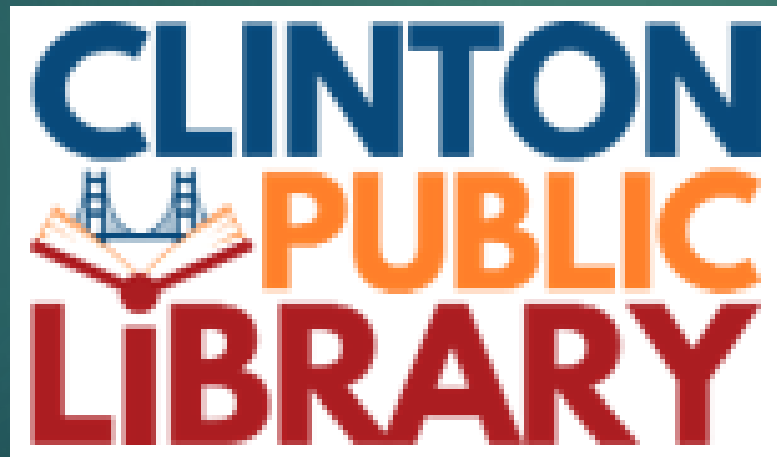


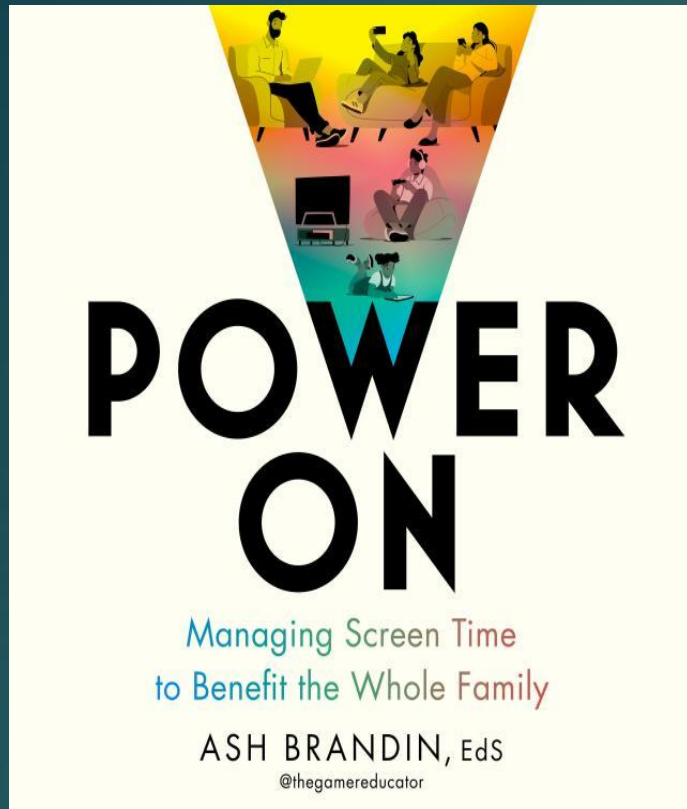
An Introduction to AI

A Digital Exhibit With
Andrew Gehlsen



Disclaimer:

- I am not an AI expert, but I have studied it for a while now—and can answer, discuss, and ask/think along with you whatever thoughts, questions, or concerns there are.
- AI has positives and negatives. There is so much information, and access to information now. There is a lot to consider before and during AI usage.
- AI has many areas and it is part of a vaster system than just itself. Information has changed, and will continue to change. I am here to share updated info on this topic.
- AI literacy has much to do with digital/media literacy. The stronger one's knowledge in AI literacy, the better they can decipher what content is real and what is not.
- This presentation is not anti-AI, nor is it for AI.
- This presentation has a lot of information and sources. This will be available online as well.
- You don't have to use AI if you don't want to.
- Let's begin...



“Data is information, not a whole story.”

-Ash Brandin, EdS
*Power On: Managing Screen Time
to Benefit the Whole Family*

“In order to stay current with generative AI (or any technology), I’ve always found it important to **cast a wide net**. Don’t only follow people similar to yourself—such as those from your same profession, political viewpoints, or demographics. Instead, look worldwide. Seek out many different professions, and draw from a mix of sources...”

-Nicole Hennig, AI education specialist

NICOLEHENNIG

Concerning Humans & Narration:

“We think we are rational animals who occasionally tell stories. The reality is inverted: we are narrative machines who occasionally approximate rationality. Consciousness (what I often refer to as the *rider*) did not evolve as a truth-engine. It evolved as a story-generating, story-believing, story-navigating interface, because the human mind is structurally separated from itself...

...Narration is what the rider builds on top of the signals once they arrive, the account it tells about outputs it did not author. This is not a metaphor or a cognitive preference. It is an architectural fact with profound consequences for how we love, war, worship, and reproduce.”

Steve Hargadon

Humans as Narration Machines: Why Our Most Important Stories Are Emotional, Not True

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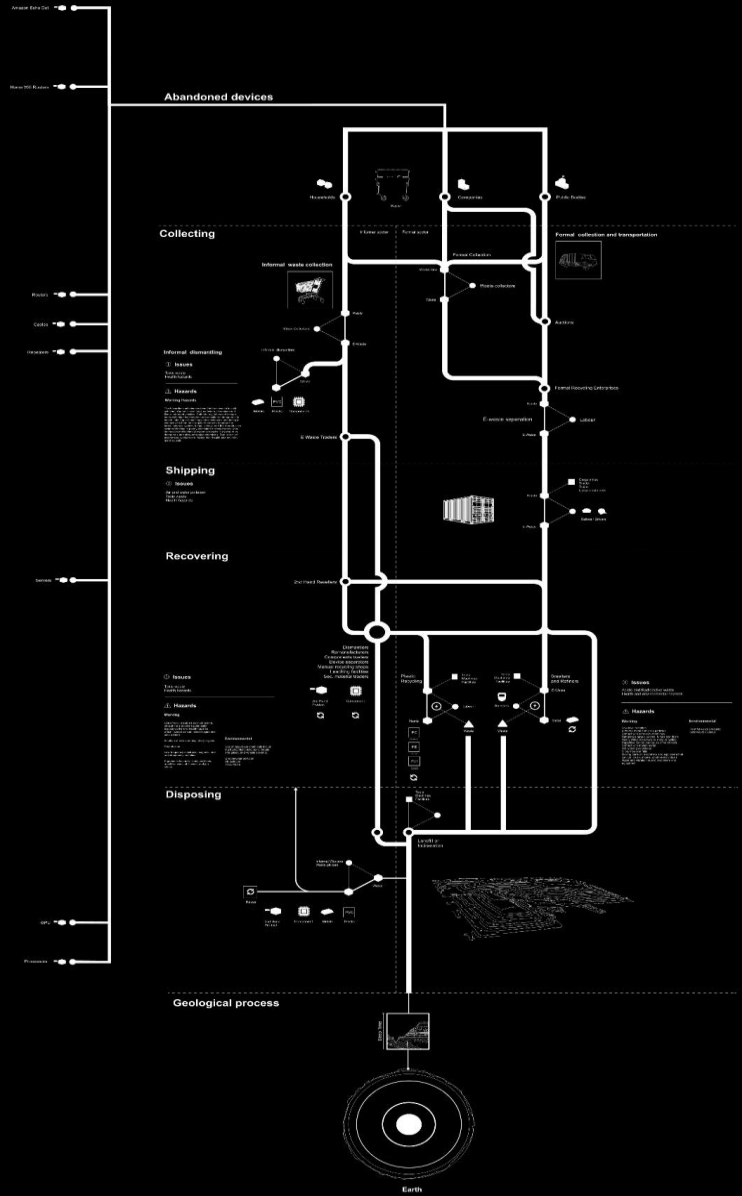
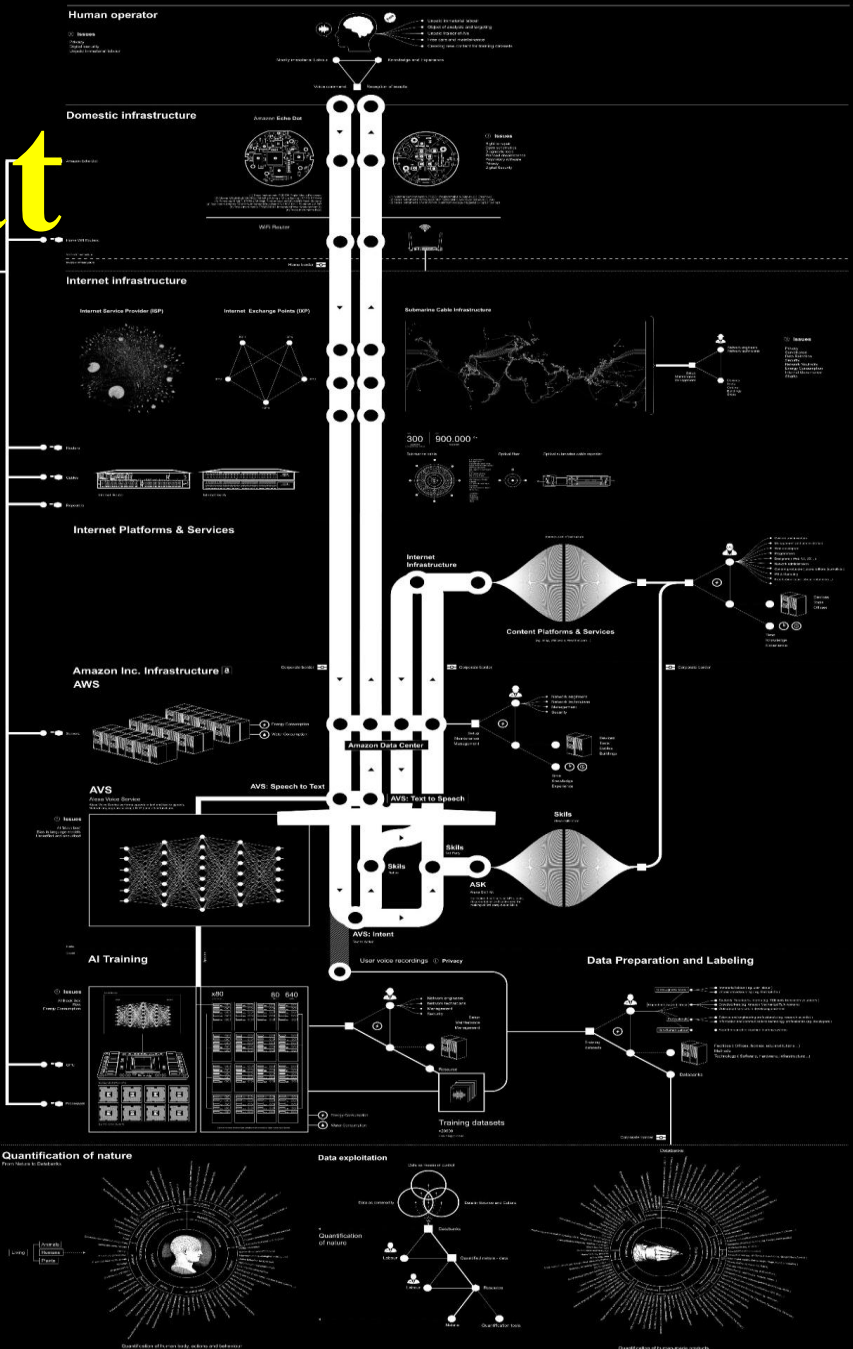
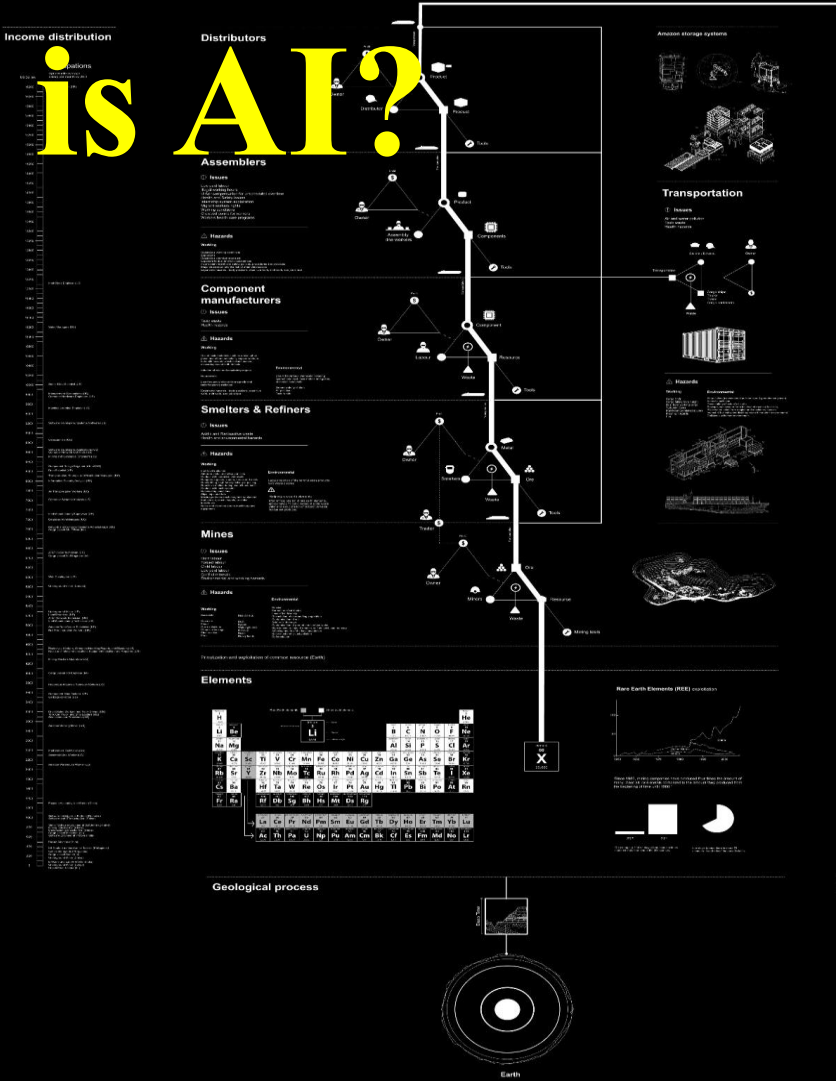
Part IV. Some AI Tools & Basic Prompting

Part V. Conclusion & Sources

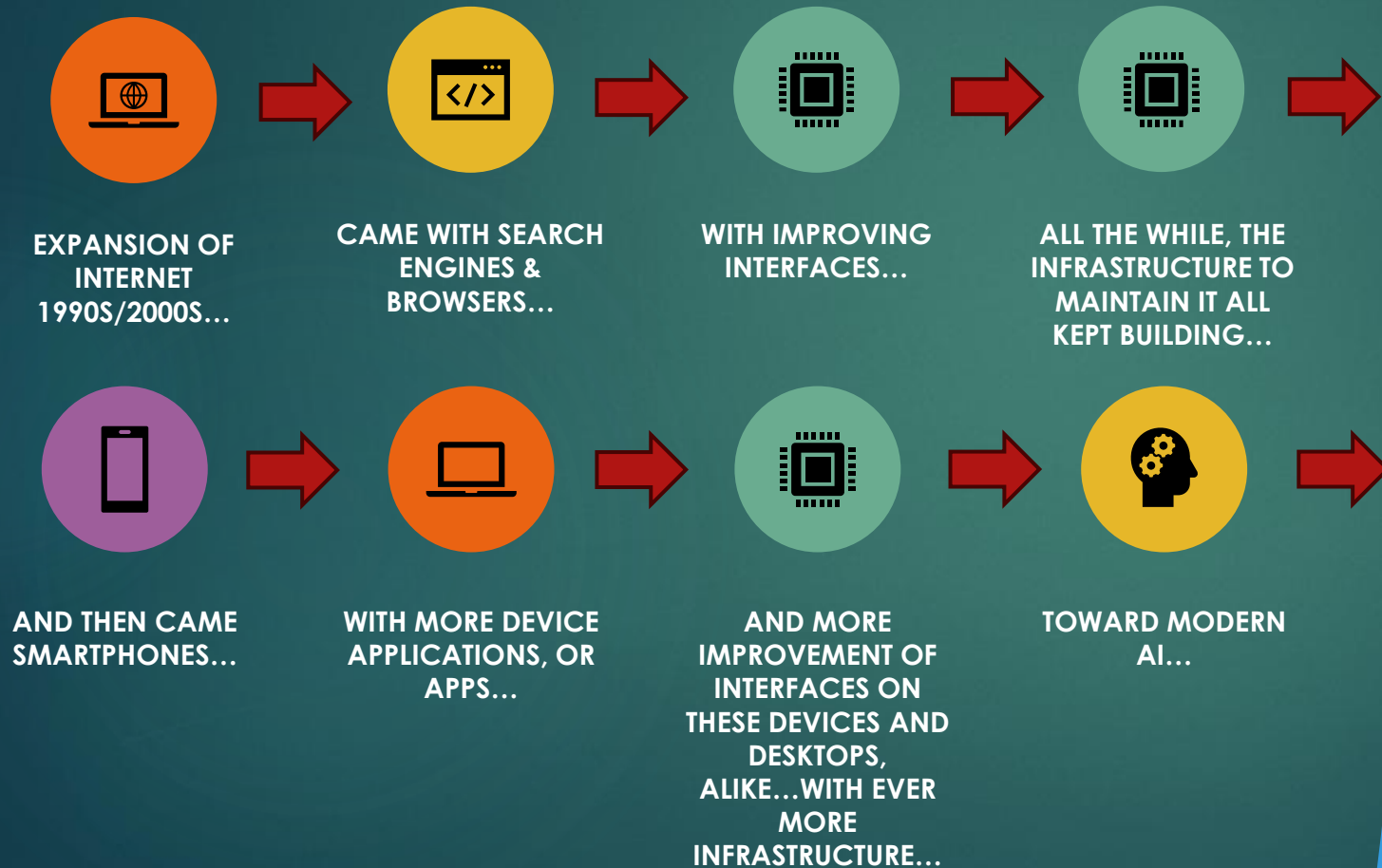
Anatomy of an AI system

An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor

Part I. What is AI?



A BRIEF TIMELINE OF RECENT TECH...



*Organization of smaller graphics and text made possible with assistance from CoPilot AI

A BRIEF HISTORY OF DATA CENTERS...



WHAT IS A DATA CENTER?

- “At its simplest, a data center is a physical facility that organizations use to house their critical applications and data (<https://iopscience.iop.org/>).”
- Governments, universities, and large corporations were the first to build and maintain these expensive machines, and the massive environments needed to run them in.
- 1960s: Early data centers were built inside office buildings.
- By the 1990s, personal computing and networking had matured and spread to more spaces, like schools and individual households.
- On-site server rooms would require more power and space for email servers, databases, and storage.
- The 2000s would bring the purpose-built data center we see today (only they have increased in size and power usage)...



Above: ENIAC, located at the Moore School of Electrical Engineering, University of Pennsylvania.

The Electronic Numerical Integrator and Computer (ENIAC) was built by a group of six young women in Philadelphia as a secret WW2 project, at the time to be “the world's first general-purpose, programmable, all-electronic computer (<https://eniacday.org/women-of-eniac>).”

Inside, racks of servers and computers **process and store** all the data on the internet.

use voice command on a smartphone,

read an article, or stream a movie,

Whenever you post a photo,

make an edit in a shared text document,

it's really happening here, on a shared computer,

hundreds or thousands of miles away.

Image via Hidden Systems by Dan Nott, RH Kids Graphic

A BRIEF HISTORY OF AI

Alan Turing devises the Turing Test, or Imitation Game, where a computer can fool a human into believing they are communicating with another human.

Joseph Weizenbaum, professor at MIT, creates ELIZA, the first "chatbot."

The internet, GPUs, and multi-layered neural networks lead us into today...

1955

1980s-90s

1950

1966

2000s

The term "artificial intelligence" is first coined in a workshop proposal titled "A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence," submitted by John McCarthy of Dartmouth College, Marvin Minsky of Harvard University, Nathaniel Rochester from IBM and Claude Shannon from Bell Telephone Laboratories.

Researchers focus on machine learning, where computers learn patterns from data.

*1984: A warning "highlights the cyclical nature of AI hype, where bursts of optimism are followed by disillusionment when the technology failed to meet investors' and the public's expectations." This is still relevant; though technology has improved, of course.

Image via Canva
Info via

<https://www.ibm.com/think/topics/history-of-artificial-intelligence>

YOU MAY NOT HAVE KNOWN YOU WERE USING AI TECHNOLOGY...

AI technology has been around for some time. Here are some examples that incorporate AI technology to filter and generate recommendations (books, films, music, products, etc.) and search results based on user preferences, interests, and history:



What is AI? & Other Key Terms

Artificial Intelligence - Computer systems designed to perform tasks associated with human intelligence, such as pattern recognition or decision making.

Generative (or Gen) AI - A subfield of Artificial Intelligence, referring to models capable of generating content—such as: texts, images, videos, music.

Large Language Model - A type of generative AI model that works specifically with written language (both natural language and code).

Predictive AI - involves using statistical analysis and machine learning to identify patterns, anticipate behaviors and forecast upcoming events.

Prompt Engineering - A prompt is the question or instruction you give to an AI tool to guide its response. Engineering involves "selecting the right words, phrases, symbols, and formats" to get the best possible result from AI models (John Maeda).

Natural-Language Processing (NLP) - a subfield of computer science and AI that uses machine learning to enable computers to understand and communicate with human language.

Sources:

<https://aipedagogy.org/guide/key-terms/>
<https://www.ibm.com/think/topics/predictive-ai>
<https://teaching-resources.delta.ncsu.edu/ai-prompting-basics/>
<https://www.ibm.com/think/topics/natural-language-processing>
<https://dexa.ai/ownyourfuture/d/583afd50-6113-11ef-90ae-132e50841945?t=1-AI+Integration>

Examples of Generative (or Gen) AI



ChatGPT

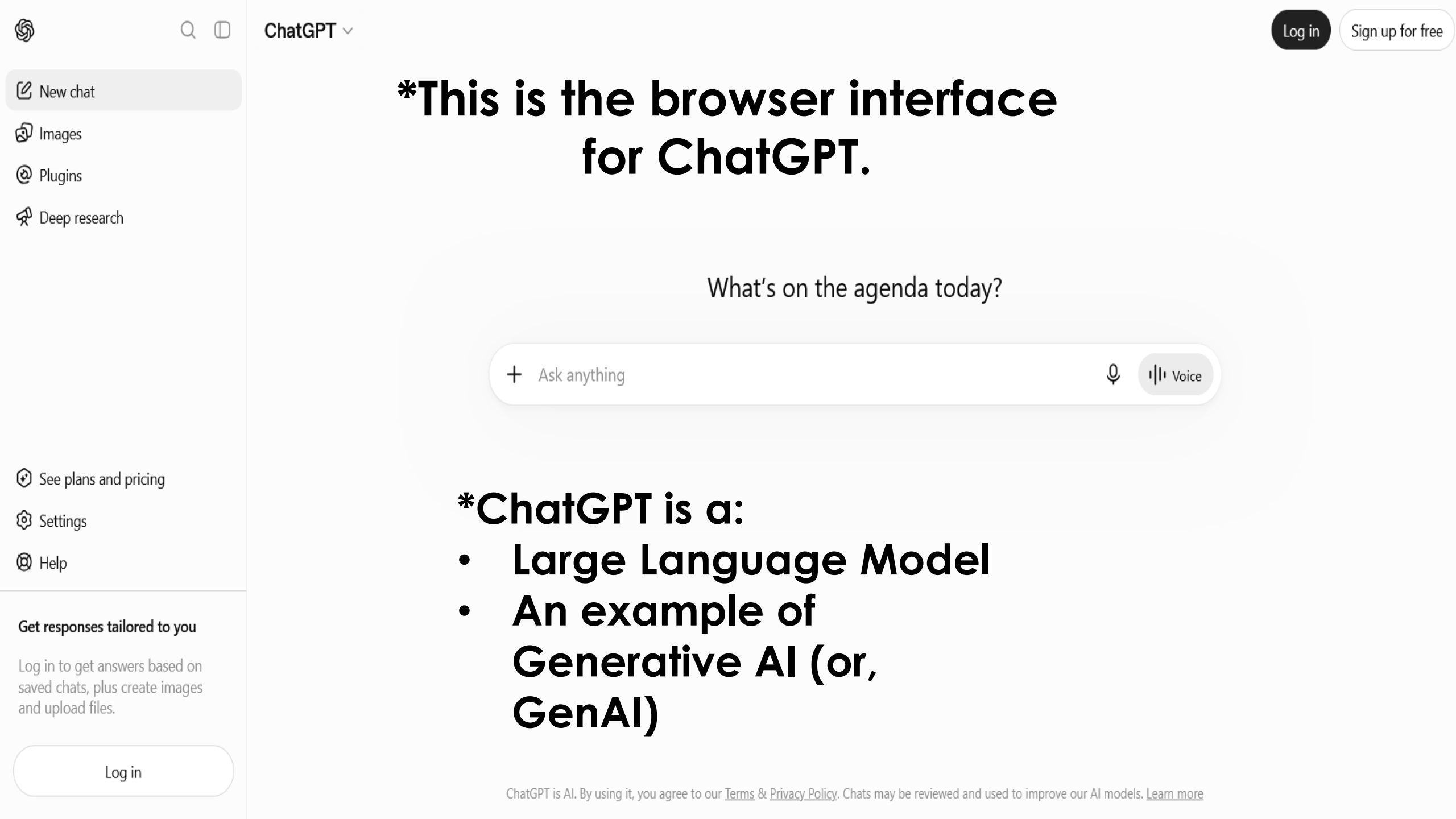


Claude

Gemini

Generative (or Gen) AI – Models capable of generating content—such as: texts, images, videos, music.

“Usually, the availability of data is considered as the key to construct a machine learning model or data-driven real-world systems (<https://pmc.ncbi.nlm.nih.gov/articles/PMC7983091/#Sec2>).”



ChatGPT

Log in

Sign up for free

New chat

Images

Plugins

Deep research

See plans and pricing

Settings

Help

Get responses tailored to you

Log in to get answers based on saved chats, plus create images and upload files.

Log in

*This is the browser interface for ChatGPT.

What's on the agenda today?

+ Ask anything

Voice

- *ChatGPT is a:**
- **Large Language Model**
 - **An example of Generative AI (or, GenAI)**

► TRADITIONAL SEARCH ENGINE & AI SEARCH ENGINE

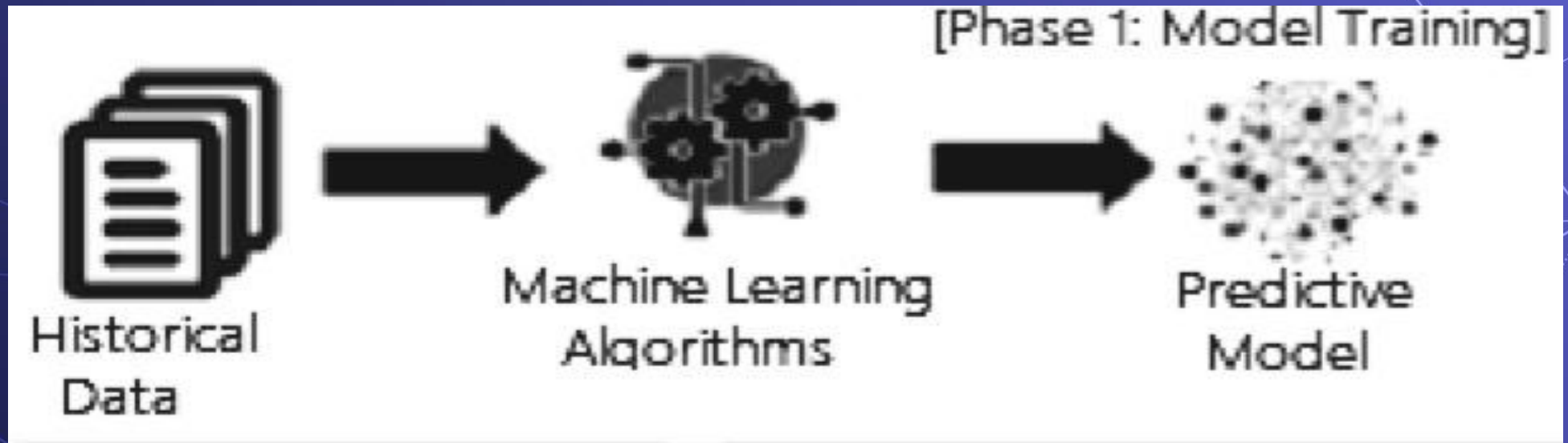
TRADITIONAL SEARCH ENGINE (Google, DuckDuckGo, etc.):

- keyword-based
- not tailored or specific to user
- basic, lists results

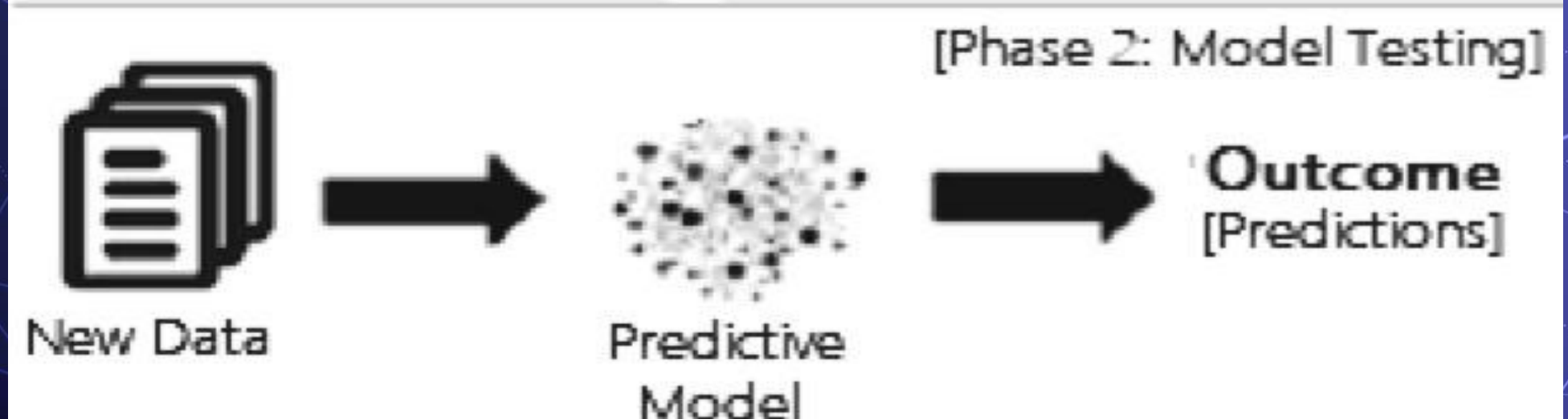
AI SEARCH ENGINE:

- Many traditional search engines have AI as an option, or are predominantly AI.
- analyze context, intent, semantics (meanings) of questions or searches in order to deliver relevant, personalized results
- interpret user input (idiom, conversational, etc.) in a conversational way
- goes beyond simple keyword matching to analyze patterns and provide tailored responses

TOP:
PROCESS OF
TRAINING AN
AI MODEL



BOTTOM:
PROCESS OF
USER
PROMPTING/
TESTING AI
MODEL



Transformers, the tech behind LLMs | Deep Learning Chapter 5:

<https://www.youtube.com/watch?v=wjZofJX0v4M>

Concerning Prediction & Speed

*The invention of the telegraph in the late 1800s, for example, increased the speed at which information could flow. Faster than trains and books (and the printing press) previous. This would continue with radio, TV, and the internet, through and beyond the 20th century.

*Years later: Consider the technology that came before AI. GPTs inside LLMs are an ultra-fast prediction/transport process.

*And while this has been very beneficial (i.e. coding, math calculations), this largely behind-the-scenes action taking place can feed into “AI hype.” This “hype” can take on utopic/dystopic narratives. This is science fiction.

Digital/Media Literacy: Spotting AI-Generated Images



Spotting AI Images Tutorials:

<https://britannicaeducation.com/blog/quiz-real-or-ai/>

<https://www.aarp.org/personal-technology/ai-quiz/>

https://lib.arizona.edu/tutorials/multimedia-ai/#/lessons/Er2vaa4vVIBLATBD0hLV_Ou9dRApgM8i

SOURCES:

- <https://www.britannica.com/technology/deepfake>
- <https://www.techtarget.com/WhatIs/definition/AI-hallucination>

Deepfake - synthetic media, including images, videos, or audio, generated by [artificial intelligence](#) (AI) technology that portray something that does not exist in reality, or events that have ever occurred.

Hallucination - In the context of AI, this is a falsehood presented as truth by a large language model.

- “Confabulation” is another term used.
- Hallucinations can occur in text, as well as images, video, and audio outputs.

*Sources to verify images:

- Google
- Bing
- TinEye
- “Search by Image” through Chrome

SOURCES:

<https://chromewebstore.google.com/detail/search-by-image/cnojnbdhbhnkbcieeekonklommdnndci>

Deepfake - synthetic media, including images, videos, or audio, generated by [artificial intelligence](#) (AI) technology that portray something that does not exist in reality or events that have never occurred.

Hallucination - In the context of AI, this is a falsehood presented as truth by a large language model.

- “Confabulation” is another term used.
- Hallucinations can occur in text, as well as images, video, and audio outputs.

Hallucinations (per a recent webinar):

- AI doesn't know it's hallucinating.
- It is not a flawed prediction, as the model did what it was supposed to.
- Unless provided with specific references, this outcome can/should be expected.
- What happens when the prediction isn't true? Verification is our true competence.



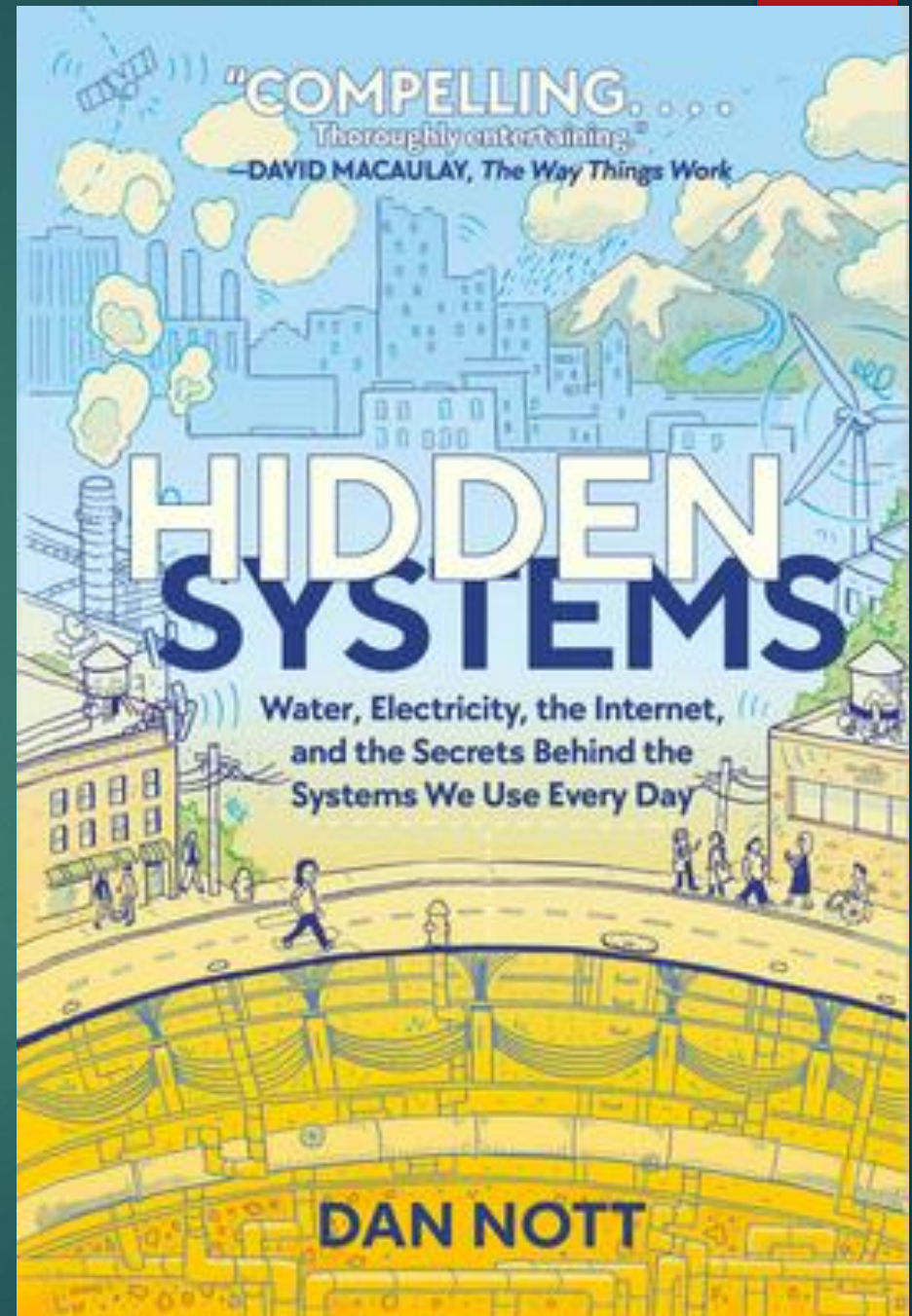
Reliable Verification Tools

Tool	What It Does	How to Use It
Snopes	Investigates rumors, viral claims, and hoaxes	Go to snopes.com and type the claim into the search bar.
FactCheck.org	Nonpartisan fact-checking of political and public statements	Visit factcheck.org and search key terms or claims.
Google Fact Check Explorer	Gathers fact checks from around the web	Visit Google Fact Check Explorer and type in the claim.
Google Reverse Image Search	Verifies the origin of an image	Go to images.google.com , click on the camera icon, and upload the image or paste its URL into the search field.

SOURCE:
<https://www.edutopia.org/article/teaching-media-literacy-age-ai>

LEARN THE WAY YOU NEED/WANT TO:

- If you feel self-conscious, or concerned or judged for needing to learn from a source aimed for younger patrons...who cares. Remember the quote from an AI educator earlier: "Seek out many different professions, and draw from a mix of sources..."
- One of the most beneficial books I've read recently is a juvenile non-fiction graphic novel called:



Importance of Technologies That Came Before:

- Books, films, music, painting
- Exposure to art
- Interacting with art critically
 - History
 - Connecting dots
 - Asking questions
 - Observing paths of sources of power, peoples, events.
- Who/what is narrating human history?
- Being bored with our own minds is impt.
- Feeling is impt.
- The mind is a technology too.

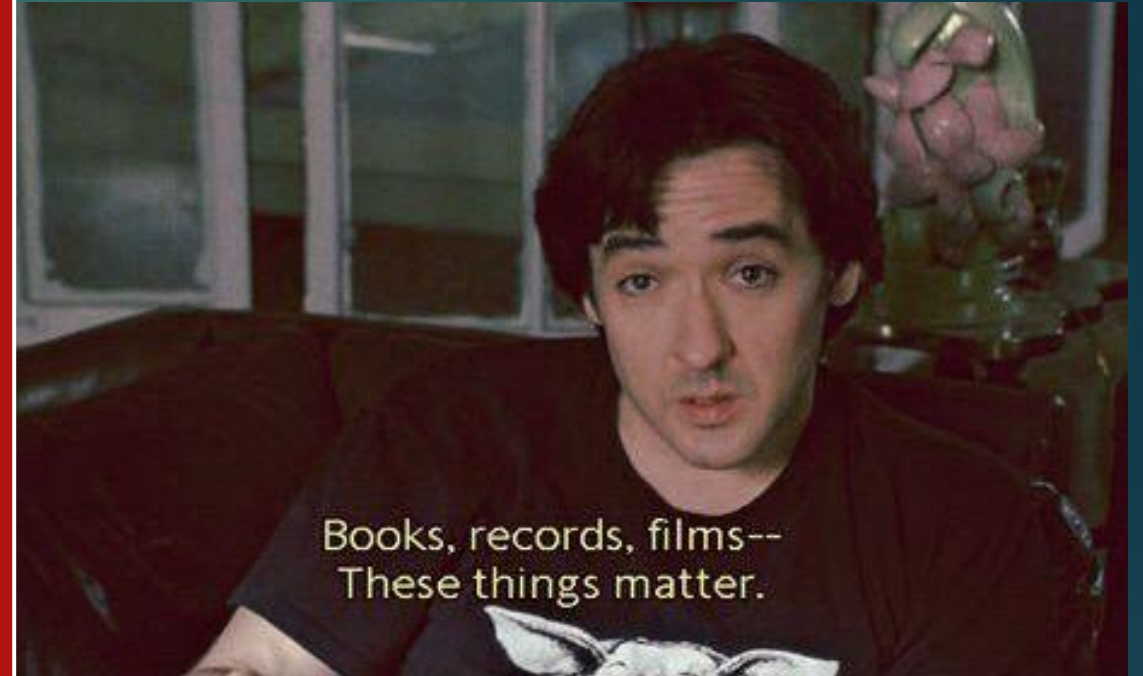


Image via High Fidelity, dir. Stephen Frears, Touchstone Pictures, Working Title Films, Buena Vista Pictures, Disney



Part II. AI & Industry

Factors contributing to growth in the AI industry:

1. Availability of big data (we all have contributed)
2. Advancements in tech:
 - computing
 - cloud infrastructures
3. Growing demand for automation/optimization in multiple industries:
 - manufacturing
 - finance
 - transportation

4. Increased use of AI in consumer apps:
 - virtual assistants
 - chatbots
5. Growing investments/partnerships among:
 - tech companies
 - research institutions
 - governments



Some industries/areas where AI is used:

1. Agriculture
2. Environment
3. Health/Medical
4. Emergency Services Sector
5. GeoAI



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

AI Prompt Options:

1. *Does AI, at times, have more importance attributed to it, via “hype” tales, due to problems created by humans and human technologies/industries?*
2. *Is AI simply an AI question, or a systemic regulation issue?*

AGRICULTURE

- AI-powered automation for “handling, forecasting, sorting, and packaging across harvesting and post-harvesting processes.”
- Use of AI tools can help reduce food waste via:
 - forecasting demand
 - predicting spoilage
 - redistributing surplus crops
- “Real-world growers are already using AI to monitor crops, power autonomous robots, and boost their supply chains.”

<https://www.microsoft.com/en-us/microsoft-copilot/copilot-101/ai-in-agriculture>

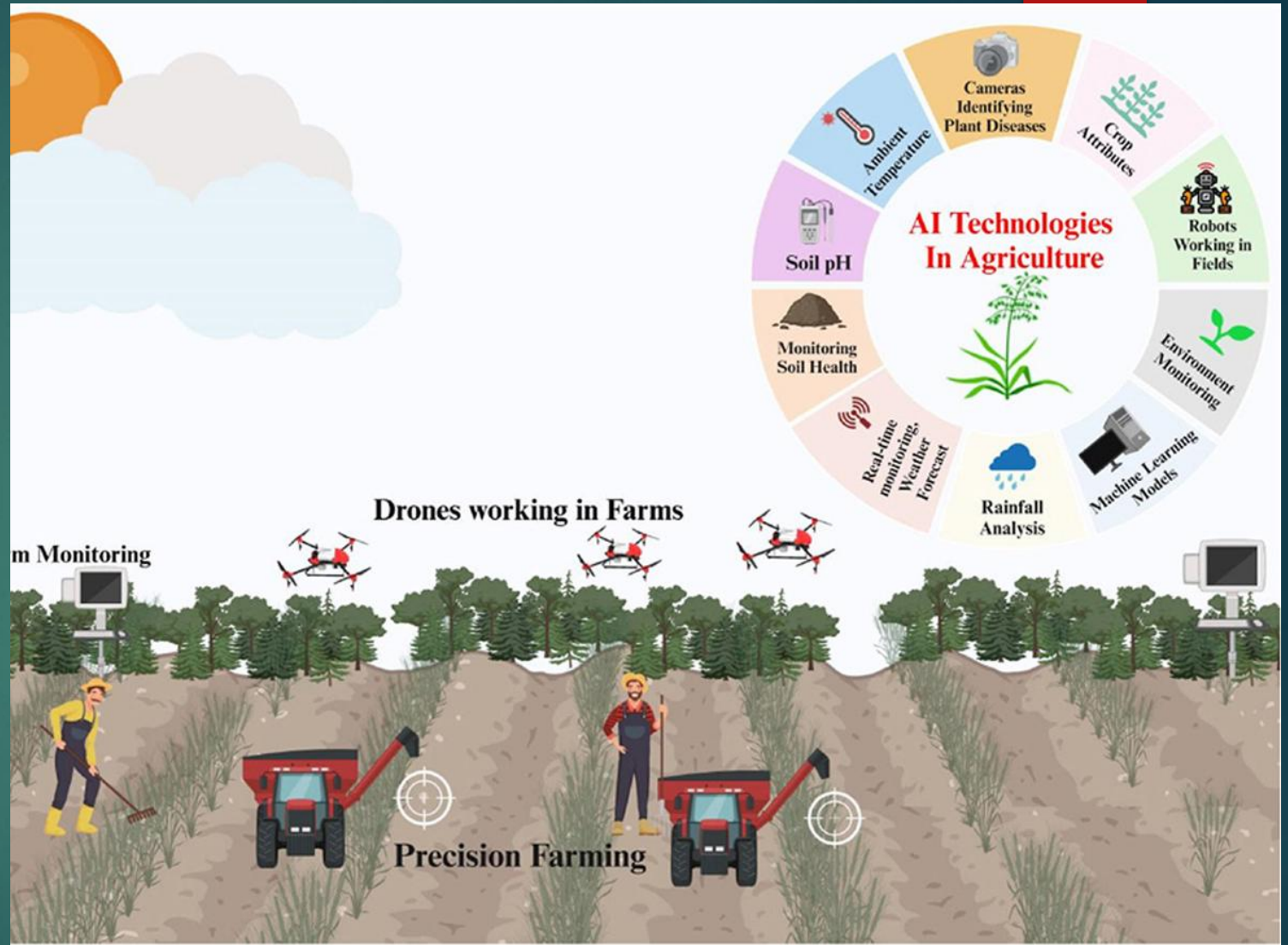


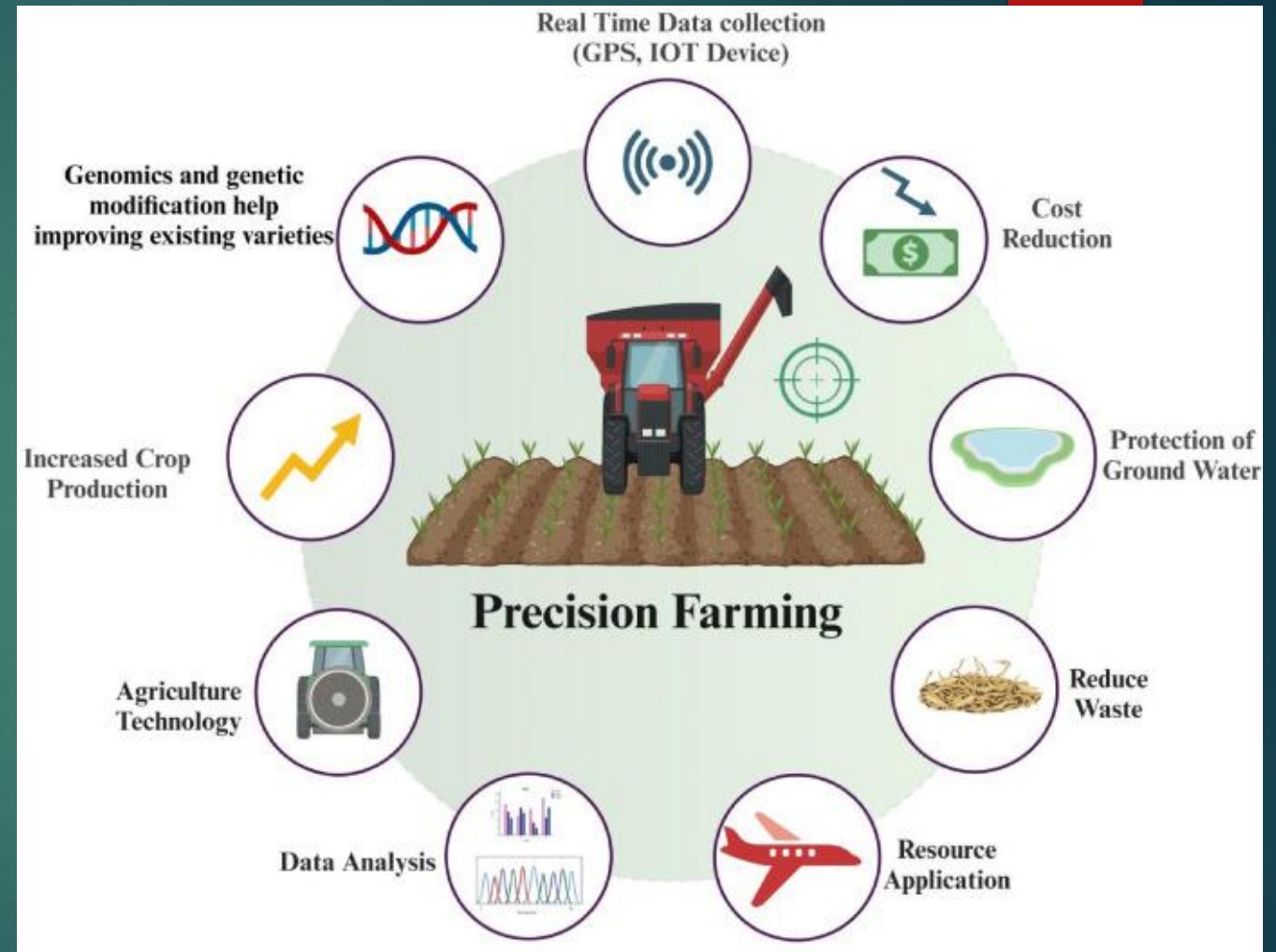
Image via
<https://www.sciencedirect.com/science/article/pii/S2666154325001334>

AGRICULTURE

- Precision farming – farmers use AI to collect data in real time.
- Monitors soil condition, weather pattern, crop health.
- This determines resource application, like:
 - water
 - fertilizer
 - pesticide
- Lower costs of operation and reduced food waste.

[Learn more about precision farming, use of robotics in fields, as well as real life case studies here!:](https://www.sciencedirect.com/science/article/pii/S2666154325001334)

<https://www.sciencedirect.com/science/article/pii/S2666154325001334>



ENVIRONMENTAL

- Weather forecasting, including hurricane predictions
- Climate change data and predictions to alert/protect areas, peoples
- Wildfire detection
- Marine education without damaging ecosystems (studies of coral reefs via digital versions of environments)

“AI is emerging as an incredibly powerful tool for reducing uncertainty in future projections. It learns from the many climate model simulations that already exist, but its predictions are then further refined by real-world observations.”

-Elizabeth Barnes, professor of atmospheric science at Colorado State University



HEALTH/MEDICAL

- AI can help clinicians focus on patients rather than administrative work.
 - Ambient listening technology can record notes automatically
- Therapists can use AI tools to record patient notes
- Early disease detection
- New treatments for sickness are developed faster

“AI can analyze a patient's medical history, pathology reports and imaging scans in minutes to identify patterns and recommend tailored treatments.”

<https://mayomagazine.mayoclinic.org/2026/04/ai-in-healthcare/>



HEALTH/MEDICAL - How AI is shortening drug discovery timelines in China

“Insilico Medicine has reduced the time needed to produce some drug development candidates to about one year by combining artificial intelligence with laboratory research in China, according to CEO Alex Zhavoronkov.”

<https://www.artificialintelligence-news.com/news/ai-drug-discovery-china/>



ARTIFICIAL INTELLIGENCE AND THE EMERGENCY SERVICES

SECTOR – WHERE USED, BENEFITS & CHALLENGES:

<https://www.apwa.org/wp-content/uploads/Artificial-Intelligence-and-the-Emergency-Services-Sector-Case-Studies-Benefits-and-Challenges.pdf>

GeoAI

USES:

- For processing satellite imagery and aerial photographs of areas.
- Provides interactive models, data and predictions for environments.
 - For ex., aerial imagery of Grenada was extracted to predict landslide risk for populations and infrastructure.
 - Can help reduce weather damages.
 - Enables quicker response times when disaster strikes, so that supplies can get where needed.

<https://opengeoai.org/>
<https://www.esri.com/en-us/capabilities/geoai/overview>

“Geospatial artificial intelligence (or, GeoAI) is the application of artificial intelligence (AI) fused with geospatial data (data linked to geographical locations), science, and technology to accelerate real-world understanding of business opportunities, environmental impacts, and operational risks.”

<https://www.esri.com/en-us/capabilities/geoai/overview>





Current Events





A Home For Every Milestone.
First Home. Forever Home. We're Here For Both.
DuTrac.org/Mortgage



Can utility meet data center need?

By KELLY GERLACH News Editor kgerlach@mspress.net Jul 21, 2026



CHRIS KROGMAN

Maquoketa Municipal Electric Utility
General Manager



Maquoketa is close to going dark.

Electricity is running low.

If that scenario were to happen tomorrow, Maquoketa Municipal Electric Utility (MMEU) would start up its generators to supply power to its customers until the situation was resolved, according to Chris Krogman, MMEU general manager.

That response would remain the same even if a data center is built within city limits because the data center would be running its own backup power generator, not using city power, Krogman



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Latest Print Edition

Article about
local electricity
use, grids, and
data centers,
available at:

https://www.dewittobserver.com/news/local/can-utility-meet-data-center-need/article_daaf2e7a-13a4-4459-985f-c79c0efd10dd.html

Current [Literary/Publishing World] Events:

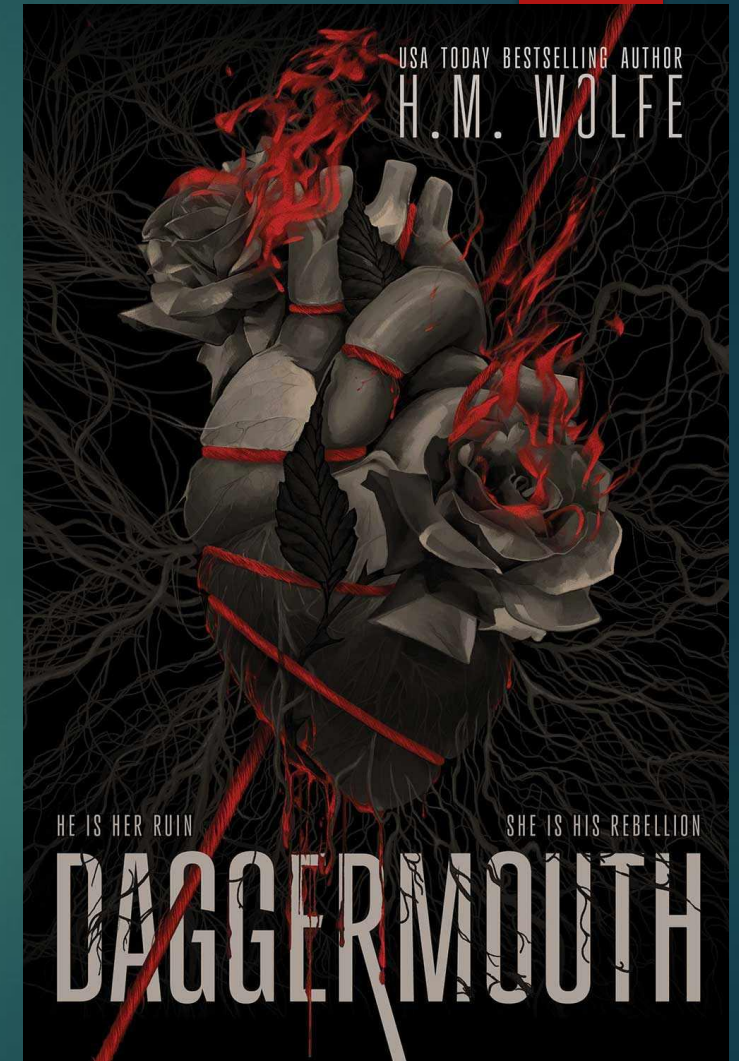
Daggermouth by H.M. Wolfe

Daggermouth by indie author H. M. Wolfe, originally uploaded to Amazon as a Kindle ebook, tops a list compiled by academics of self-published Amazon books identified as containing "substantial AI text." None of the thousands of books they flagged has been more popular...

...The awkward part for everyone involved is that detection tools are imprecise. Chakrabarty himself concedes that "if you significantly edit an A.I.-generated text, then it becomes human, and this is a harder problem in general..."

*Tuhin Chakrabarty is a computer science professor at Stony Brook University who researches AI writing

<https://aiweekly.co/alerts/hm-wolfes-daggermouth-faces-ai-writing-accusations>



AI & Education, from the online article:
University of Northern Iowa launches curriculum on artificial intelligence (March 3, 2026)

“...A new undergraduate major in the College of Humanities Arts and Sciences, **Mathematics of Artificial Intelligence**, responds to the increasing demand for professionals who not only know how to use artificial intelligence tools, but also understand the mathematical foundations that make those tools work...”

<https://insideuni.uni.edu/stem/university-northern-iowa-launches-curriculum-artificial-intelligence>

ON PRIVACY & SURVEILLANCE



“Surveillance technologies are not by themselves inherently good or bad. It’s really about what kinds of uses we put them to.”



-Dr. Helga Tawil-Souri, associate professor at New York University in the Department of Media, Culture and Communication and Middle East and Islamic Studies

“Skynet (China’s AI surveillance program) is, depending on your vantage point, an extraordinary technical achievement or a monument to state overreach. It’s probably both simultaneously, which is precisely what makes it so difficult to dismiss with a simple verdict.”

<https://this-amazing-world.com/china-skynet-ai-surveillance-facial-recognition/>

ON PRIVACY & SURVEILLANCE

- ▶ Flock cameras across the state of Iowa (and nation).
 - ▶ Consider media literacy, technology, computer vision, POV and ideology of company and users.
- ▶ Update: Axon cameras have been installed where cities have canceled Flock contracts.
 - ▶ <https://cbs2iowa.com/news/local/cedar-rapids-police-seek-axon-tech-upgrade-with-drones-body-cams-and-ai-tools>
 - ▶ Easier to hide (attach to traffic lights)
- ▶ AI is often used in software/hardware in military warfare.



ON PRIVACY & SURVEILLANCE

- 2020s: According to Dr. Brandy McNeil, there has been a list of AI tools approved for city agencies in NYC.
- This would bring transparency and accountability, allowing the citizens to know how tax money is being used.

PROGRAMMING
Librarian
ALA American Library Association

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Media Literacy Education for Adult Audiences: Demystifying AI

WATCH THE RECORDING

In this webinar, we will unravel the complexities of AI and explore how media literacy plays a vital role in fostering a well-informed public.

Duration
1 hour

Today's Presenter



Dr. Brandy McNeil

Deputy Director,
The New York Public
Library
&
Public Library Association
President-Elect

PROGRAMMING
Librarian

Watch on YouTube

PART III. WATER & ENERGY



AI & WATER



- Direct use: on-site water use.
- Indirect use: off-site water use.

Individual Use

Reports have shown varying amounts of H2O usage for individual prompt sessions:

<https://www.govtech.com/question-of-the-day/how-much-water-does-chatgpt-drink-for-every-20-questions-it-answers>

<https://www.technologyreview.com/2025/05/20/1116327/ai-energy-usage-climate-footprint-big-tech/>

According to researcher Andy Masley: “If someone reads the statistic ‘50 ChatGPT searches use 500 mL of water’ they might draw the incorrect conclusion that a bottle of water needs to flow through the data center per 50 searches...



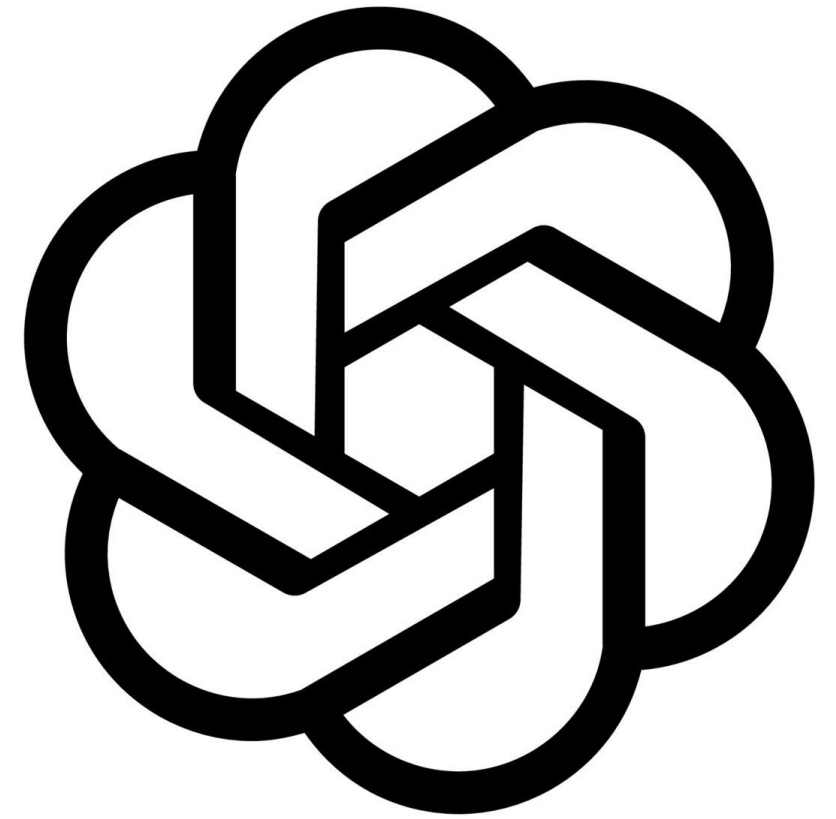
- ▶ In reality, only 15% of that bottle flows through, so the data center only uses 500 mL of water per 300 searches.”
 - ▶ <https://blog.andymasley.com/p/individual-ai-use-is-not-bad-for?open=false#%C2%A7how-much-water-do-llms-use>
- ▶ “Indirect (or off-site) water use for data centers predominates (<https://spectrum.ieee.org/ai-water-usage>).”



-

So...How much water? (national scale)

- ▶ “According to a report by Lawrence Berkeley National Laboratory, the 2023 direct water consumption by data centers in the United States—home to about 40 percent of the world's data centers—is estimated at roughly 17.5 billion gallons.
- ▶ The same report projects that the U.S. data center direct water consumption could double or even quadruple the 2023 level by 2028.”
- ▶ These numbers, however, **are not a certainty**.
- ▶ Sustainability methods have been/are being implemented.



ChatGPT

LOCAL & GLOBAL

Is AI's water use actually a crisis? The case on each side

Reasonable people disagree, and a fair read holds both views at once.

The case for concern

- Cooling competes directly with drinking water, since many facilities use potable fresh water.
- The strain is concentrated, so a single site can dominate a small community's supply.
- Usage is rising fast, with some company disclosures up double digits year over year.
- Transparency is thin, leaving the public dependent on incomplete corporate reporting.

The case for context

- Per-query water use is small, and the scariest figures often bundle in indirect costs.
- Many operators are shifting to recycled water, non-potable sources, and less thirsty cooling.
- Other everyday industries, from agriculture to apparel, use far more water than AI.
- Efficiency is improving, with new direct-to-chip and immersion cooling cutting water needs.

The honest synthesis: AI's total water use is real, rising, and locally significant, but the per-prompt guilt-trip statistics are often the least reliable part of the conversation.

- ▶ **Artificial intelligence technology behind ChatGPT was built in Iowa — with a lot of water**
- ▶ <https://apnews.com/article/chatgpt-gpt4-iowa-ai-water-consumption-microsoft-f551fde98083d17a7e8d904f8be822c4>
- ▶ **Majority of US's new AI datacenters to be built on drought-hit land**
- ▶ <https://www.theguardian.com/us-news/2026/jun/08/datacenter-ai-drought-water>



► AND YET...

The Data Center Water Problem is Soluble by Robin Gaster

► <https://itif.org/publications/2026/07/06/the-data-center-water-problem-is-soluble/>



ENERGY & ELECTRICITY



energy use by data center type

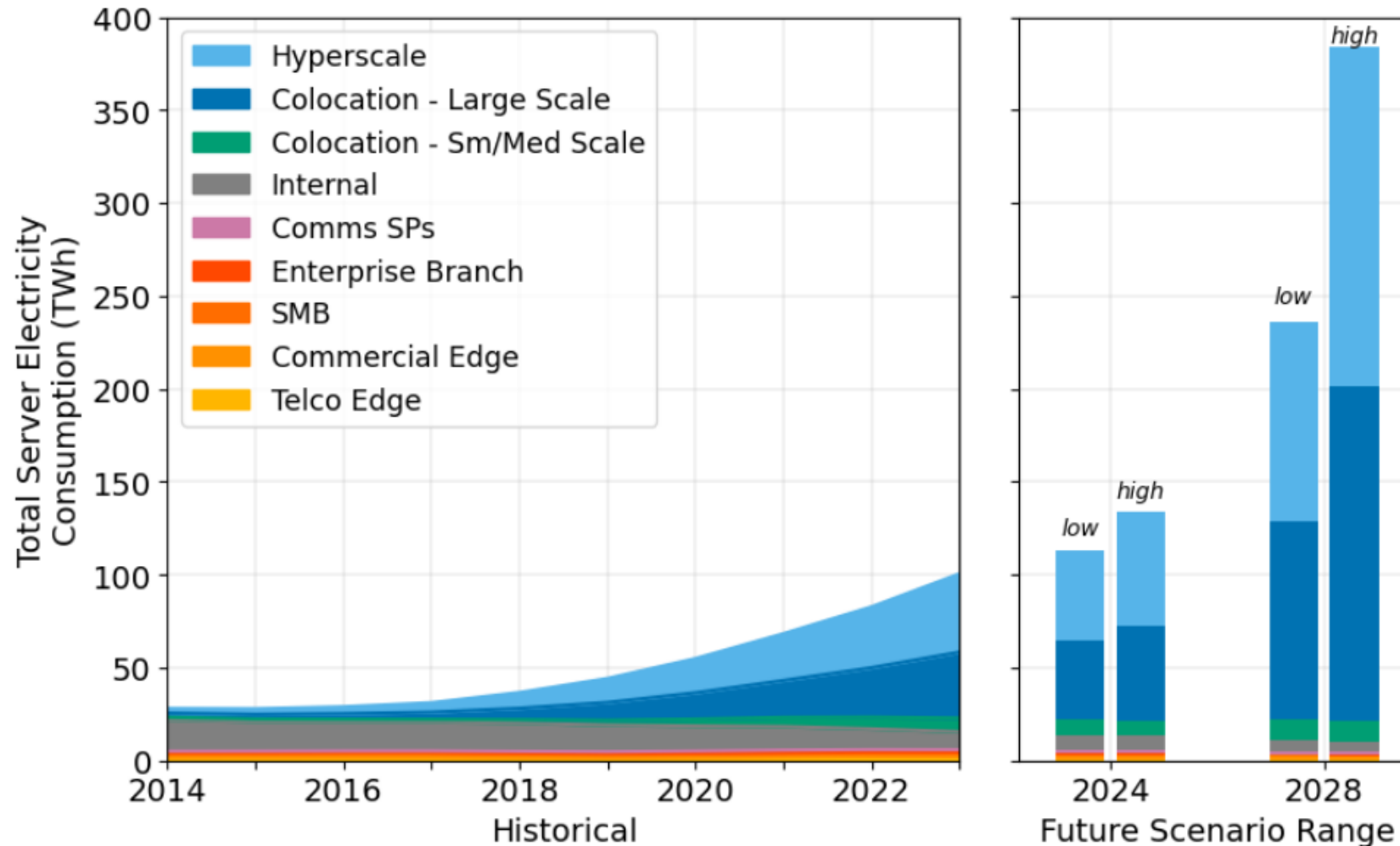


Figure 5.2. Server annual electricity use by space type.

“Hyperscale data centers represent data storage on a gigantic scale.”

Large companies usually own their own hyperscale centers.

Colocation is where one company owns a hyperscale data center and “rents out its facilities, servers, bandwidth and/or space to interested businesses that presumably do not have their own data center facilities.”

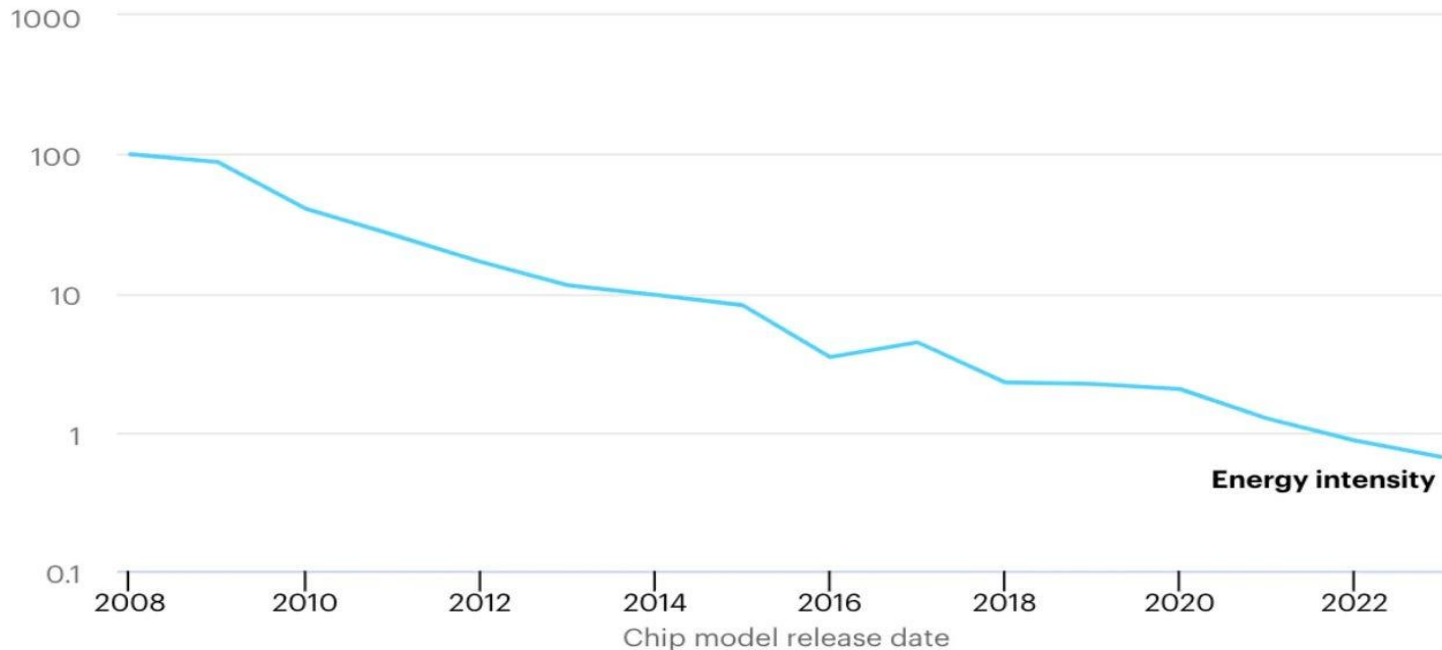
<https://www.ibm.com/think/topics/hyperscale-vs-colocation>

Image via 2024 United States Data Center Energy Usage Report, Berkeley Lab

Efficiency improvement of AI related computer chips, 2008-2023

Open ↗

Index of energy intensity of AI computer chips (2008=100, log scale)



IEA. Licence: CC BY 4.0

EFFICIENCY GAINS

“If you were to take the expected growth in internet technologies since 2010 and assume that energy demand would follow, then you do get pretty scary numbers.

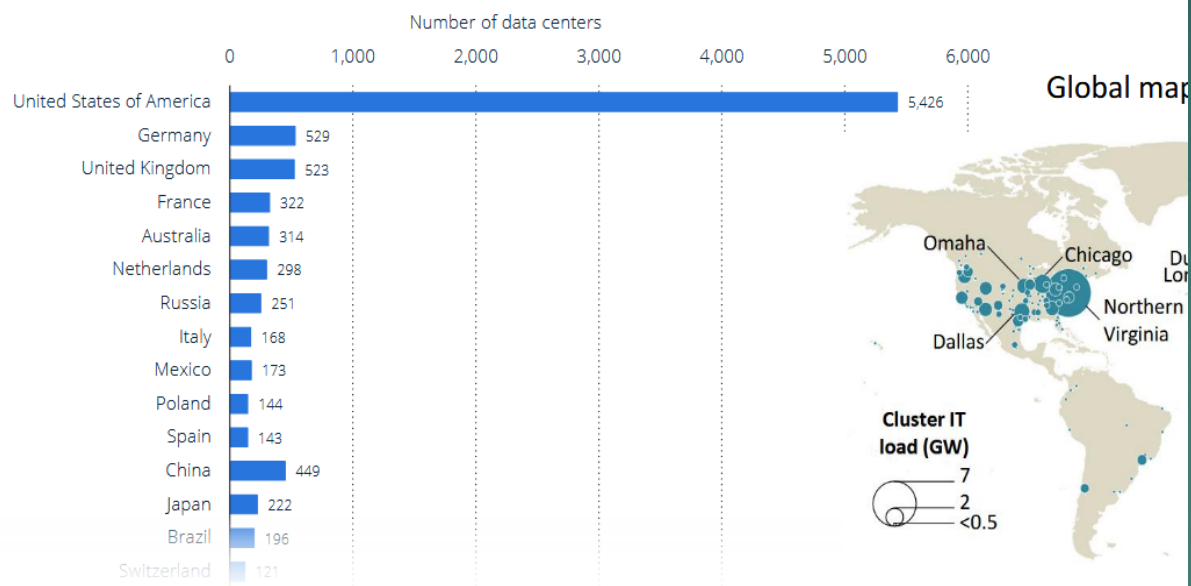
But energy demand did not follow in the same way...it was curbed by huge efficiency gains...”

<https://hannahritchie.substack.com/p/ai-energy-demand>

Image via:
<https://hannahritchie.substack.com/p/ai-energy-demand>

<https://www.iea.org/commentaries/what-the-data-centre-and-ai-boom-could-mean-for-the-energy-sector>

The US dominates the global data center



Note(s): Worldwide; 2025
Further information regarding this statistic can be found on page 8.
Source(s): Cloudscene; ID 1228433 | statista

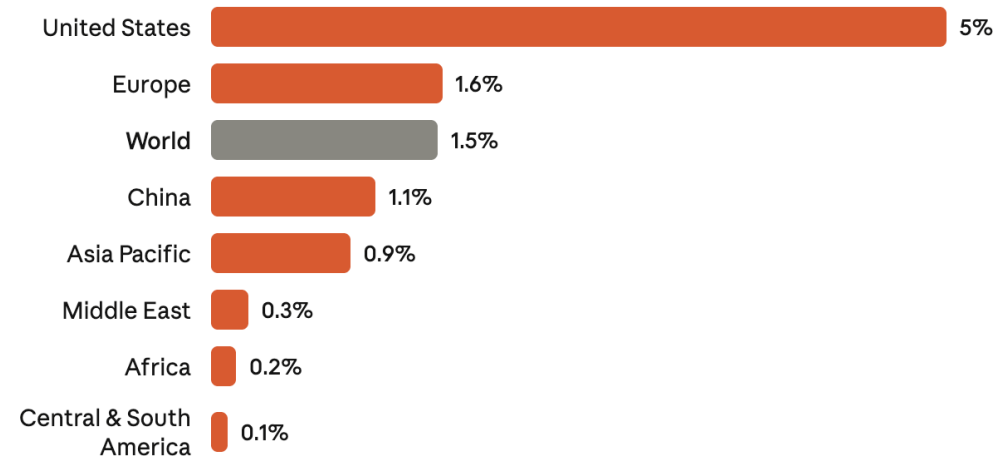


Marston Research Group

Landon Marston, PhD, PE | Data Centers and Water Usage

Share of electricity used by data centres, 2025

Data centre electricity consumption as a percentage of total electricity generation.



Note: Regional electricity totals are based on Ember (2026). Regional boundaries may not align exactly with IEA definitions.
Data source: Calculated based on IEA, Key questions on Energy and AI (2026) and Ember (2026).

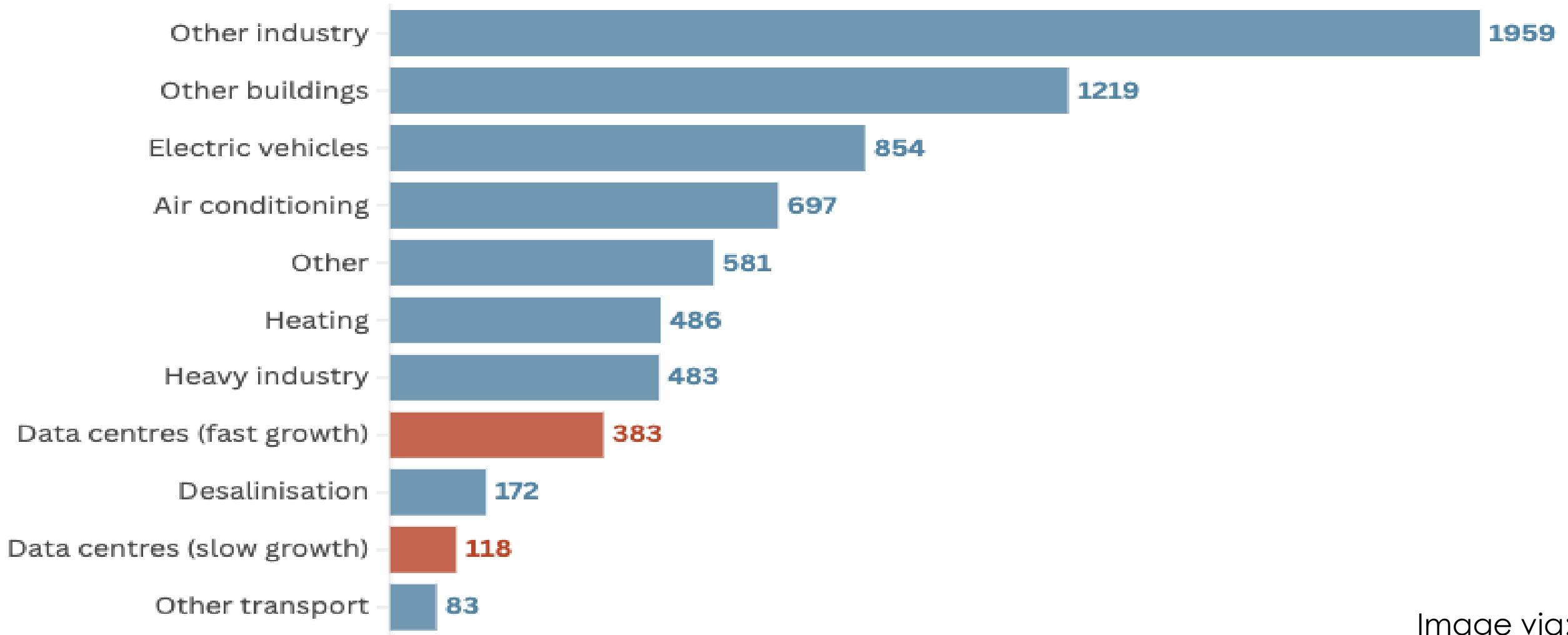
“Beneath Europe’s 1.6% figure, we have Ireland, where data centres account for more than 20% of its electricity consumption. Beneath the 5% US figure, there are a number of states where data centres make up more than 10% of demand, and in states such as Virginia, it’s more than a quarter.

...Growing data center demand is “geographically concentrated, meaning the entire world’s demand is being served by a small number of electricity grids.”

<https://hannahritchie.substack.com/p/ai-electricity-2025>

Projected growth in global electricity demand from 2023 to 2030, with fast and slow growth scenarios for data centres

Projections from the International Energy Agency (IEA) based on stated policies. Measured in terawatt-hours (TWh).

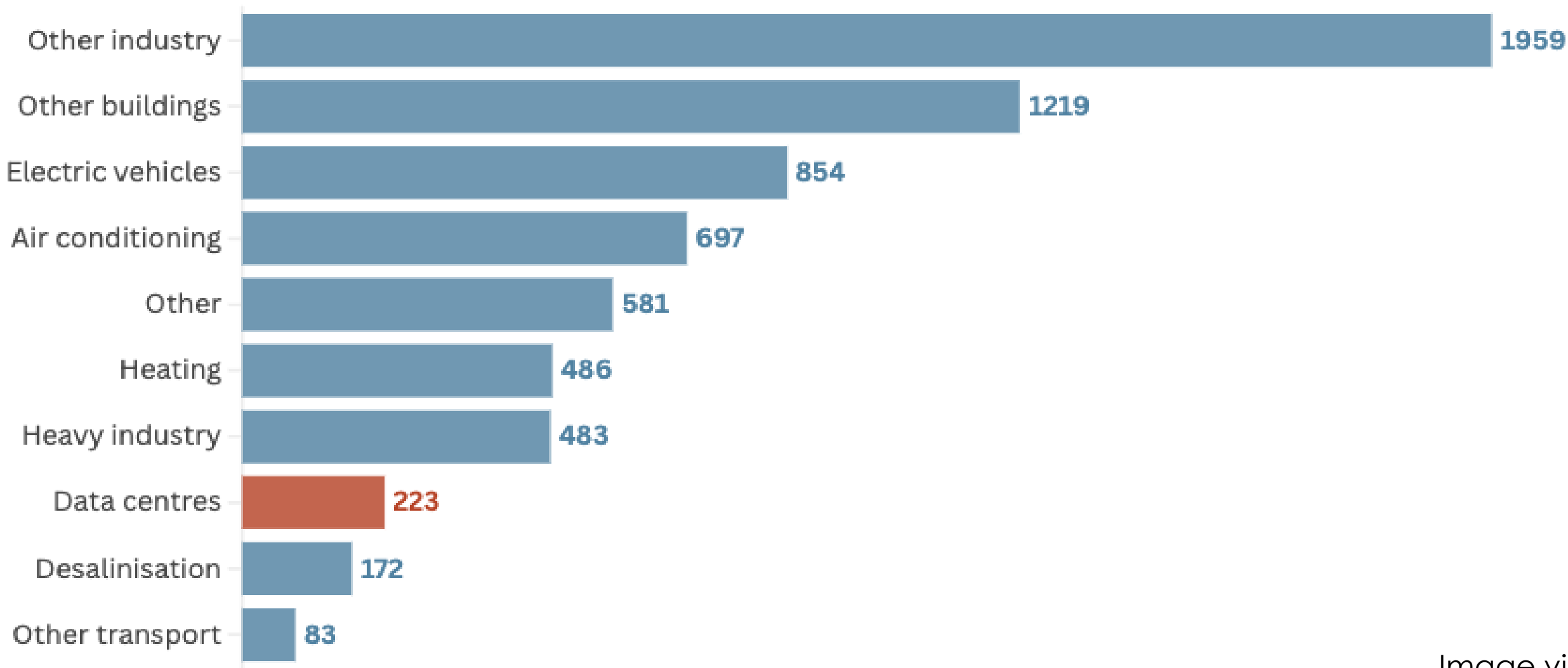


Source: International Energy Agency (IEA). World Energy Outlook 2024.

Image via:
<https://hannahritchie.substack.com/p/ai-energy-demand>

Projected growth in global electricity demand from 2023 to 2030

Projections from the International Energy Agency (IEA) based on stated policies. Measured in terawatt-hours (TWh).



Source: International Energy Agency (IEA). World Energy Outlook 2024.

Image via:
<https://hannahritchie.substack.com/p/ai-energy-demand>

MAP OF DATA CENTERS IN IOWA

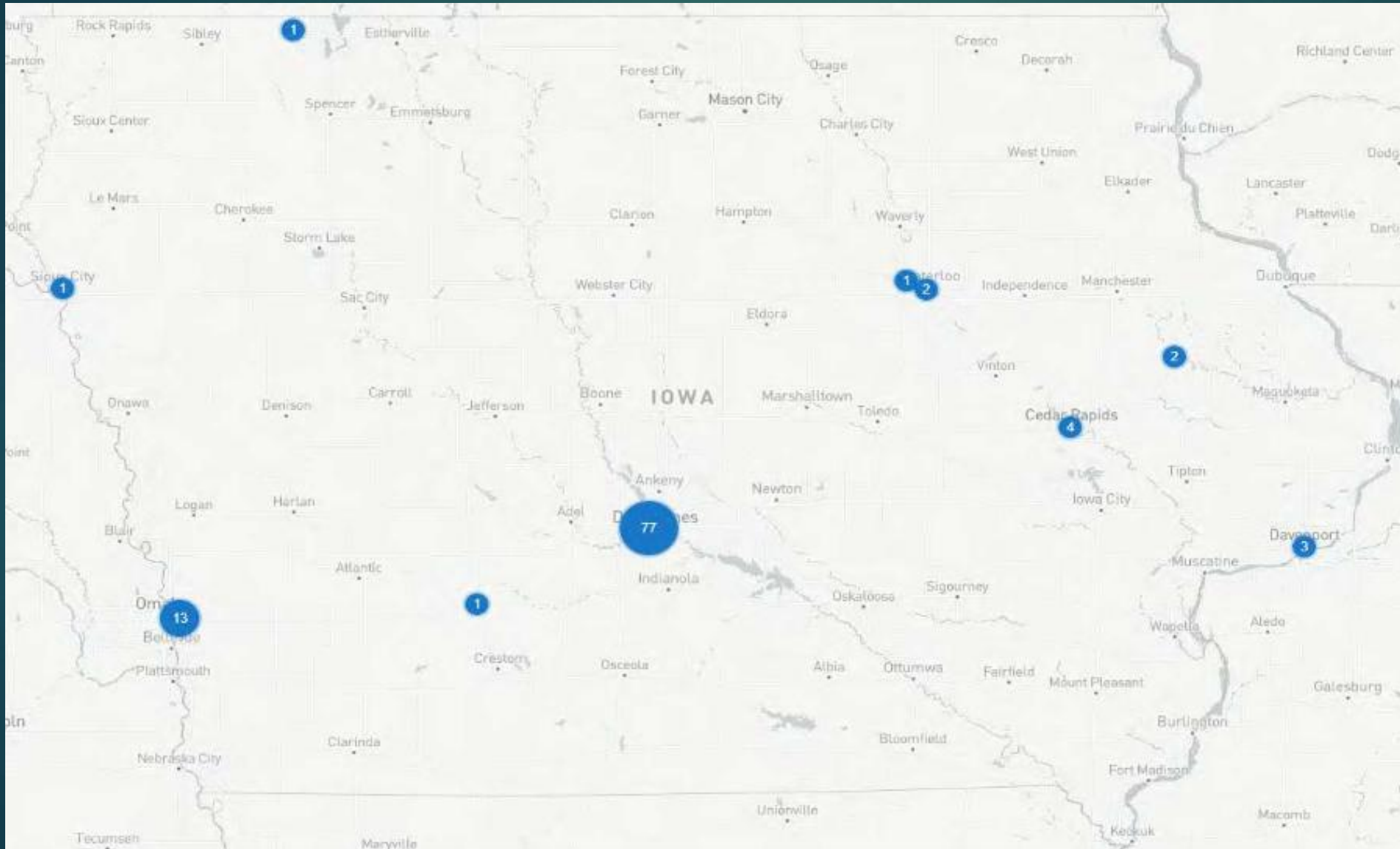


Image via:
https://www.technologyiowa.org/wp-content/uploads/2026/05/Economic-Impact-Data-Centers-Iowa-TAI-optimized_F2.pdf

CONCERNING IOWA

- AI/data centers intersect with climate change, which means energy matters.
- Other industries contribute more to climate change, including the carbon/fossil fuel industry, which powers data centers in places like Virginia or Kentucky.

To consider:

- Pollution by other industries compared to data center/AI
- Sustainability measures improved by those sectors that once recorded higher levels of energy, pollution, [on-site] water use—but have since improved
- Local vs. Global calculations & impacts
- Media literacy
 - AI “hype”
 - QTS and other data center ads that focus on zero/low water use – referring to on-site

<https://iowasaifuture.com/2026/06/09/data-centers-and-electrical-use-in-iowa/>

<https://insideclimatenews.org/news/28072025/big-beautiful-bill-iowa-data-centers/>

CONCERNING POWER

“Power generation is currently the largest source of carbon dioxide (CO₂) emissions in the world, but it is also the sector leading the transition to net zero emissions through the rapid expansion of renewable energy sources such as solar and wind power. Ensuring consumers have secure and affordable access to electricity while also reducing global carbon dioxide (CO₂) emissions is one of the core challenges of the energy transition.”

-International Energy Agency

<https://www.iea.org/reports/electricity-2024>



An updated ENERGY report, VIA IEA

*Updated energy report for 2025:
[https://iea.blob.core.windows.net/
assets/de9dea13-b07d-42c5-a398-
d1b3ae17d866/EnergyandAI.pdf](https://iea.blob.core.windows.net/assets/de9dea13-b07d-42c5-a398-d1b3ae17d866/EnergyandAI.pdf)

PART IV. SOME AI TOOLS & BASIC PROMPTING



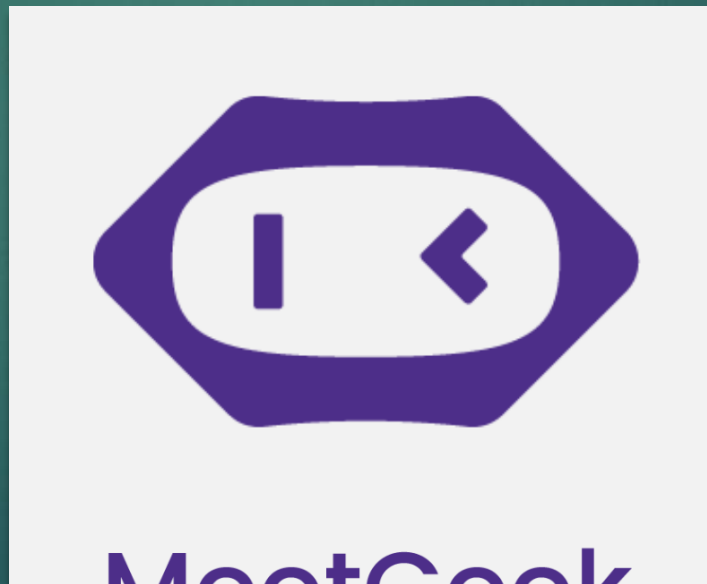


- Canva
- NotebookLM
- Piktochart

Note-Taking Apps:

- ▶ Otter.ai
 - ▶ records, transcribes meetings
- ▶ Granola
 - ▶ transcribes and summarizes your notes.
- ▶ Notion
 - ▶ chatbot, writing partner, search engine.
- ▶ MeetGeek
 - ▶ records, transcribes meetings.

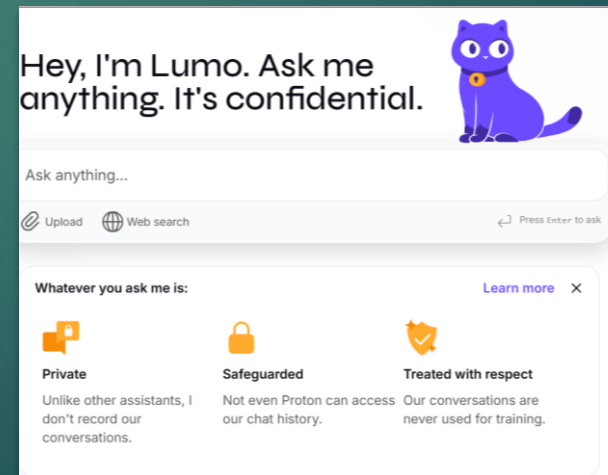
*Remember privacy. Offline desktop apps are a recent discussion. Speaking of privacy...



Some Private Options:

- ▶ Brave's Leo AI
 - ▶ Duck.ai
 - ▶ Proton's Lumo
 - *with Proton email account
 - ▶ Msty.ai
 - ▶ AnythingLLM
 - ▶ Jan.ai
-
- ▶ How to Use AI Privately for Free – Jeremy Caplan

<https://wondertools.substack.com/p/keep-your-ai-private-and-free>



Ex. Crafting Assistant

- ▶ Upload either photo into Chrome AI and prompt with how to make:



▶ Ex. Nature/Gardening Assistant

- ▶ Can prompt Chrome AI with the picture of a daffodil and it will come back with:
 - ▶ Info
 - ▶ How to grow and care for



PROMPT!



Image via The Simpsons, Matt
Groening, Fox, Disney

What is a prompt?

“A prompt is the question or instruction you give to an AI tool to guide its response.”

<https://teaching-resources.delta.ncsu.edu/ai-prompting-basics/>

“Despite the increased sophistication of LLM chat-based interfaces, it’s still helpful to think of a generative AI tool like ChatGPT as “a machine you are programming with words” (Mollick, 2023).”

“Your AI interactions and the output quality hinge largely on how you word your prompts.”

[https://mitsloanedtech.mit.edu/ai/basics/effective-prompts/#What is a Prompt](https://mitsloanedtech.mit.edu/ai/basics/effective-prompts/#What_is_a_Prompt)

PROMPT!



THE EFFECTIVE PROMPT

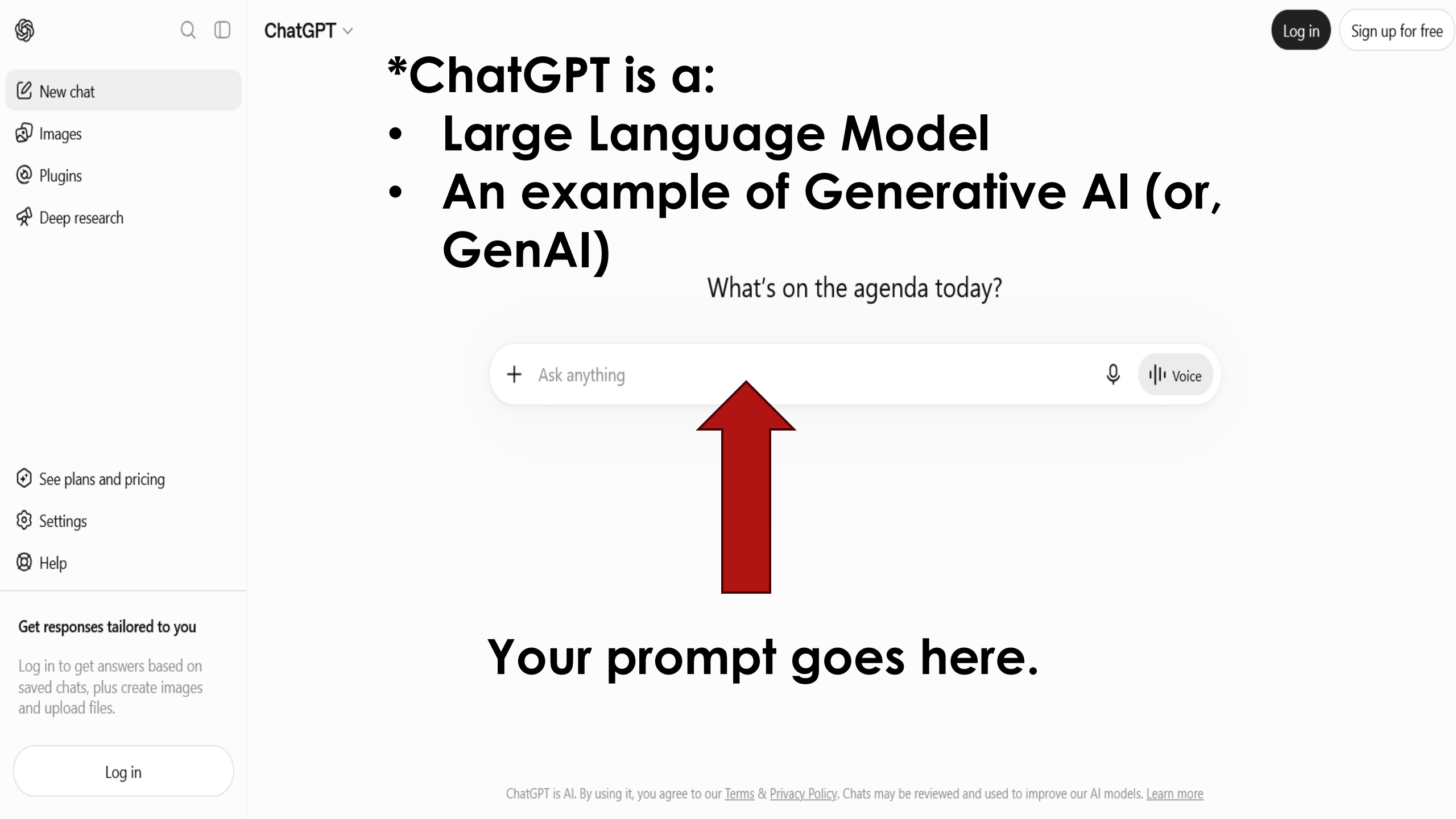
Writing Effective Prompts

“To simplify, the way you frame prompts shapes the AI’s output. This art of refining prompts is termed **prompt engineering**, which “involves selecting the right words, phrases, symbols, and formats” to get the best possible result from AI models (John Maeda, 2023).

Given that context, consider these three strategies for prompt engineering:

- First, provide context.
- Second, be specific.
- And third, build on the conversation.”

https://mitsloanedtech.mit.edu/ai/basics/effective-prompts/#What_is_a_Prompt



***ChatGPT is a:**

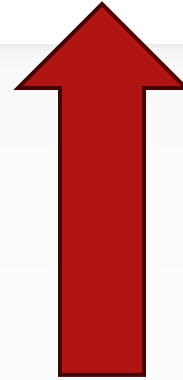
- **Large Language Model**
- **An example of Generative AI (or, GenAI)**

What's on the agenda today?

+ Ask anything



Voice



Your prompt goes here.

Log in



Full AI Prompting Course with Andrew Ng:

<https://www.youtube.com/watch?v=8ib4Qnh2HFE>



Asking hard questions

AI novice

Uses AI for simple questions

Does Taco Bell still have the Double Decker Taco?



Not on the permanent menu, but it often returns for limited runs



This is cool but not that life-changing



DeepLearning.AI

AI power user

Gives AI difficult tasks and time to think

Car specs, quotes, insurance plans



What are the tradeoffs for each car? Read everything and think hard before answering



Here's a detailed report...



VS



Andrew Ng

Prompt Ideas:

1. “Can you provide me with a recipe for ingredients I have left in the kitchen?”

- power user mode: include your own recipes and prompt AI to add headings/sections you provide. You can even use organization assistance to create a meat/vegetarian/vegan version of your own recipes/cookbook.

2. “Where in the area can I get the best quality product and price for this item—say, a computer, or fridge?”

- power user mode: list sources inside the prompt to guide the AI tool.

3. “What was the social impact of John Carpenter’s *Halloween* on viewers?”

- power user mode: include sources, articles, images to specify for historical clarity and in support of your thesis.
- Any more ideas?

- There are many tools.
- Consider your work, tasks, and which application works best for you.

GenAI:



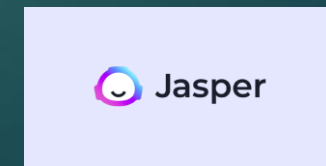
Learnt.ai: Education
Perplexity: AI search
engine
Deepseek: Research



Elicit:
Research



Otter:
Meetings &
Transcription
Jasper:
Marketing





► TIPS ON USING AI (if you choose to):

- Firstly, it is okay to not use AI.
- Mind your privacy.
 - <https://wondertools.substack.com/p/keep-your-ai-private>
 - <https://theslowai.substack.com/p/stop-ai-training-on-your-data>
 - Use an email specifically for AI use.
- AI move toward local device/non-cloud reliance is a positive.

TIPS:

- Use depends upon the user & their task/project.
Which tool works best for you?
- You can even combine different AI tools now:
 - CoPilot to PowerPoint for assistance with presentations.
 - research tools like Consensus, Elicit, or ResearchRabbit to different AI models.

TIPS:

- ▶ You are directing AI tool. Do not expect it to fill in the blanks.
- ▶ Pay attention to how it works. Edit prompts. It's an ongoing project.
- ▶ Treat AI as a thinking partner.
- ▶ AI has made mistakes in the past. But...

According to Andrew Ng, “more publicized mistakes can make people think this number is higher than it actually is.”

TIPS:

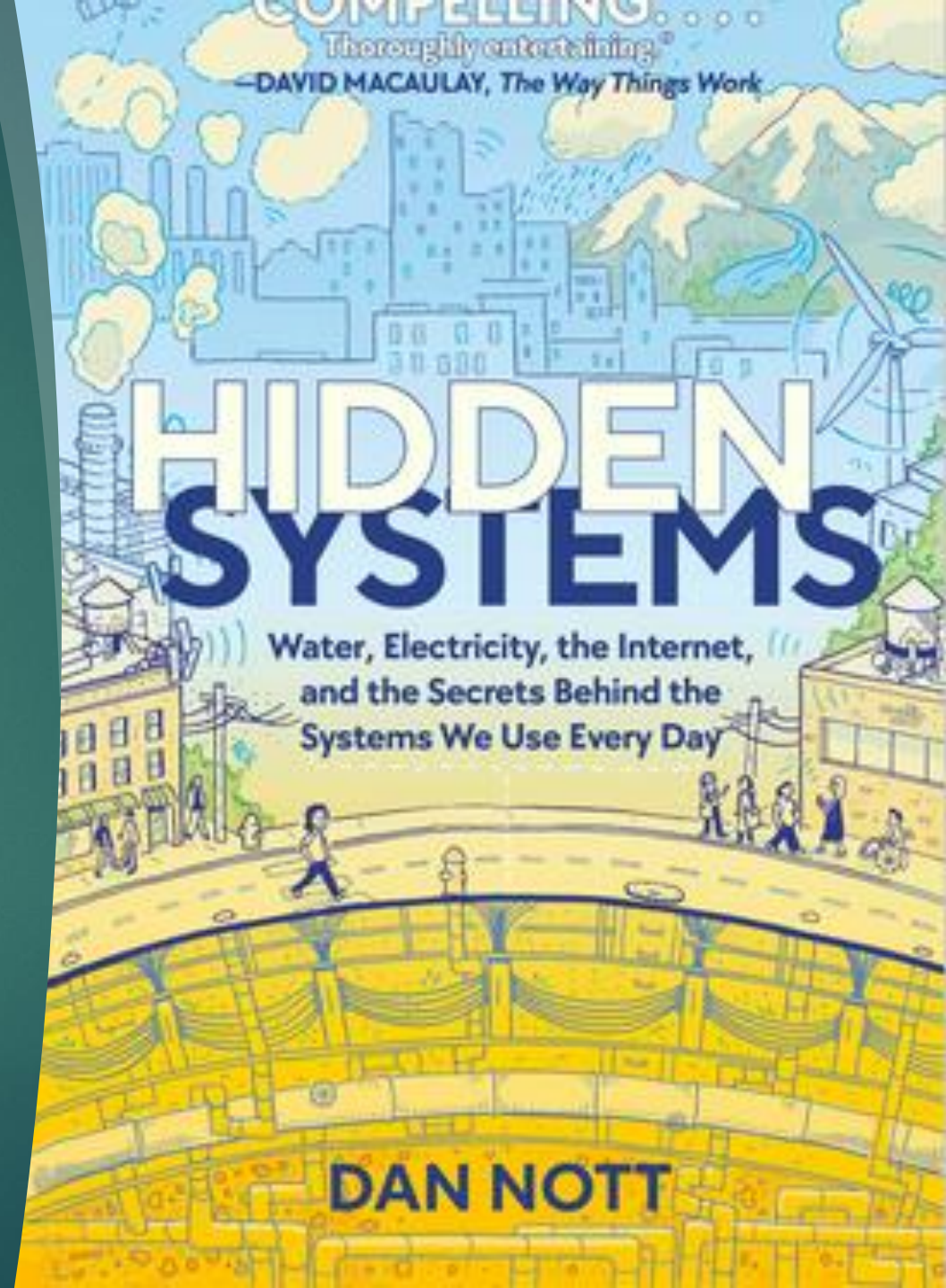
Per a recent AI webinar:

- We must be aware of our own unconscious biases; science-fiction narratives, and judgments.
- Online, if a statement begins with “AI will...” substitute this with “Humans in AI will...”
- People will use AI for good/bad.
- The LLM is a model that runs what it learned—based on how it was trained & what it was trained on.
- AI does what it was trained to do by humans.

PART V. CONCLUSION

CONSIDER:

- ▶ Tech influence and environmental/human needs.
- ▶ AI is a technology of technologies
- ▶ AI-over-climate change blame
- ▶ Over-dependence on AI and tech
- ▶ Economic growth
 - ▶ What does “growth” mean in today's culture?
 - ▶ Is growth a necessity?
- ▶ Global workers' rights – wage, safety net, violence, war, access to water and basic necessities, education, etc.
- ▶ Today's research presents current trends and stats while also reflecting an uncertain future
- ▶ The actions of today produce future outcomes



ONWARD...

- AI is a set of efficiency tools for completing tasks.
- Humans build and maintain the technology.
- On the other side of any AI model or tech are humans who have shaped this technology: from infrastructure to software and regulation.



ONWARD...

- Positives and negatives co-exist.
- As we live with AI, we can build fair and transparent structures.
- Lifelong learning is vital.
- As a trajectory for more sustainable methods develops—and our learning and knowledge builds—what we do now, and in the future, will be created by us, and our relationship with AI.



HELFPUL SOURCES:

DCL – AI Resources page

<https://www.dewitt.lib.ia.us/resources/ai-resources>

Who to Follow for Staying Current with AI

compiled by Nicole Hennig

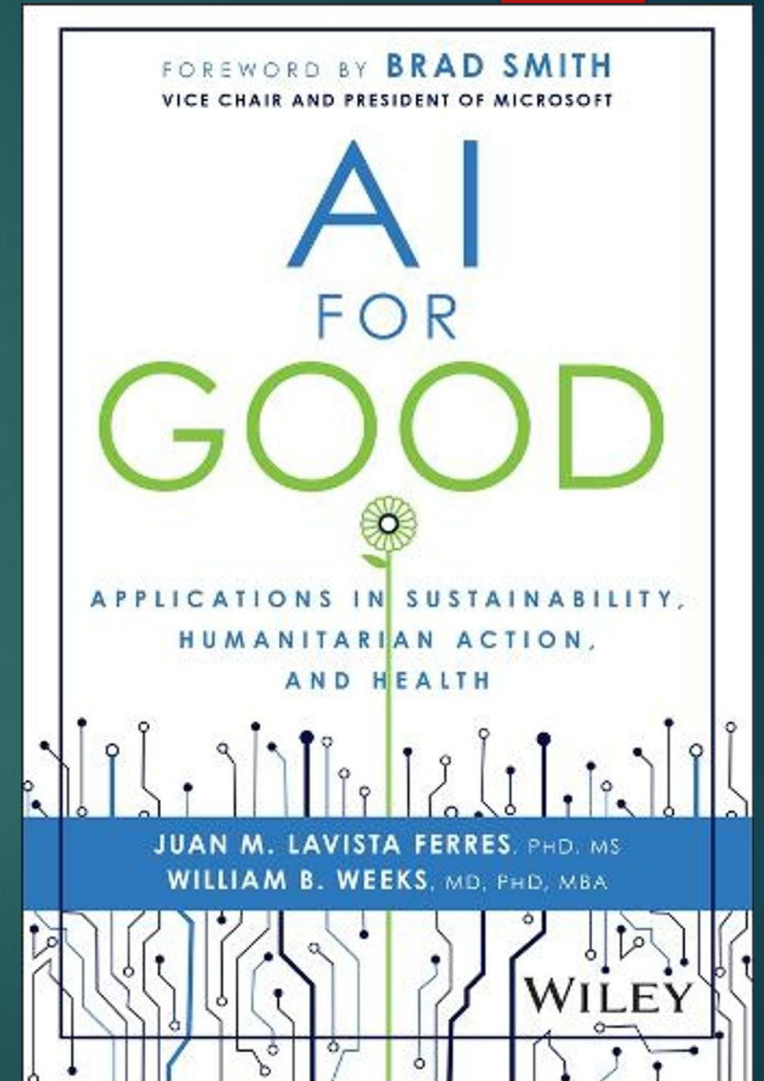
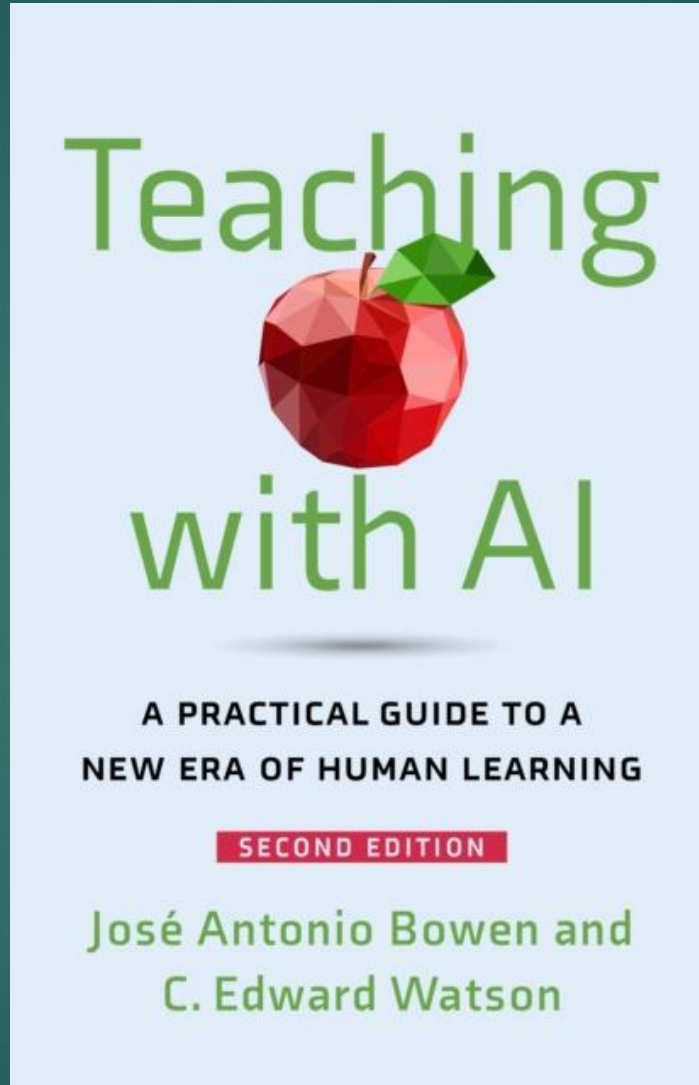
<https://nicolehennig.com/category/ai/>

AI/Tech/Humanities

<https://iamshaeo.com/resources/>

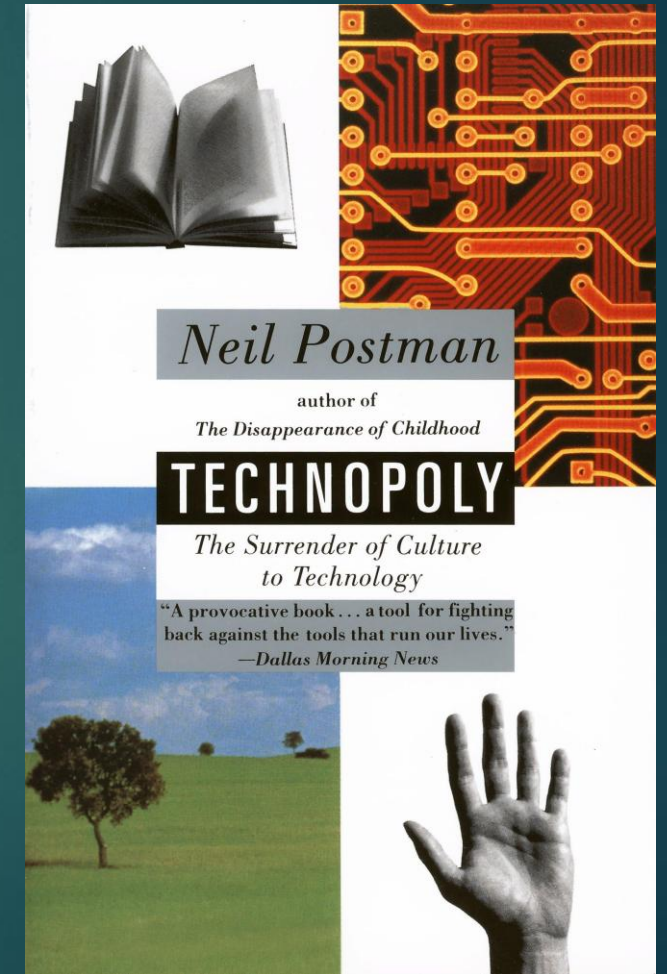
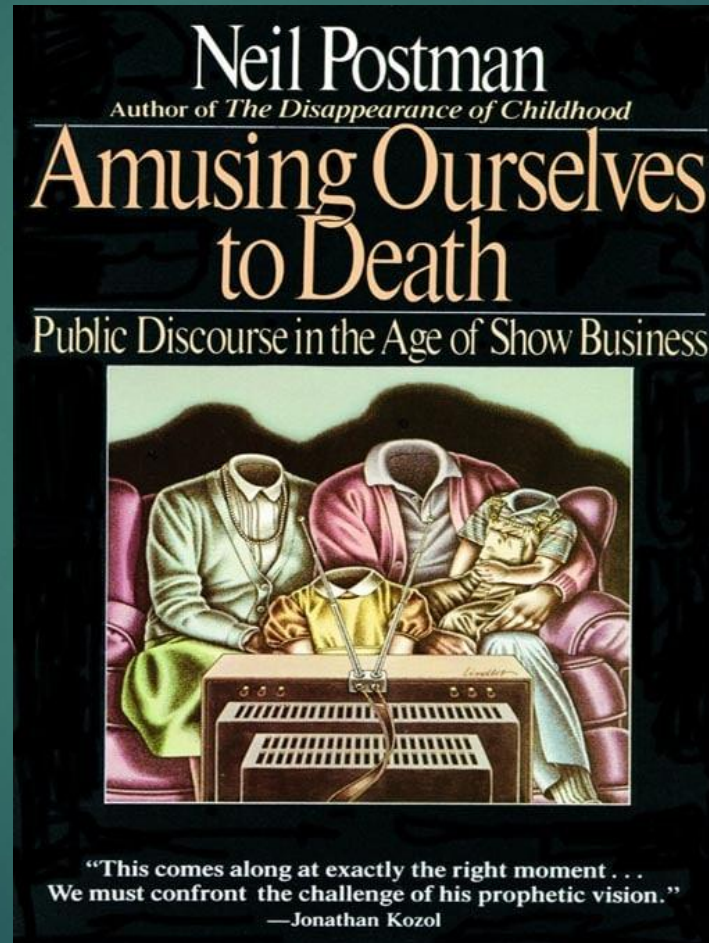
NEW MATERIALS AT DCL!

*Other online
sources and
book list
available on
DCL website.



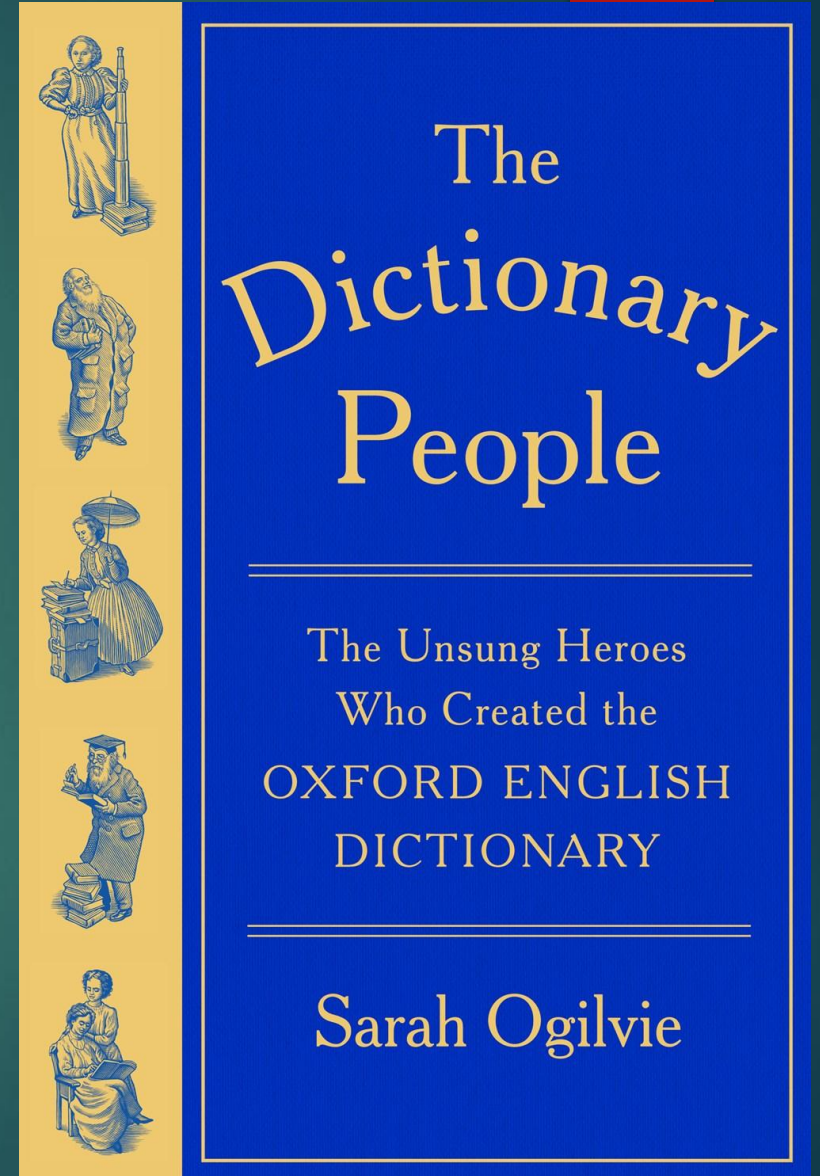
Access, Meaning, Technocracy & Technopoly – On history & how we use technology

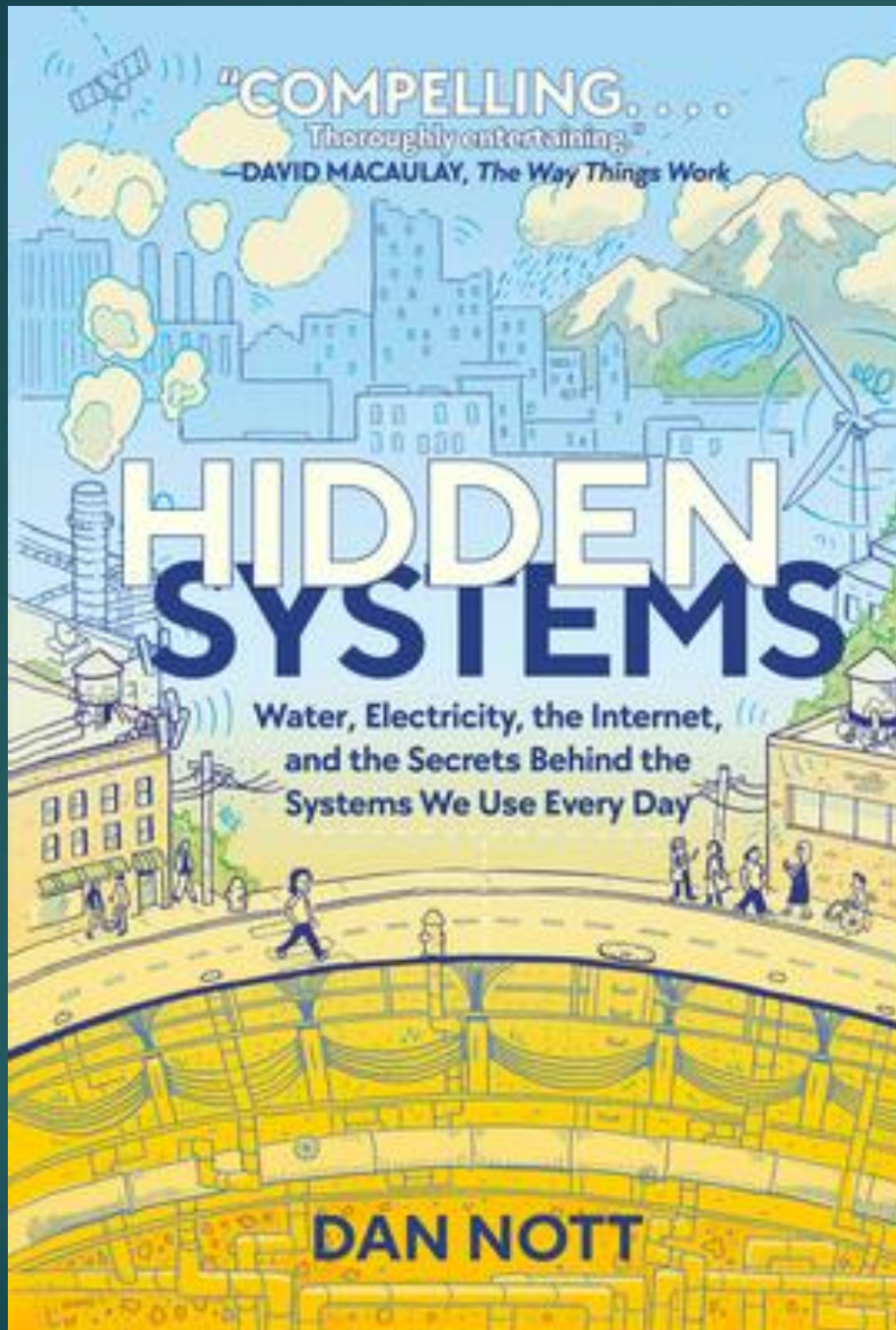
- helpful in understanding why/how we use technology.
- **1984** and **Brave New World**
- The printing press, the telegraph and changes to speed of access.
- Oral to text-based cultures, books, printing, and the 20th/21st centuries.
- Tool-using cultures, technocracy, and technopoly.



Technology & Society

- 150 years before Wikipedia, there were thousands who were consulted to bring the Oxford English Dictionary to life.
- The internet, years later, and online spaces like Wikipedia, are also examples of such mass crowdsourcing.
- We are in another critical moment regarding information awareness, maintenance, regulation and organization.
- Books about early technologies and development of languages and communication help with understanding how AI works.





A HELPFUL
SOURCE FOR
SOCIAL &
HISTORICAL
CONTEXT

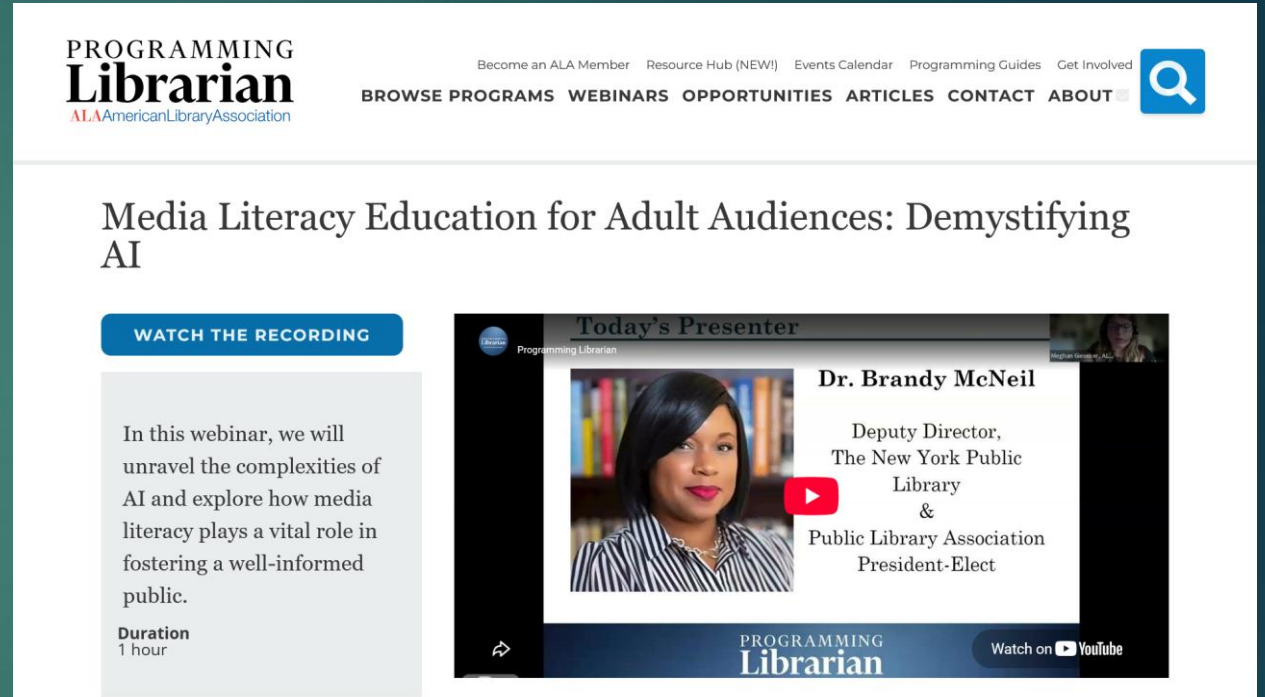
AI ETHICS SOURCE

According to Dr. Brandy McNeil, this area includes:

- Environment
- AI Training
- Privacy
- Plagiarism/Copyright
- Overreliance
- Bias, Deepfakes, Hallucinations
- Discrimination
- Political Manipulation

Source:

<https://programminglibrarian.org/learn/media-literacy-education-adult-audiences-demystifying-ai>



The screenshot shows the Programming Librarian website. The header includes the logo 'PROGRAMMING Librarian' with 'ALA American Library Association' below it. Navigation links include 'Become an ALA Member', 'Resource Hub (NEW!)', 'Events Calendar', 'Programming Guides', 'Get Involved', 'BROWSE PROGRAMS', 'WEBINARS', 'OPPORTUNITIES', 'ARTICLES', 'CONTACT', and 'ABOUT'. A search icon is on the right. The main content area features the title 'Media Literacy Education for Adult Audiences: Demystifying AI'. Below the title is a blue button that says 'WATCH THE RECORDING'. To the left of the video player, there is a text box: 'In this webinar, we will unravel the complexities of AI and explore how media literacy plays a vital role in fostering a well-informed public.' Below this text is the 'Duration' listed as '1 hour'. The video player itself shows 'Today's Presenter' as 'Dr. Brandy McNeil', with her title 'Deputy Director, The New York Public Library & Public Library Association President-Elect'. A red play button is visible over the video frame. At the bottom of the video player, it says 'PROGRAMMING Librarian' and 'Watch on YouTube'.

*The “black box” concept is very helpful.
This is similar to the model training diagram earlier.

Pacing the Frontier, Slowing the Race

<https://www.pacingthefrontier.com/>

“AI could help create a dramatically better future, but that outcome is not guaranteed. The world's leading AI companies believe they could be close to automating AI research. It is hard to predict exactly how much this will accelerate AI progress, but there is a real risk that capability development rapidly accelerates beyond our ability to understand or control the resulting systems...”

On Continuing Sustainability Focus

Advancements in zero-water cooling and sustainability in the AI industry:

<https://iamzhihanzhang.github.io/AI-Agents-for-LCA/>

<https://www.datacenterdynamics.com/en/analysis/immersion-cooling-and-it-reliability-what-do-the-numbers-say/>

<https://www.trgdatacenters.com/resource/immersion-cooling/>

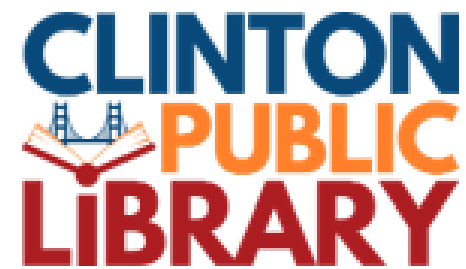
<https://www.sciencedirect.com/science/article/abs/pii/S0140700724000458>

<https://technologymagazine.com/news/how-are-companies-pioneering-data-centre-zero-water-cooling>

<https://sustainabilitymag.com/articles/microsoft-unveils-zero-water-cooling-for-ai-data-centres>

<https://www.datacenters.com/news/cooling-the-future-why-immersion-cooling-is-moving-from-niche-to-mainstream-in-hyperscale-builds>

THANK YOU!



► SOURCES

- <https://consensus.app/>
- <https://www.microsoft.com/en-us/edge/learning-center/what-is-chromium-how-does-it-enhance-your-browser?form=MA13I2>
- <https://computercity.com/software/browsers/list-of-chromium-and-non-chromium-based-browsers>
- <https://cyberinsider.com/braves-ai-assistant-leo-now-offers-cryptographically-proven-privacy/>
- <https://www.pcmag.com/encyclopedia/term/vivaldi-browser>
- <https://www.pcmag.com/news/protons-new-lumo-ai-chatbot-puts-privacy-first-with-its-chatgpt-alternative>
- <https://duckduckgo.com/#chat>
- <https://brave.com/leo/>

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- <https://www.wrmea.org/2026-january-february/israels-tech-lab-how-surveillance-sustains-occupation-and-spreads-worldwide.html>
- <https://www.technologyiowa.org/tai-releases-economic-impact-study-on-data-centers-in-iowa/>
- https://www.technologyiowa.org/wp-content/uploads/2026/05/Economic-Impact-Data-Centers-Iowa-TAI-optimized_F2.pdf
- <https://www.datacentermap.com/usa/iowa/>
- <https://iowasaifuture.com/2026/06/09/data-centers-and-electrical-use-in-iowa/>
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► SOURCES

- <https://www.ibm.com/think/topics/open-source-ai>
- <https://www.theguardian.com/technology/2026/feb/26/how-to-replace-amazon-google-x-meta-apple-alternatives>
- <https://libguides.library.arizona.edu/students-chatgpt/other-tools>
- <https://sustainability.stanford.edu/news/ai-predicts-earths-peak-warming>
- <https://www.weather.gov/news/261102-AI-Hurricane-Forecasting>
- <https://www.iweather.net.com/tropical/google-deepmind-compared>
- <https://www.pano.ai/>
- <https://www.marinebiodiversity.ca/digital-reefs-are-saving-ocean-treasures-we-cant-visit-anymore/>
- <https://mayomagazine.mayoclinic.org/2026/04/ai-in-healthcare/>

► SOURCES

- <https://libguides.library.arizona.edu/students-chatgpt/use#s-lg-box-wrapper-36466903>
- <https://libguides.library.arizona.edu/students-chatgpt/other-tools>
- <https://insideuni.uni.edu/stem/university-northern-iowa-launches-curriculum-artificial-intelligence>
- <https://www.pcmag.com/encyclopedia/term/interface>
- https://techterms.com/definition/user_interface
- <https://www.techtimes.com/articles/313049/20251129/ai-search-engines-vs-traditional-search-2025-comparison-whats-driving-winners.htm>
- <https://techstertech.com/understanding-interfaces-in-computing/>
- https://mitsloanedtech.mit.edu/ai/basics/effective-prompts/#What_is_a_Prompt
- <https://gemini.google.com/app/>
- <https://www.google.com/webhp>
- <https://chatgpt.com/>
- <https://notebooklm.google.com/>
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