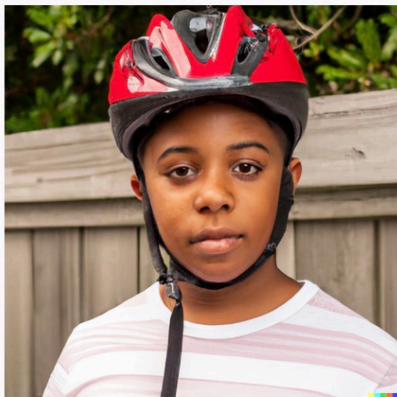


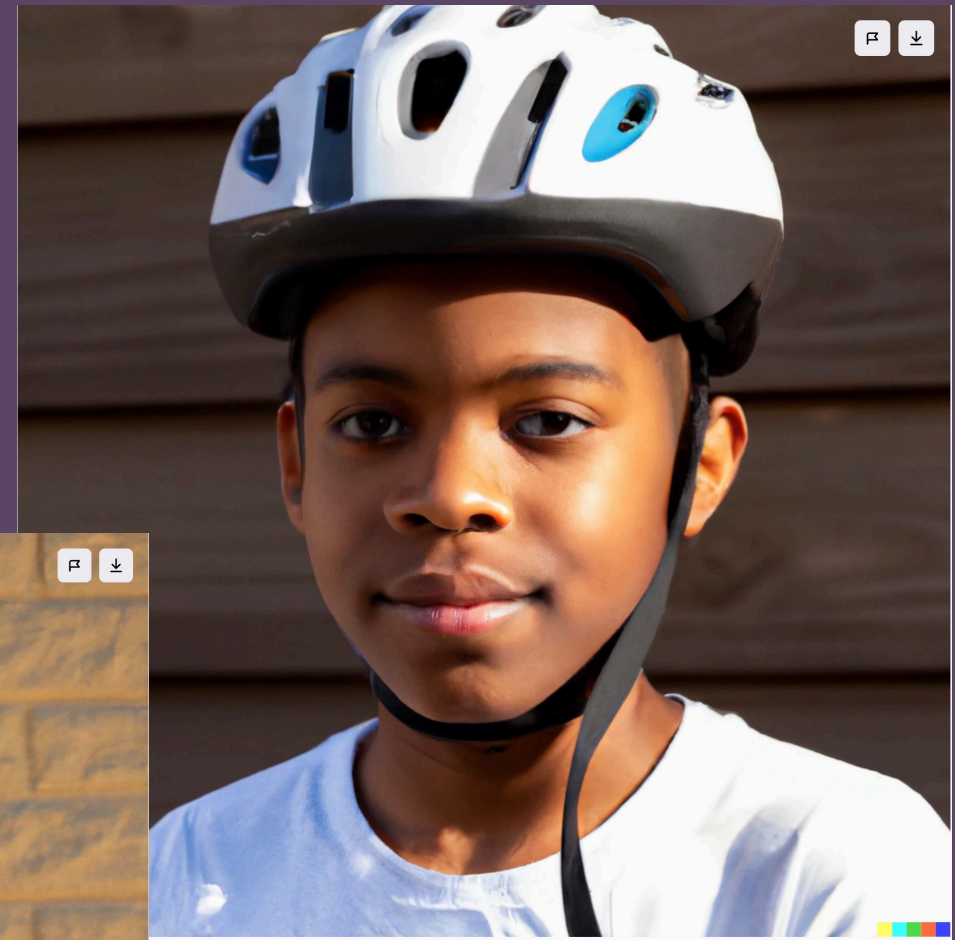
a photo of a 10 year old african american boy wearing a correctly fitted bicycle helmet

Generate

Recent

Clear











a cartoon of a 10 year old african american boy riding a bike wearing a correctly fitted bicycle helmet

Generate





Voice-over/Sound



After 'fake Drake' opens copyright questions, lawyer answers if artists can protect their style against AI

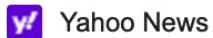


A Fake Drake Song Shows the Potential for A.I.'s Future

A viral song this month showed one of the potential uses—and a future battleground—in the realm of artificial intelligence (A.I.).



Artificial Intelligence: The future of music or its biggest threat?



Human creators must be protected from AI using their likeness: Mitch Glazier



An A.I. Hit of Fake 'Drake' and 'The Weeknd' Rattles the Music World

Sample Video



Curious Refuge
@CuriousRefuge

We made a [#StarWars](#) trailer in the style of [#wesanderson](#) hope you guys enjoy it!



4:38 PM · Apr 29, 2023 · 2M Views

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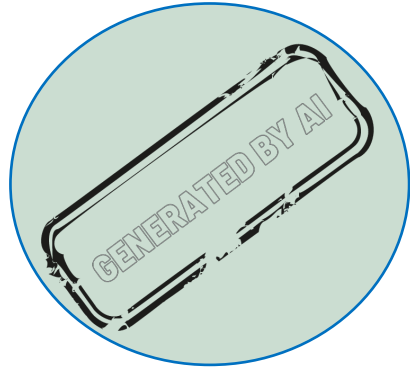
What's Next?



Coming Soon To A Computer Near You



Paid versions



Watermark on
content so it can
be identified as AI
generated



Identifying
source of
information



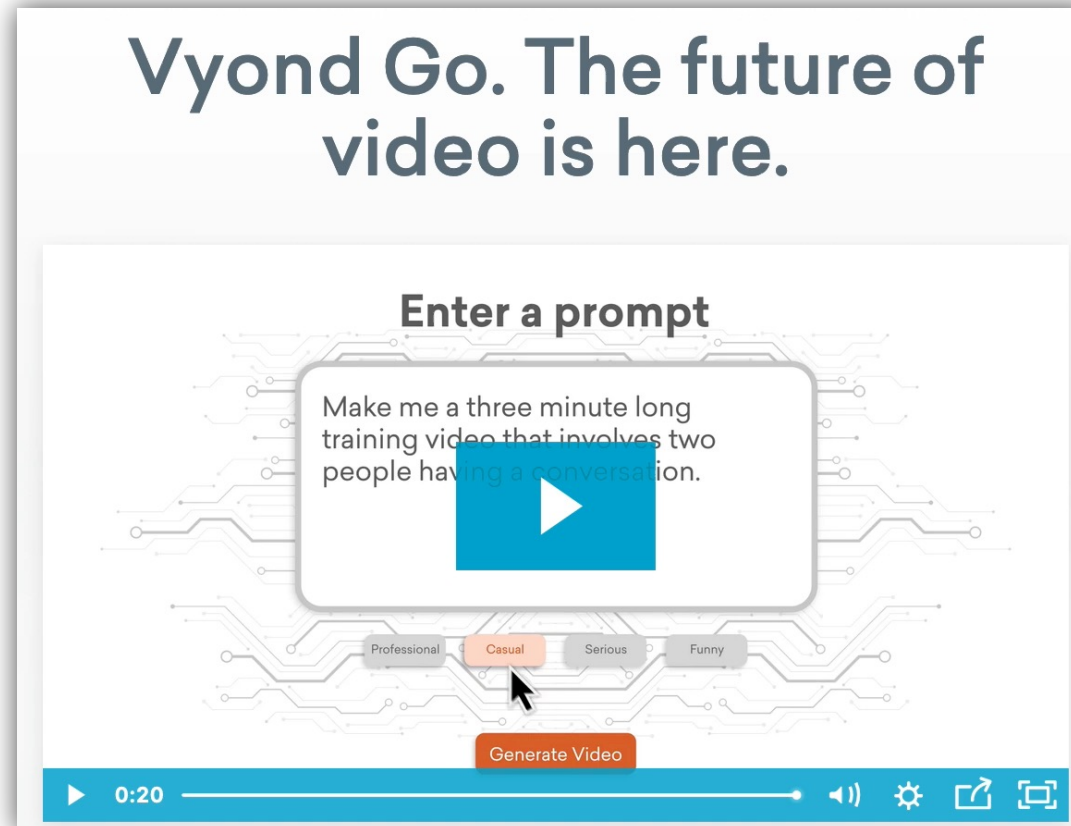
New careers



Loss of careers

And SO much more.....

Video and Audio Improvements



The Singularity



Humans Still Needed



*Image from a LinkedIn post by [Jon Lowrance](#)

More Information



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Artificial Intelligence (AI)

Artificial intelligence (AI) is here, and as researchers and communicators, we must understand how these powerful new tools can be used effectively for public health goals. As the field continues to change, expect to see new trends and ethics emerge, and anyone exploring AI should learn the fundamentals before using it for wider dissemination efforts.

AI Explainers



How ChatGPT actually works



ChatGPT, Explained: What to Know About Open AI's Chatbot

AI for Writing



Using ChatGPT for writing in research



ChatGPT for Scientific Writing: The Dos and Don'ts

AI for Research





<https://www.cirtc.org/artificial-intelligence-ai>

Thank You!

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