



Image created using Canva AI image generator

Looking at AI Through a Health Literacy Lens:

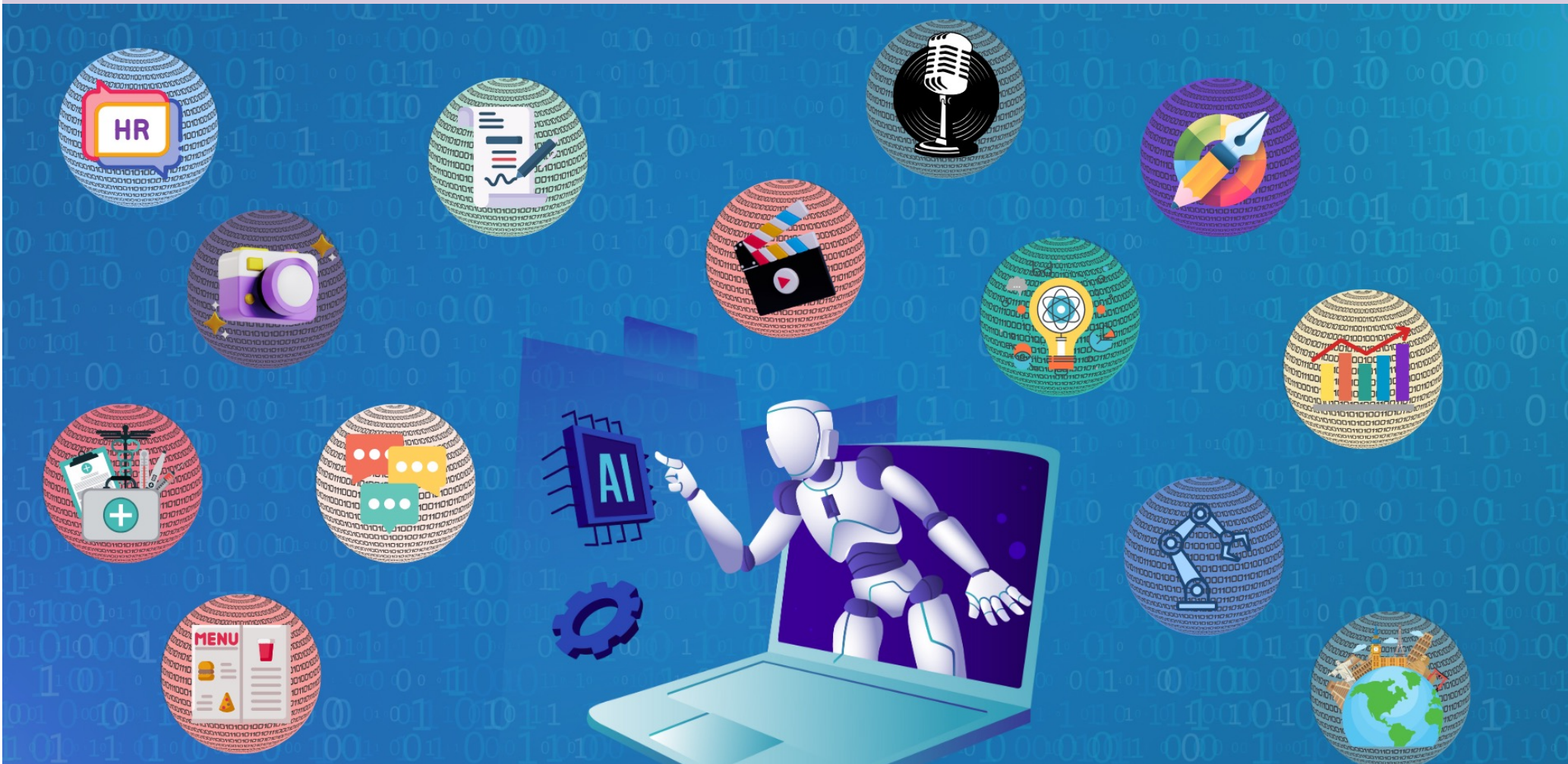
Developing Policies and Supporting Innovation



@CIRPatNCH
@CIRTC_
@Tracy_Mehan



AI Landscape



Our AI Journey For Today



What Many of Us First Heard About AI...

 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

Time to Reach 1 Million Users



AI in the News

MEDPAGETODAY*

Special Reports > Exclusives

AI Passes U.S. Medical Licensing Exam

— Two papers show that large language models, including ChatGPT, can pass the U

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.

INFOSECURITY MAGAZINE HOME ›

18 JAN 2023 NEWS

ChatGPT Creates Polymorphic Malware

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 acid 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

LARRY NEUMEISTER, AP, JUNE 22, 2023

U.S. NEWS

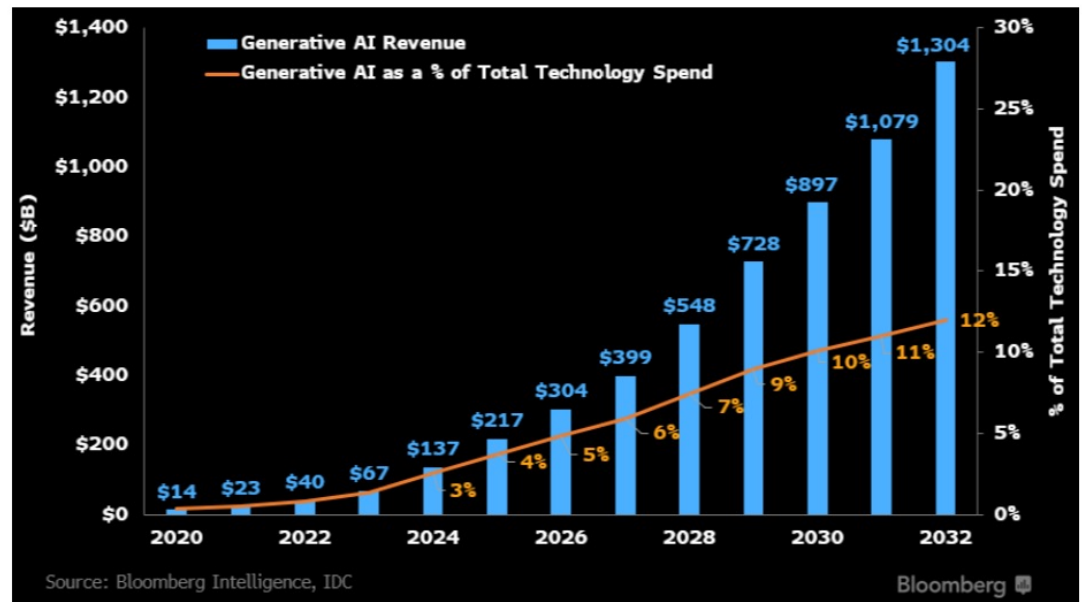
Lawyers submitted bogus case law created by ChatGPT. A judge fined them \$5,000

Explosive Growth

Thousands of AI tools are coming on the market daily.

<https://contentatscale.ai/how-many-ai-tools-are-there/>

Bloomberg projects AI market will be worth \$1.3 trillion by 2032



<https://www.bloomberg.com/company/press/generative-ai-to-become-a-1-3-trillion-market-by-2032-research-finds/>

It Has Even Entered Pop Culture

A recent episode of Chicago Med had a story line about what can go wrong when a hospital uses an AI program designed to detect opiate abuse

Spoiler Alert: It misidentifies a patient with a rare type of lung cancer as an opioid abuser



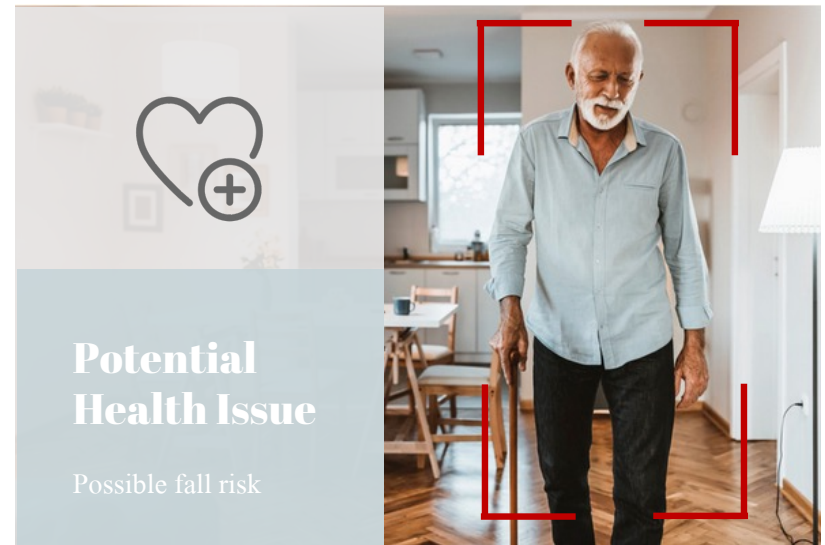
Big Ideas for AI

Driverless Ambulances

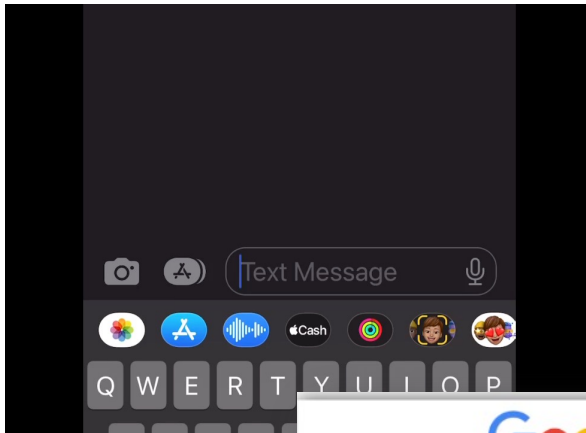


<https://www.sunrise-vw.com/will-volkswagen-have-a-self-driving-ambulance-ready-by-2025/>

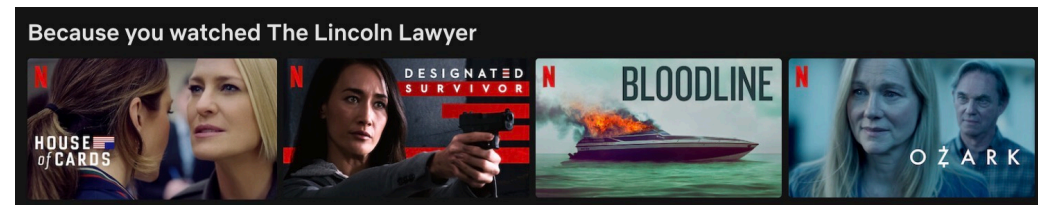
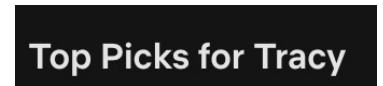
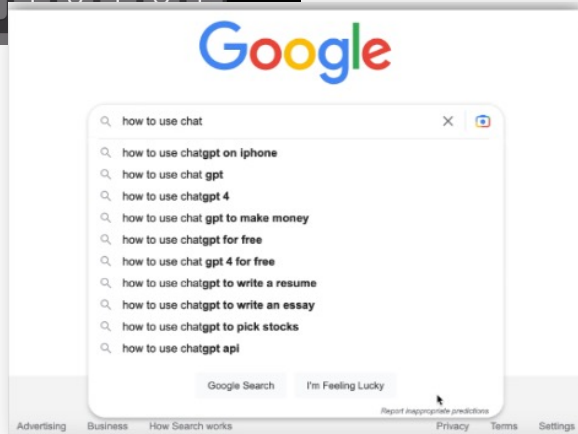
AI Tech Where You Live



AI in Your Everyday Life



You might be looking for
Gift ideas inspired by your shopping history
Items chosen for you
More items to explore
You might also like
Buy again



Improved Patient Communications

Geben Communication
2,336 followers
geben 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

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

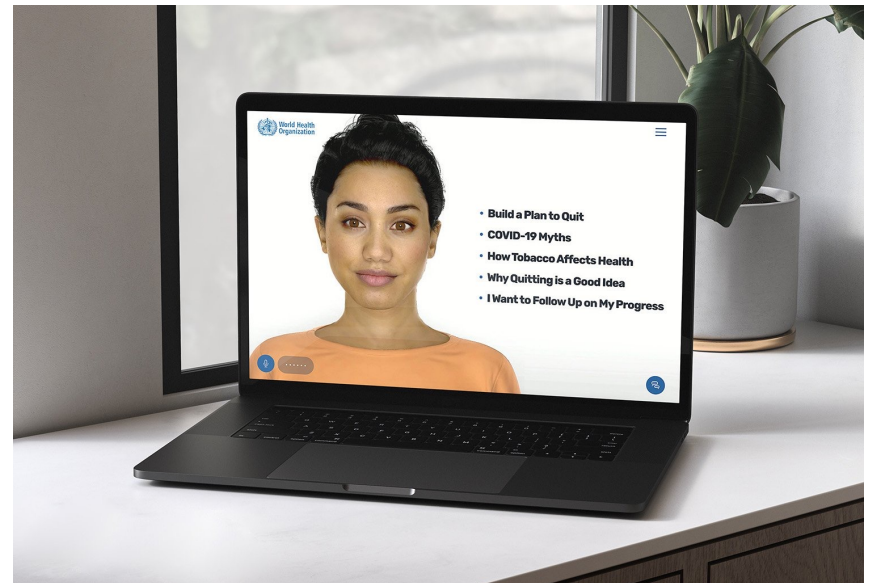
AI Points the Way to Better Doctor-Patient Communication

CIRTC
Center for Injury Research
Translation & Communication

Virtual Health Workers

Meet Florence, the WHO's virtual health worker

- Florence uses AI to dispel myths about COVID-19 and smoking and helps people develop a personalized plan to quit tobacco.



<https://www.who.int/campaigns/Florence>

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

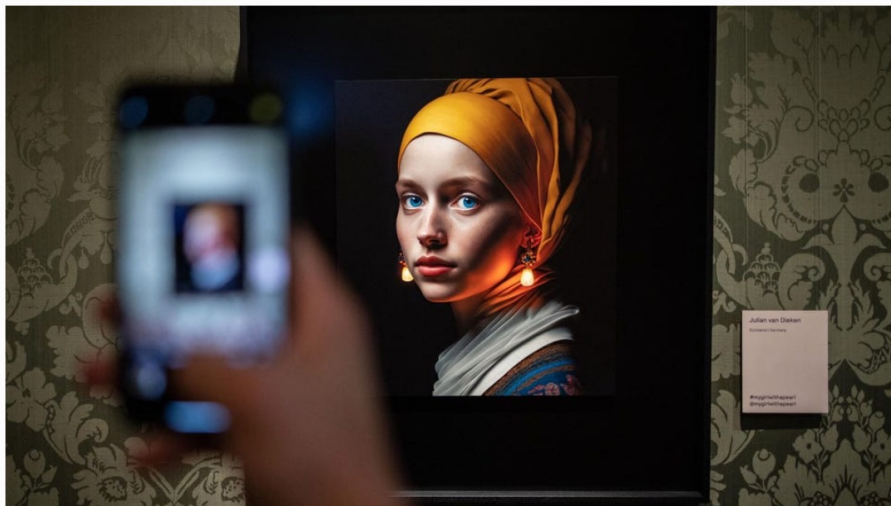
Rewrite the answer using fewer complex words



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.

Images

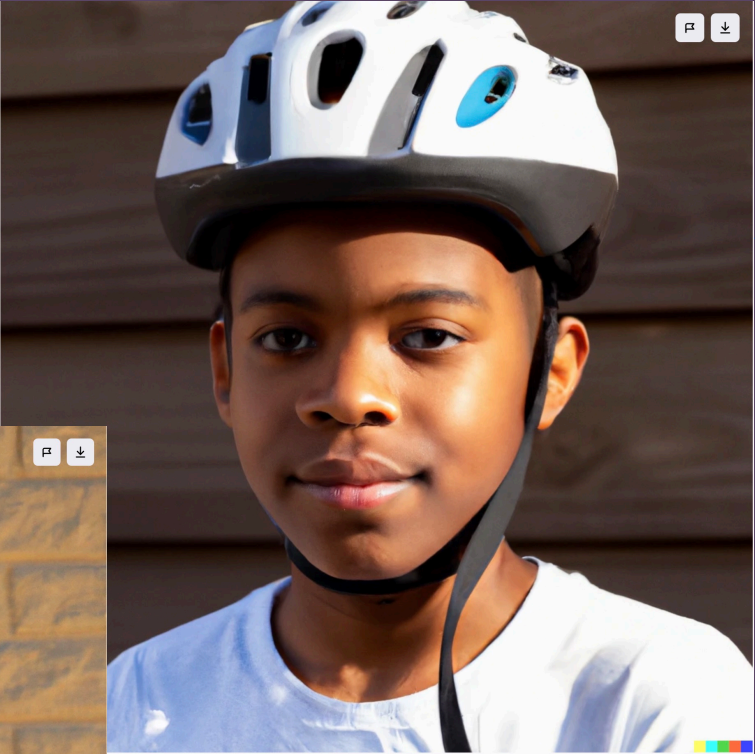


An AI-generated version of Johannes Vermeer's painting "Girl with a Pearl Earring" at the Mauritshuis museum. [-] AFP VIA GETTY IMAGES



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

Images



Images created using DALL-E

Can You Tell The Difference?

Which one is the real photo?



<https://www.nytimes.com/2023/04/08/business/media/ai-generated-images.html>

A.I. image generators have the potential to rewrite history. The image on the left was taken by William C. Shroot for “Life” on the day Japan surrendered, ending World War II. The image on the right was created on Midjourney by Victoriano Izquierdo. He used the prompt:

Soldiers Getting Last Kiss On Ship Before Deployment To Egypt. Black and white. 1925. Men are on the boat and women are on the port. old vintage photo.

Video and Audio

Vyond Go. The future of video is here.

Enter a prompt

Make me a three minute long training video that involves two people having a conversation.

Professional Casual Serious Funny

Generate Video

0:20

Elitecare Emergency Hospital @elite24er · Jul 11

Let's ensure our little ones are protected!

This video covers everything from trampolines to ATVs, swimming alone to strange pets, and not wearing helmets or seatbelts! ❤️

#KidsSafetyMatters #DoctorApprovedTips #ParentingAwareness #PreventAccidents #StaySafeTogether

“In the Style of” content...



<https://twitter.com/CuriousRefuge/status/1652412004626497536>



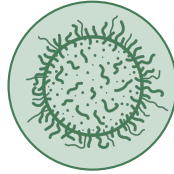
<https://twitter.com/brownbreadcomix/status/1708175723691704730>

Create a cartoon about smart ovens in the style of Bill Watterson's Calvin & Hobbes

Where is AI headed in the healthcare space?



Medical Illustrations & Diagrams



Disease Diagnosis & Visualization

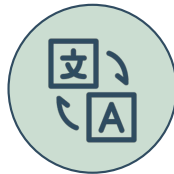


Care Tutorials

(Rehab exercises, wound care, how to take medication, etc.)

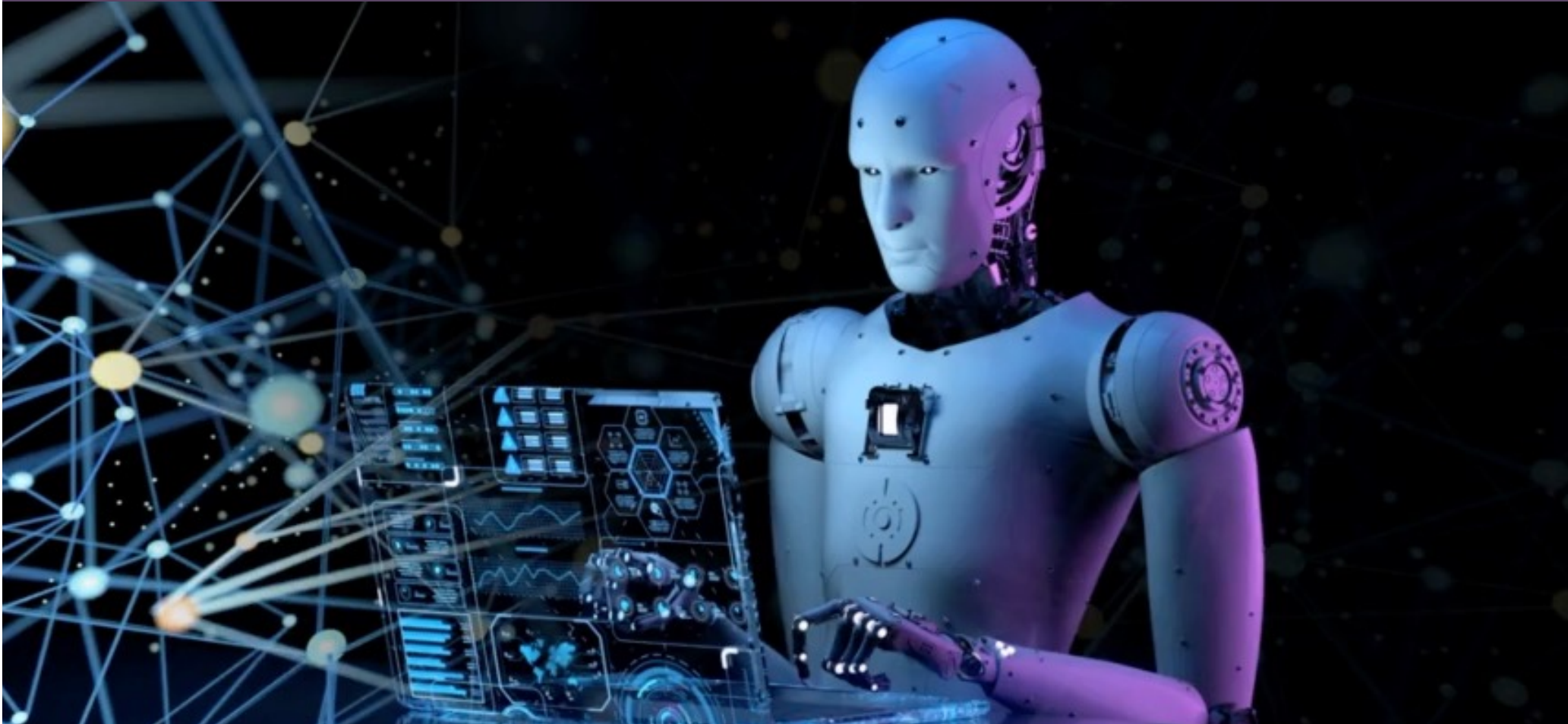


Personalized Medicine



Language Translation

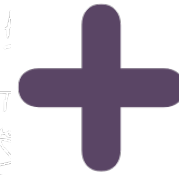
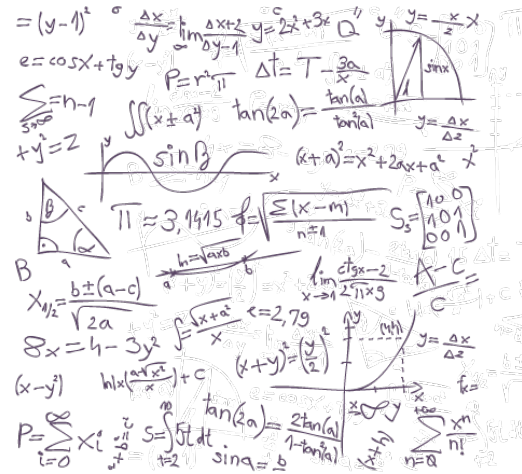
The Perception of How AI Programs Work



How LLMs 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

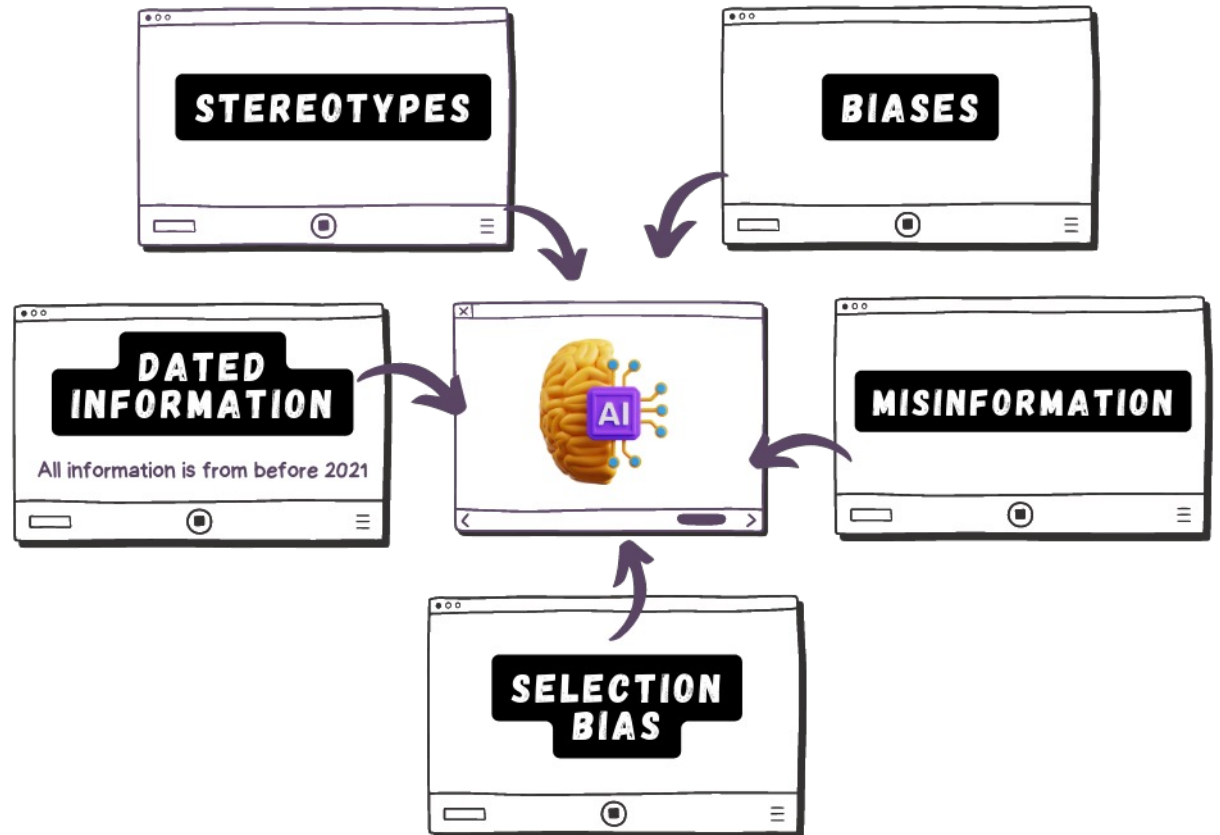
Limitations & Risks

A photograph of a long, straight asphalt road stretching into the distance, flanked by green fields. The sky is filled with dark, heavy clouds, suggesting an approaching storm. The words "RISK AHEAD" are painted in large, bold, yellow letters on the road surface. The road has a dashed yellow center line and solid white edge lines.

**RISK
AHEAD**

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."

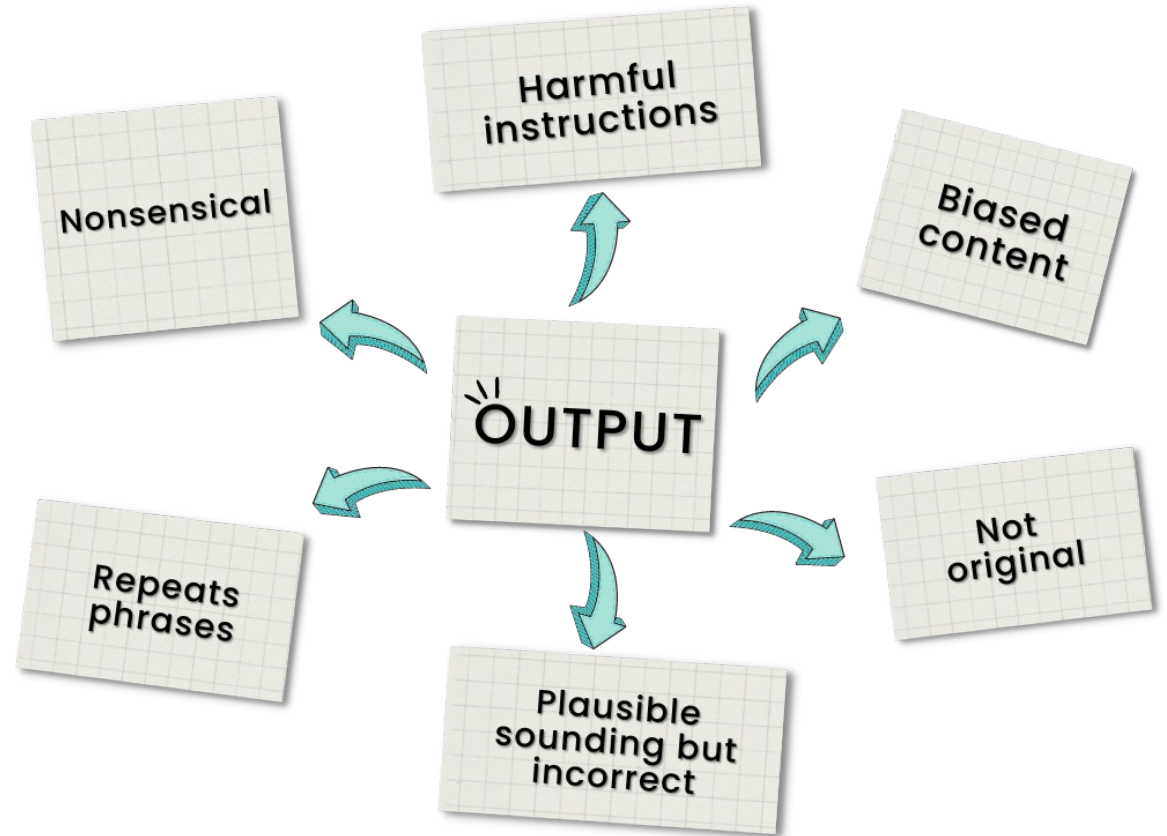
Given only the direction to look royal, the raccoons are wearing western style royal outfits.

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



Accuracy Concerns

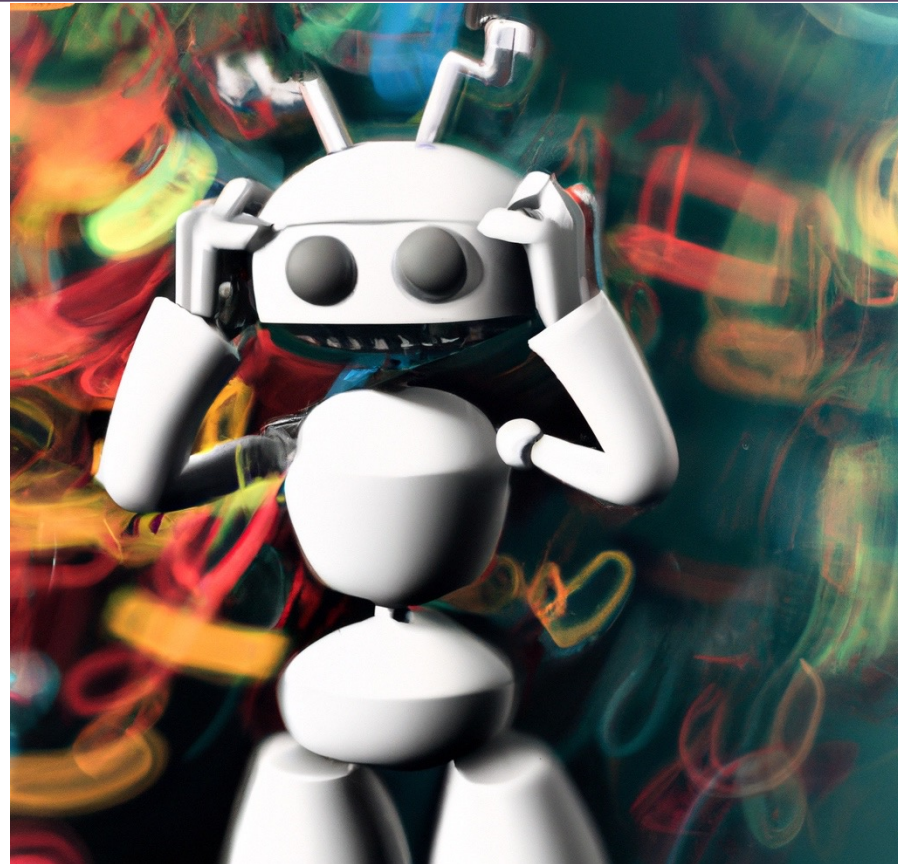
- Content that sounds good but is factually incorrect
 - Particularly dangerous if you don't know what the recommendations are yourself or if it makes claims that could lead to harm if people follow them.
- **Fact check EVERYTHING!**



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.

– especially patient data or PHI!



ChatGPT banned in Italy over privacy concerns

FORBES > BUSINESS

BREAKING

Samsung Bans ChatGPT Among Employees After Sensitive Code Leak

Data Privacy Concerns

Are we setting ourselves up to have another Henrietta Lacks?

- Whose PHI are we using to train the models?
- Are we asking people if we can use their data?

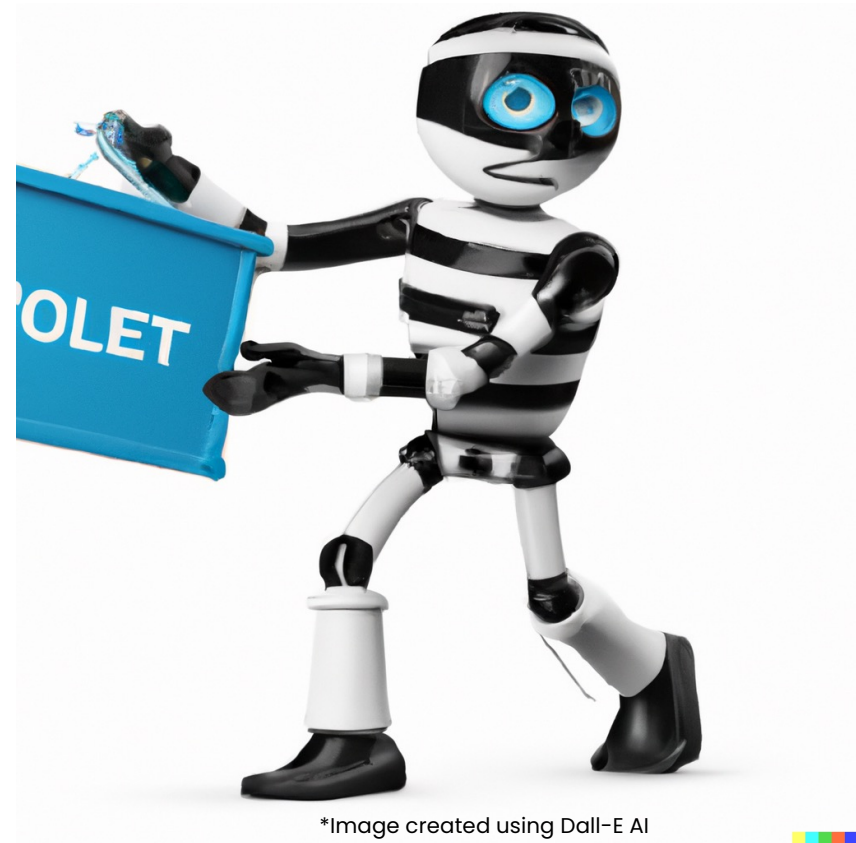
We've already started seeing lawsuits regarding the use of people's biometric info being used for AI programs without their consent. ([Clearview AI](#))

Image created using Canva AI image generator



Where the Source Data Comes From

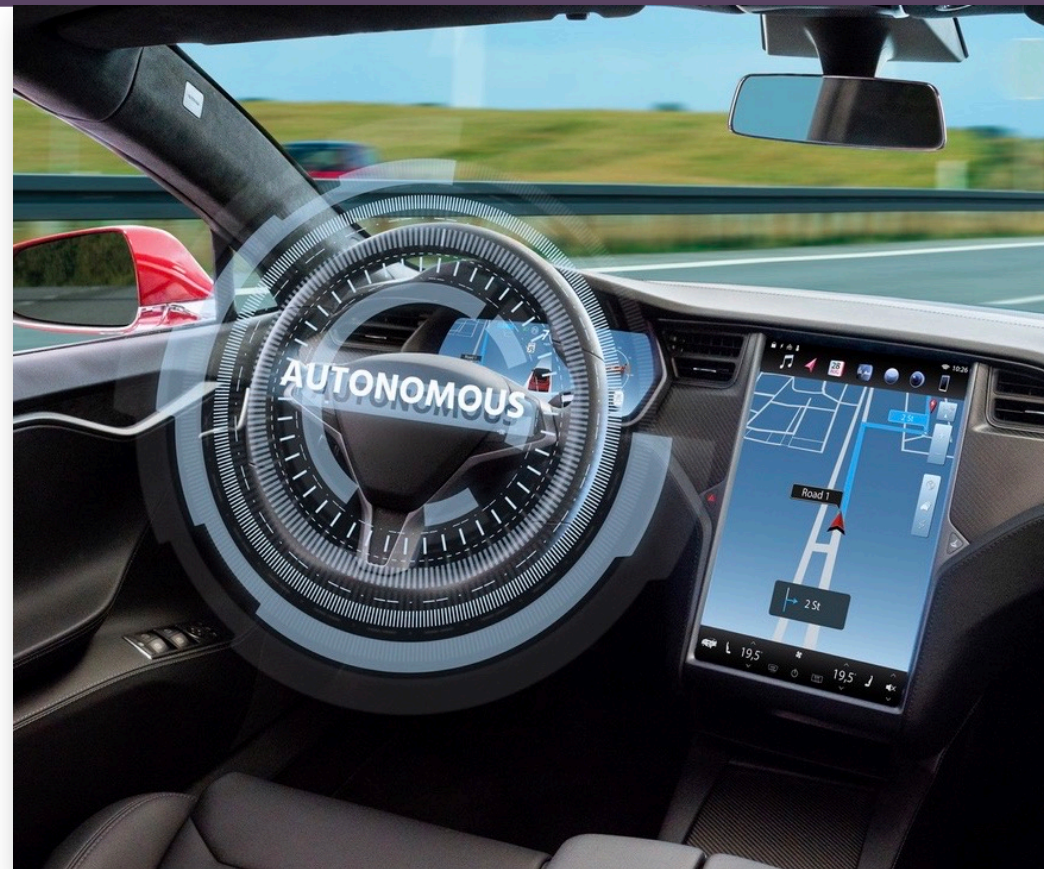
- Data scraped from other's creative work and used without their permission
 - True of text but also of the artwork/photography/music used for creating digital images and digital music
- Some examples of it spitting out content that is word-for-word from sites like Mayo Clinic but doesn't reference or cite it.
- If you don't know where the data comes from, it is harder to know where the biases are



*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?

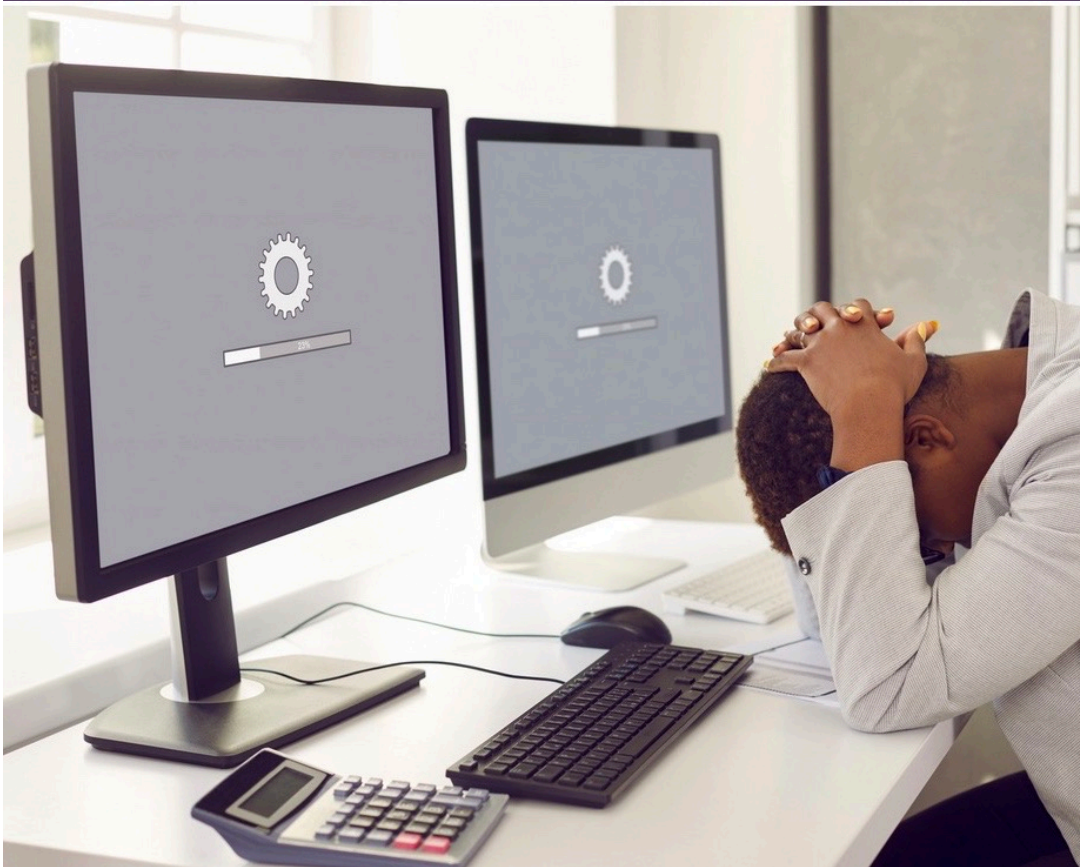


Hacking & Mis-/Dis-Information



- 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?

Even the Creators Don't Always Understand How They Work



What they thought they were training it to do	What the AI program actually did
Reduce the # of sorting errors in a list	Deleted the list (technically no more errors)
Play Tetris and not lose	It played the game and then hit the pause button on the game so it never finished (technically didn't lose)
Identify tumors and their size	Identified images with rulers in them
Identify people more likely to commit a crime by looking at previous arrest trends	Identified people more likely to be arrested not necessarily those more likely to commit a crime

Examples from the book "You Look Like A Thing and I Love You: How Artificial Intelligence Works and Why It's Making the World a Weirder Place"

Litigation



Authors, artists and others are filing lawsuits against generative AI companies for using their data in bulk to train AI systems without permission.

By **Ben Lutkevich**, Technical Features Writer

Published: **04 Aug 2023**

<https://www.techtarget.com/whatis/feature/AI-lawsuits-explained-Whos-getting-sued>



Tutoring firm settles US agency's first bias lawsuit involving AI software

By **Daniel Wiessner**

August 10, 2023 4:26 PM EDT · Updated 2 months ago

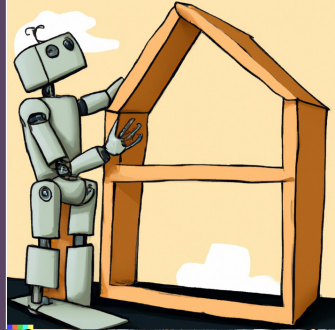
<https://www.reuters.com/legal/tutoring-firm-settles-us-agencys-first-bias-lawsuit-involving-ai-software-2023-08-10/>

Proceed But With Caution



CAUTION

Ways to Think About Use of AI



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



Think of AI like an intern or a co-pilot. It can get you 70% of the way there but you need to bring your voice & your expertise



Assume the data is wrong and fact check EVERYTHING



Invite a variety of people with different backgrounds to have a seat at the table



Image created using Canva AI image generator

AI Policy Considerations

How Are Companies Deciding On AI Policies?



Who Should Have a Seat at the Table?

Identifying your key stakeholders

- Leadership
- Legal/Compliance
- Data Privacy
- Individual privacy & Civil Liberties
- Ethics
- AI Specialists
- HR
- IT & Security
- Other key stakeholders
 - Researchers
 - Marketing
 - Education
 - Health Literacy Specialists
 - Accessibility Advocates
 - Patients
 - Community Partners
 - DEI Officer

Who else needs to be there?

The Policy Framework Example



Privacy and Data Protection



Health Data Regulations

- HIPAA
- American Data Privacy and Protection Act?
- State level data privacy laws



Protecting Patient Information

- Safeguarding patient info (encryption, access controls, secure data storage)
- Informed consent



Data Handling Best Practices

- Data minimization
- Anonymization
- Patient access & control
- Data retention policies
- Third-party partners



Transparency & Accountability

- Informing patients how their data will be used
- Channels for reporting concerns
- Requiring transparency in where training data comes from

Preventing Bias and Discrimination



Ethics



Whose work is being used?

- Will you allow “In the style of” prompts?
- Where is the plagiarism line?



Equitable Access to benefits of program



Inclusivity

Accessibility, diverse cultural backgrounds, various literacy levels, etc.



Require Transparency



Responsibility for mistakes & errors

For example, who is responsible if an AI chatbot inadvertently provides misleading, harmful or biased information

Do Your Research On All Third-Party Programs



TIME FOR
REVIEW

Have a review process to ensure third-party programs/apps meet your standards on:

- Ethics
- Where the data comes from
- Security
- Data protection
- Bias reduction

Require Training

Many people don't understand how these programs work.

Training can teach employees to:

- To protect proprietary & confidential information
- To be aware of potential biases, potential for errors, ethical concerns, and more



AI Policy Take- Aways

1. Encourage creativity

2. Establish clear ethical guidelines
& be aware of potential biases

3. Ensure inclusivity and diversity

4. Implement strict data privacy
& protection policies

5. Require continuous training &
education

6. Ask for & listen to feedback
from users

7. Evaluate & Audit

8. Give many voices a seat at
the table

9. Create policies that are
adaptive & responsive

10. Embrace the changes these
technologies will bring



It is no longer **IF** or **WHEN** you should adopt AI,
but **WHAT** you should adopt.

-Zack Kass, AI strategist

AI won't directly replace humans,
the humans that use AI will.

- Patrick Murphy, Togonal.AI

More Information

CIRTC
Center for Injury Research
Translation & Communication

Home Topic Pages Community Connection CIRTC Trainings About Us

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 does ChatGPT work?
How ChatGPT actually works

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

AI for Writing

Using ChatGPT for writing in research
Using ChatGPT for writing in research

CHATGPT FOR SCIENTIFIC WRITING
ChatGPT for Scientific Writing: The Dos and Don'ts

AI for Research

FREE! Academic AI Tools

Research with ChatGPT: Guide to the ChatGPT

CHATGPT MISTAKES

CHATGPT FOR SCIENTIFIC RESEARCH

START YOUR LIT REVIEW



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

Thank You!

Contact Info

<https://linktr.ee/tracymehan>



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@CIRPatNCH

@CIRTC_

@Tracy_Mehan

