

Part II. DCL AI
Presentation Series



Prompt: Chatbots, GenAI, and How We Use Them

A Digital Exhibit With
Andrew Gehlsen

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*But first, an online article via the University of Northern Iowa concerning AI and the future...

From 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.

While many AI programs emphasize coding and implementation, **UNI's Mathematics of Artificial Intelligence major** focuses on the "why" behind AI – grounding students in the mathematical theory that drives machine learning, deep learning, and modern data-driven technologies.

"Artificial intelligence is ultimately powered by mathematics," said Douglas Mupasiri, head of UNI's Department of Mathematics. "**As AI systems become more complex and more embedded in society, we need graduates who can understand, analyze and improve these systems at a fundamental level.**"

Students in the program will complete a rigorous curriculum that includes calculus, linear algebra, discrete mathematics, probability, statistics, optimization and computer programming, along with specialized courses in machine learning and the mathematics of deep learning.

Graduates of the Mathematics of Artificial Intelligence major will be well-positioned for careers across a wide range of industries, including technology, finance, healthcare, manufacturing, business and government. The degree also provides excellent preparation for graduate study in mathematics, data science, artificial intelligence or related fields..."

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



I. The Layout: Web Browsers, Search Engines, and AI Aesthetic

WEB BROWSER

What is a web browser?

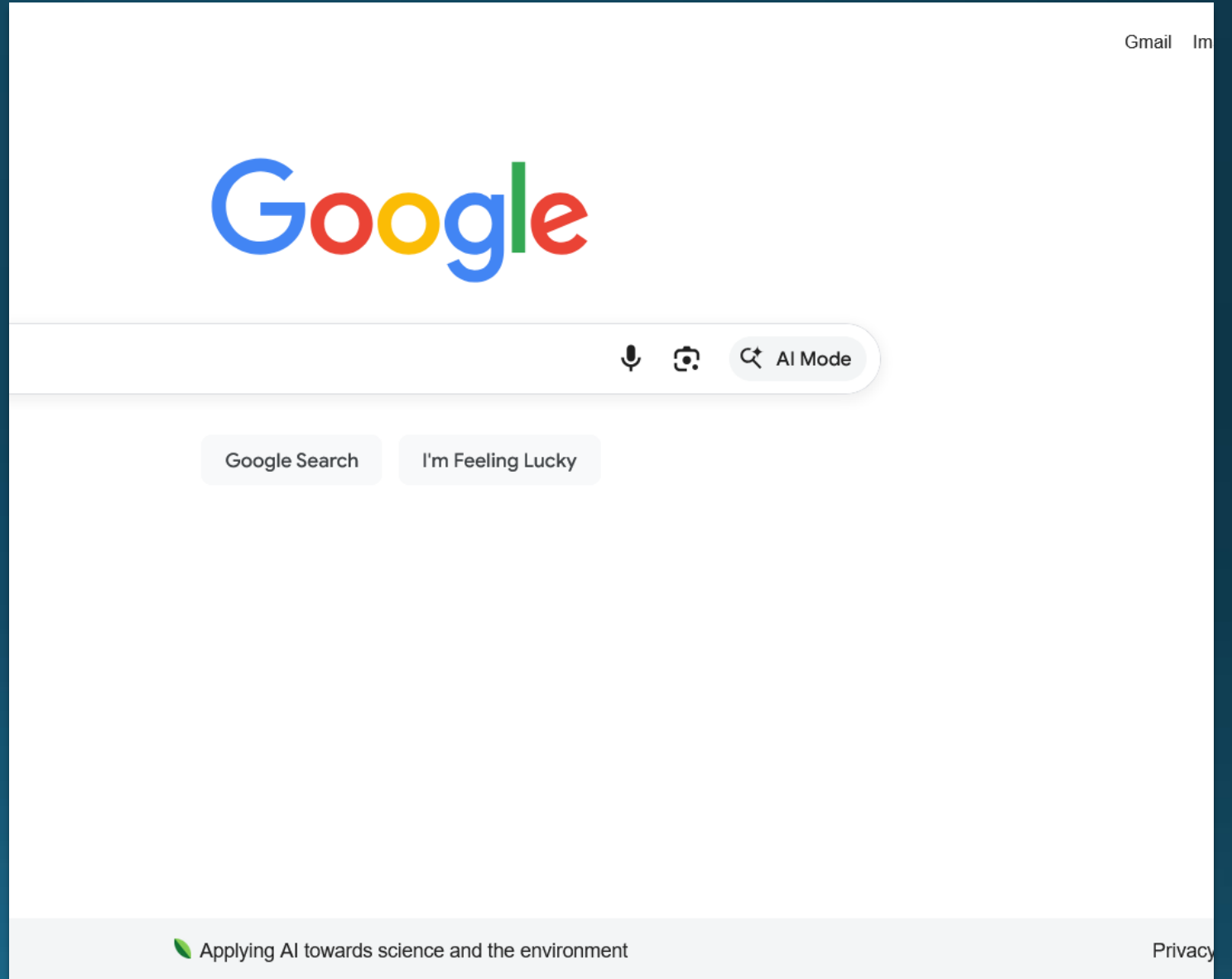
A web browser is a program to present and explore content on the World Wide Web.

<https://www.computerhope.com/jargon/b/browser.htm>



ENGINE, BROWSER, USER

Right: the browser user interface—a sort of surface-level interaction between user and technology.



SEARCH ENGINE

“A search engine is a tool used to find data based on a particular input.”

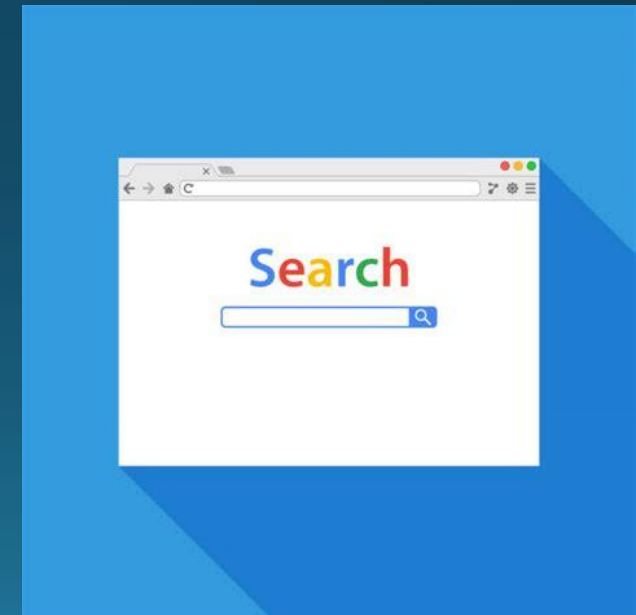
It's very close to definitions found in AI technology.

<https://www.lifewire.com/how-does-search-engine-work-3482032>

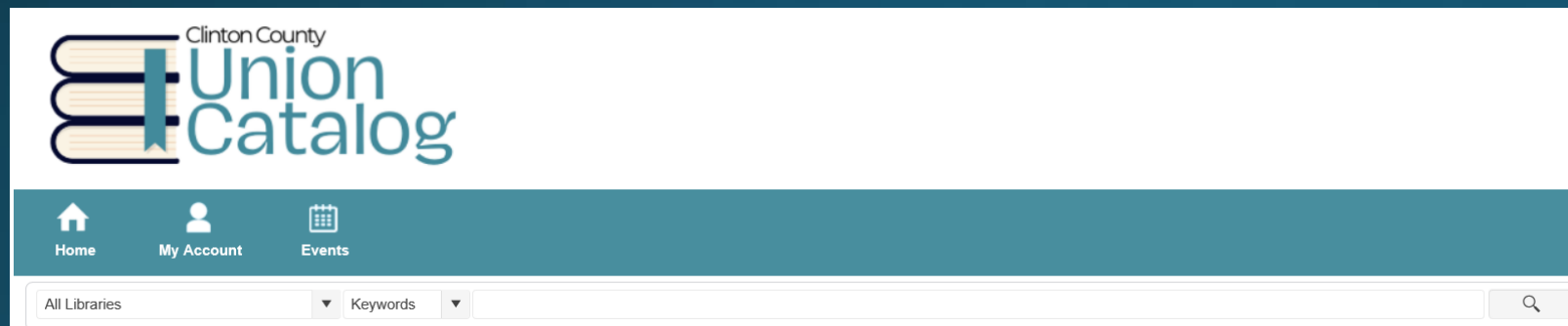
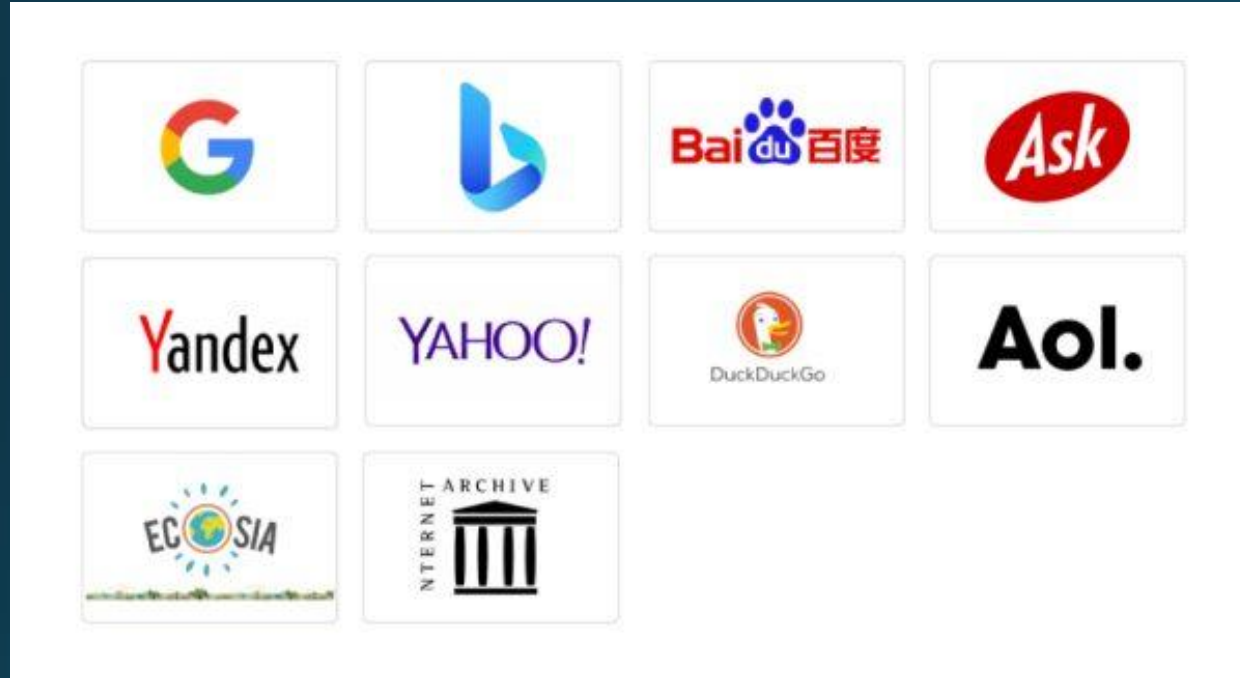
If we go back to our first presentation's key terms list, we can see the connection between **search engine** and **algorithm** and **machine learning**...

Algorithm – A sequence of step-by-step instructions for solving a problem or performing a task.

Machine Learning - A field of computer science in which a system learns patterns or trends from underlying data. Machine learning algorithms perform tasks like prediction or decision making.



EXAMPLES OF SEARCH ENGINES



Interface

“In computing, an **interface** refers to a point of interaction between different systems, devices, or components that allows them to communicate and exchange data.”

<https://techstertech.com/understanding-interfaces-in-computing/>

Graphical User Interface (GUI):

“A GUI is the visual interface that allows users to interact with software using graphical elements such as buttons, icons, and menus.

GUIs make it easier for people to use computers without needing to know complex programming languages.”

Application Programming Interface (API):

“An API, or application programming interface, is a set of rules or protocols that enables software applications to communicate with each other to exchange data, features and functionality.”

*This is how apps function on your phone or other device. An API is a “bridge establishing connection” between a client and server.

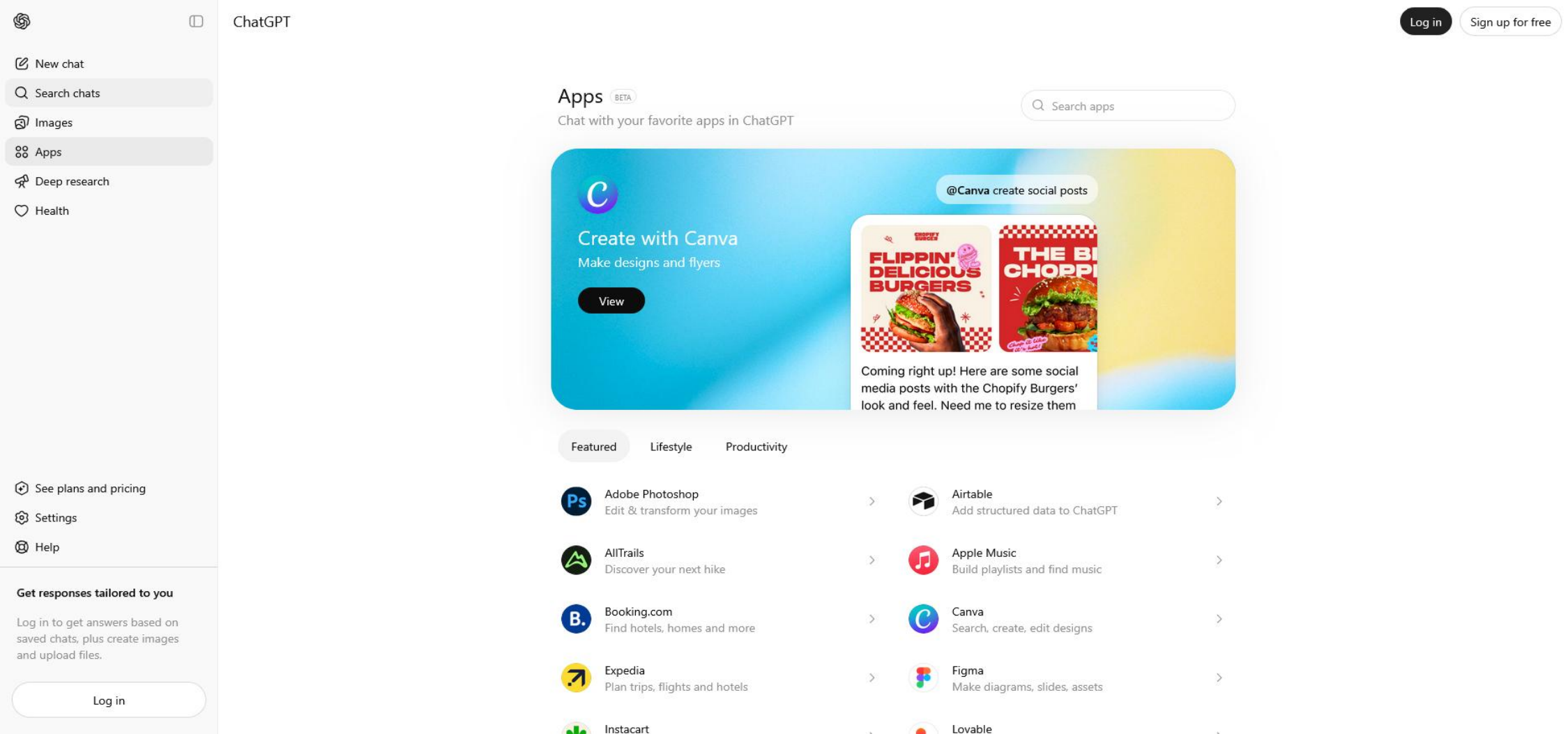
<https://techstertech.com/understanding-interfaces-in-computing/>

<https://www.ibm.com/think/topics/api>

“How does the computer relate to the human body?”

<https://www.computerhope.com/issues/ch002119.htm>

For Example, ChatGPT's user interface





Meet Gemini, your personal AI assistant

Ask Gemini

+

 Tools

Fast 



- Write
- Plan
- Research
- Learn

► TRADITIONAL SEARCH ENGINE & AI SEARCH ENGINE

TRADITIONAL SEARCH ENGINE:

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

AI SEARCH ENGINE:

- 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 back to them
- goes beyond simple keyword matching to analyze patterns and provide tailored responses

<https://www.ibm.com/think/topics/ai-search-engine>

Examples of Chatbots & GenAI



ChatGPT



Claude

The Gemini logo, which features the word "Gemini" in a blue-to-purple gradient font, with a blue four-pointed star above the letter 'i'.

II. Prompting



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

PROMPT!



Image via The Simpsons, Matt Groening, Fox, Disney

For example, I ask
ChatGPT: “Can you
provide the name,
location, and source for
this photo?”

Take a look at the
results on the following
slides...



ChatGPT

Notice along the bottom: "ChatGPT can make mistakes. Check important info."

Yes — this exact image matches a known, publicly available photo. Here are the details:

Photo Identification

- **Name / Description:** *Lions Club Shelter in a public park*
- **Location:** Soldiers Grove, Wisconsin
- **Specific subject:** Lions Club picnic shelter structure

Source

- **Source:** Wikimedia Commons (free media repository)
- **Original file page:**
[View original image and metadata ↗](#)
- **Photographer:** "TheCatalyst31"
- **Date taken:** November 1, 2015
- **License:** Creative Commons CC0 (public domain  free to use without permission) Wikimedia Com...

+ Ask anything

 Voice

ChatGPT can make mistakes. Check important info.

ChatGPT

► This is the structure ChatGPT resulted with:

► Soldiers Grove, WI

Lions Club Shelter Structure

► Source:

<https://soldiersgrove.municipalimpact.com/parks-and-recreation>

- Interestingly, since this is also an actual location of a Lion's Club Shelter.
- We cannot expect an exact answer. We can recall from a previous slide:

Tools like ChatGPT are "machine[s] you are programming with words" (Mollick, 2023).



Google Chrome AI

*If this were a web browser, multiple results would list. Our own research here works much the same.

*When prompted: "Where is this located in real life?"
Google Chrome AI lists photos and location descriptions of many Lion's Club International pavilions throughout the U.S.



Google Gemini

Photo Details

- **Name:** Westbrook Park Lions Shelter
 - **Location:** 520 Westbrook Drive, DeWitt, Iowa 52742
 - **Source:** City of DeWitt Parks & Recreation Department
-

Context

The photo features one of the primary picnic shelters in **Westbrook Park**, which is the largest park in DeWitt, Iowa (covering roughly 100 acres). The shelter is easily identifiable by the prominent **Lions Club International** logo on its gable, reflecting the organization's sponsorship or contribution to the facility.

According to park records, this specific shelter is located near the south parking lot, across from the local dog park and adjacent to the Paul Skeffington Memorial Trail. It is a popular spot for community gatherings and can be reserved through the city's parks department.

● DeWitt, IA, USA • [Update location](#)





We did not find any relevant research papers related to your search. Consensus is an AI search engine for scientific research papers, try reformatting your search to topics likely covered in research papers.

For a local place like Westbrook Park in DeWitt, Iowa, you'll get better background information from:

- The City of DeWitt parks and recreation department website or park directory
- Local tourism or chamber of commerce pages (e.g., "Visit DeWitt Iowa Westbrook Park")
- Google Maps or Apple Maps entries (often include history snippets and photos)
- Local historical society or county museum webpages and Facebook pages

You might try searches such as:

- "Westbrook Park DeWitt Iowa history"
- "City of DeWitt Iowa Westbrook Park amenities"
- "Clinton County Iowa parks Westbrook Park trail map"

References Filter ▾

GET A LIT REVIEW · Can you provide me with some background info on westbrook park in dewitt,...

CONSENSUS METER · Does Westbrook Park in DeWitt offer recreational facilities for residents?

Westbrook Park amenities DeWitt

Historical development and community impact of Westbrook Park in DeWitt, Iowa

Ask a follow up...

Pro Deep Corpus ▾ +

Filter



Consensus

- Recommends other [local] resources.
- Suggests other search prompts.

AI-NALYSIS

- ChatGPT: misinterpreted the [general, partially unspecified] prompt and generated a response based on that request for info.
- Google Chrome AI: resulted with multiple photos and geographical location.
- Gemini: provided more accurate results based on user's initial wording.
- Consensus: recommended other local sources for more extensive background info.
- AI chatbots/GenAI tools are different, with prompts being interpreted more-or-less accurately based on:
 - Training
 - Amount of data
 - User prompt
- But user prompts can use work, so let's go back for a moment...

AI-NALYSIS

Original Prompt:

“Can you provide the name, location, and source for this photo?”

How can we make this clearer, more specific?

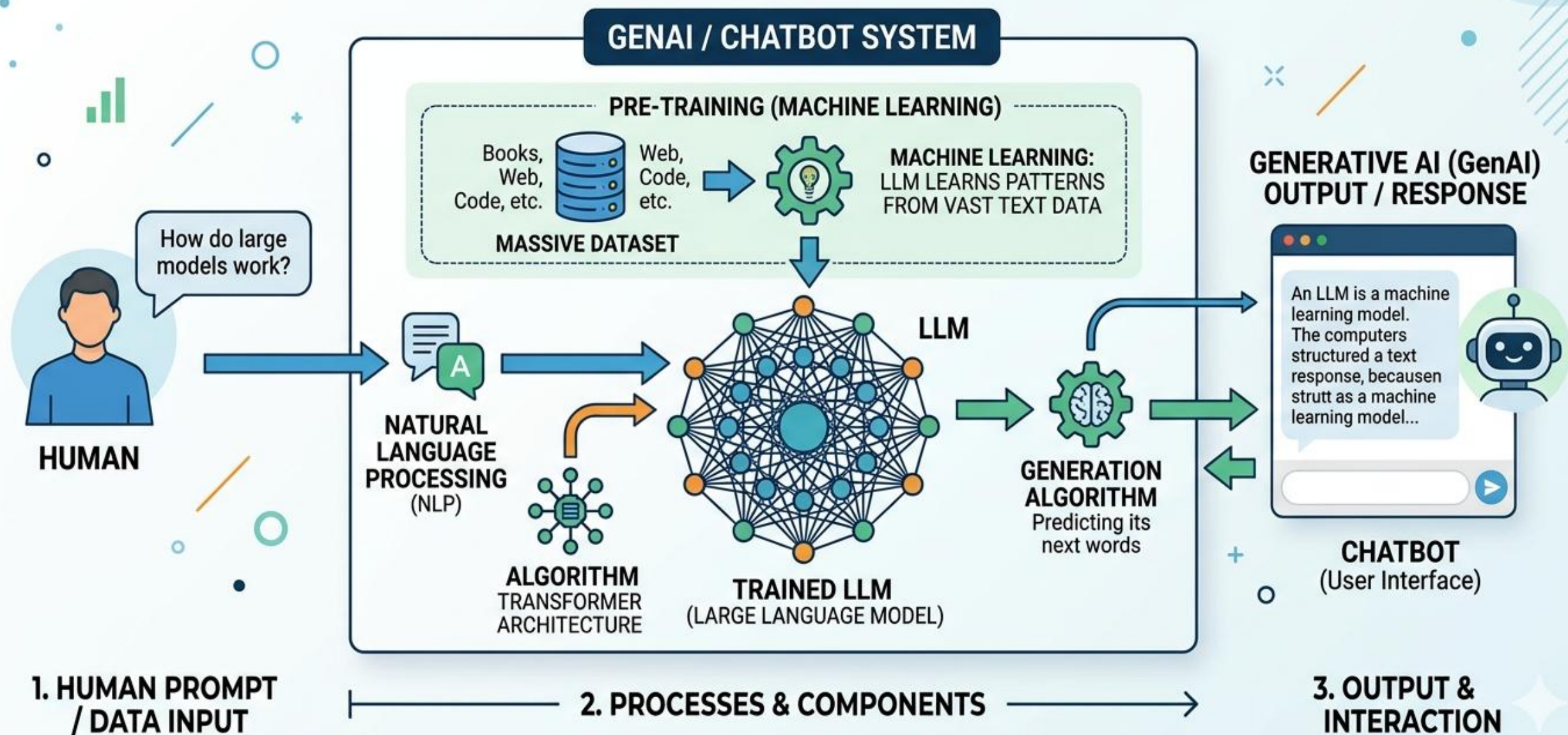
How about:

“Can you provide the name of the park and its location in this photo, along with the online source, or sources, from which this was supplied?”

Another Prompt (using Google Gemini):

“Can you create for me a diagram of how a chatbot or GenAI works using the terms: ‘human, large language model (LLM), data input, algorithm, machine learning, chatbot, generative AI (GenAI),’ and any others related to this prompt? And could you please be as descript, concise, yet not overly wordy--with focus on image and cause-and-effect?”

UNDERSTANDING HOW CHATBOTS & GENERATIVE AI (GenAI) WORK



“Google on Steroids”

- ▶ As buttons and other interface options increase, they appear to take on a hyper-form of the website.
- ▶ A source I spoke to about AI, who works as a Risk Analyst, calls AI “Google on steroids.”

Prompt for Google Gemini:

“Can you create an image that illustrates the cause-and-effect sequence of events wherein tech companies charge money to access information in AI chatbots and GenAI—if it were to go the same way as streaming television platforms of the modern era?”

THE AI STREAMING ERA: A CAUSE AND EFFECT SEQUENCE OF EVENTS

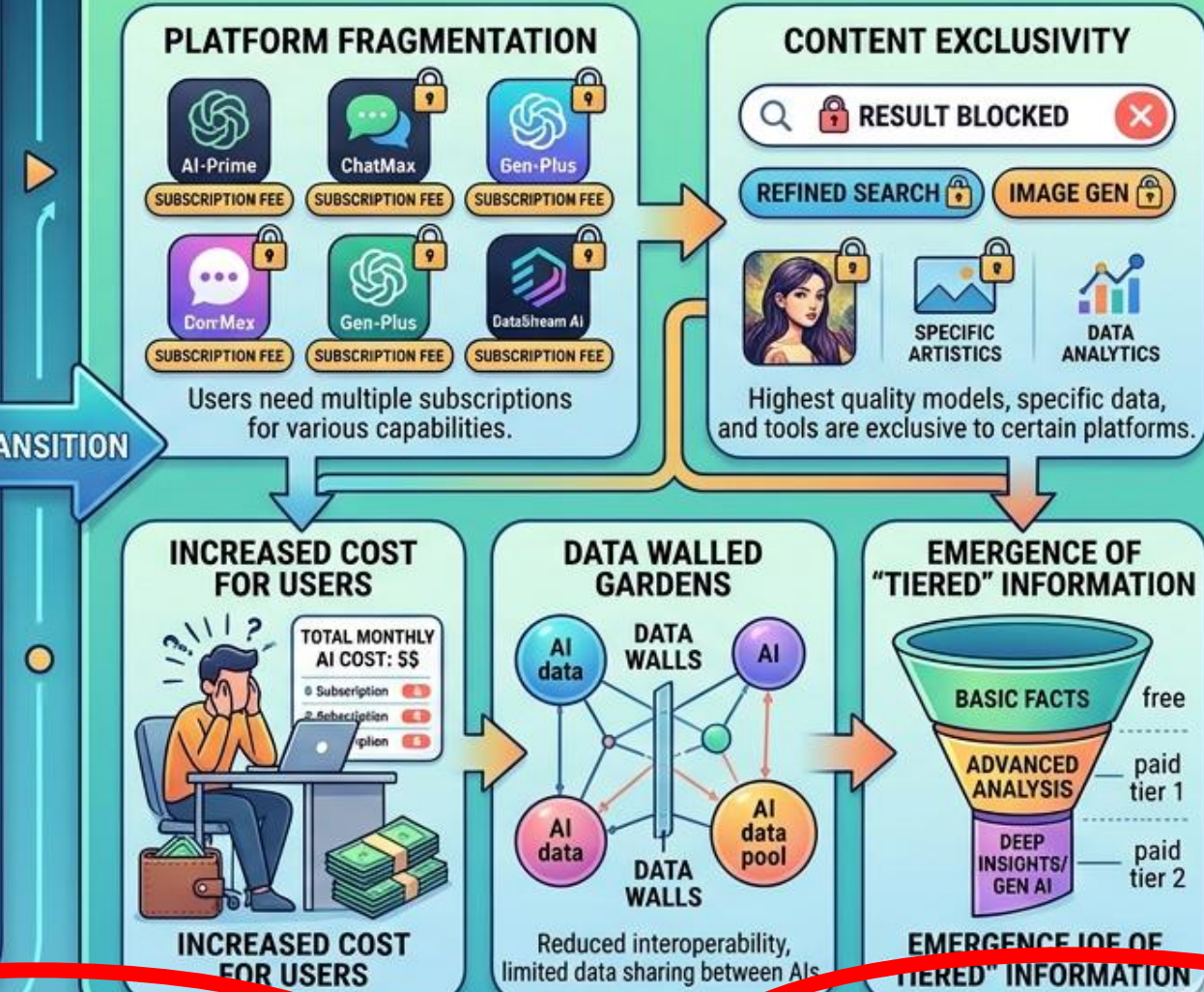
(If AI and GenAI Chatbots follow Streaming TV Platforms)

THE CAUSE: TECH COMPANIES CHARGE FOR PREMIUM AI ACCESS



Conceptual illustration based on streaming platform models.

THE EFFECT: THE NEW DIGITAL ECOSYSTEM (LIKE STREAMING TV)



Not a definitive prediction.

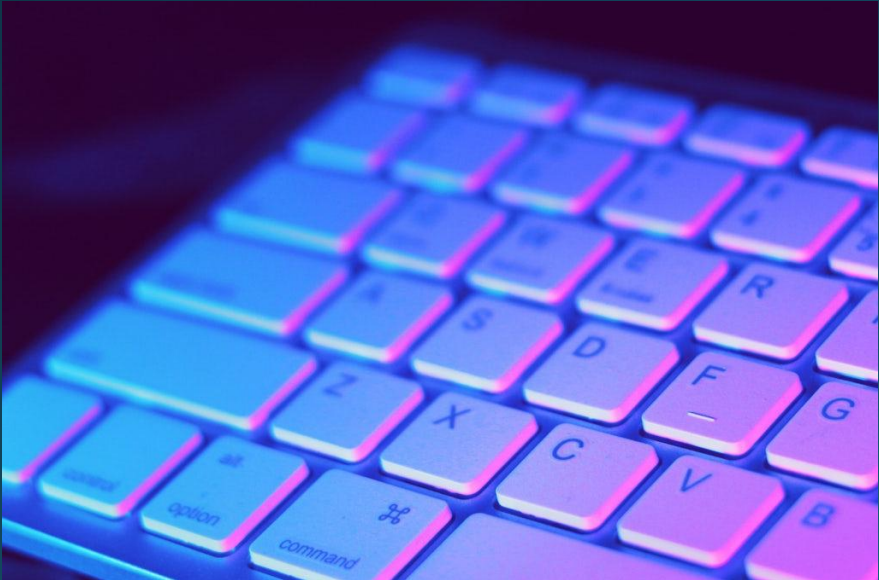
*PROJECTED SCENARIO: 202

In-Presentation Prompt Ideas:

- “Can you provide me with a recipe for ingredients I have left in the kitchen?”
 - (list ingredients)
- “Where would be the best place to buy this item—say, a computer, or fridge?”
 - (can list sources inside the prompt to guide the AI tool).
- Any more ideas?

► III. MORE EXAMPLES & USES





Via <https://libguides.library.arizona.edu/students-chatgpt/other-tools>:

"Google's tool for saving and working with your own notes."

“You can include links to websites, Google Docs, Google Slides, YouTube, or paste in any text and then get useful summaries, quiz questions, and even a simulated podcast based on your content.

"Google never uses your data to train NotebookLM: 'your uploads, queries, or the model's responses remain private to you.'"

*Contained in that you can use your own data to organize the way you want by creating mind maps, flash cards, podcasts, and much more!

Note-Taking Apps



► Granola

- transcribes and summarizes your notes
- can attach to all apps, or platforms—including Zoom, Google, and Microsoft Teams.

► Notion

- an assistant you can connect to other apps.
- chatbot, writing partner, search engine in one.



► MeetGeek

- records, transcribes meetings.



MeetGeek

Word-to-Image Multimedia Generators

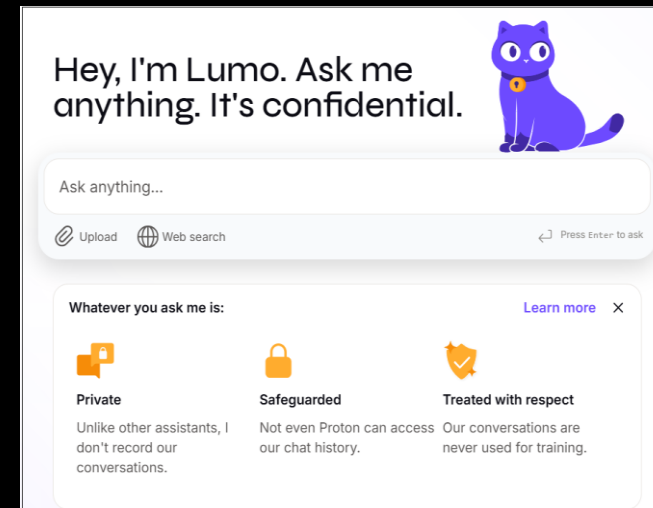
- ▶ Canva
- ▶ NotebookLM
- ▶ Piktochart



► Brave's Leo AI
(<https://brave.com/leo/>)

► Duck.ai
(<https://duckduckgo.com/#chat>)

► Proton's Lumo
 ► with Proton email account



Crafting

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



► Other Uses – 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



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 (Johnmaeda, 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

Concerning Open-Source Models

- ▶ Open-source models may be helpful for those who are very experienced with AI—and interested in building their own models.
- ▶ But this takes a lot of knowledge and usage.
- ▶ Open-source models are not regulated like closed models (ChatGPT, Claude, and others mentioned). They don't have built-in safety barriers.
- ▶ Those that build their own models include:
 - ▶ Businesses
 - ▶ Organizations
 - ▶ Cyber criminals and rogue states
- ▶ These models can make users vulnerable to privacy-related cyber crime and misinformation.
- ▶ While AI solely in the hands of corporations can, without proper regulations, become dangerous, unregulated open-source is not necessarily a safer, or better alternative.
- ▶ More on Open-Source AI: <https://www.ibm.com/think/topics/open-source-ai>

► IV. CONCLUSION

When Approaching AI

- There are different tools for different tasks. Many of these models look very similar. Basically, they are web browser pages or apps.
- Which AI tool works best for your task?
- Consider the “ecosystem” technique, at least at first – working with one tool or set of tools, rather than so many where you can get overwhelmed or put your privacy/data at risk.
- Can even combine different AI tools now:
 - can add CoPilot to PowerPoint.
 - can add Consensus research tool to other AI models.
- Paying attention to how it works:
 - What results from a prompt’s wording may be similar or much different in another AI tool.
 - Edit prompts. Communicate, translate, adapt, build.
 - Sources can vary with different bots, GenAI dependent upon purpose, prompt.

“In computing, an **interface** refers to a point of interaction between different systems, devices, or components that allows them to communicate and exchange data.”

<https://techstertech.com/understanding-interfaces-in-computing/>

IV. AI & Industry

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>

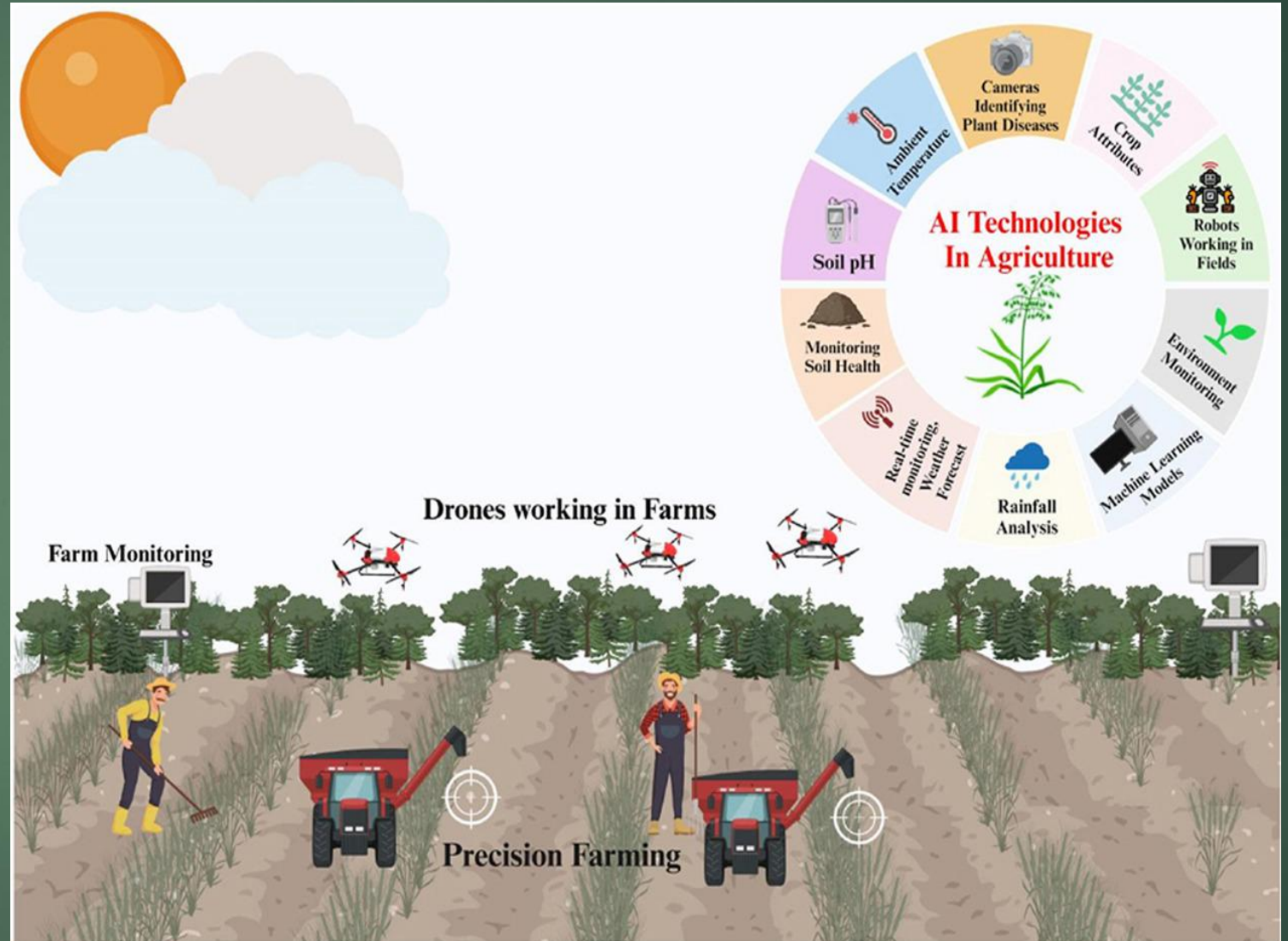


Image via <https://www.sciencedirect.com/science/article/pii/S2666154325001334>

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>

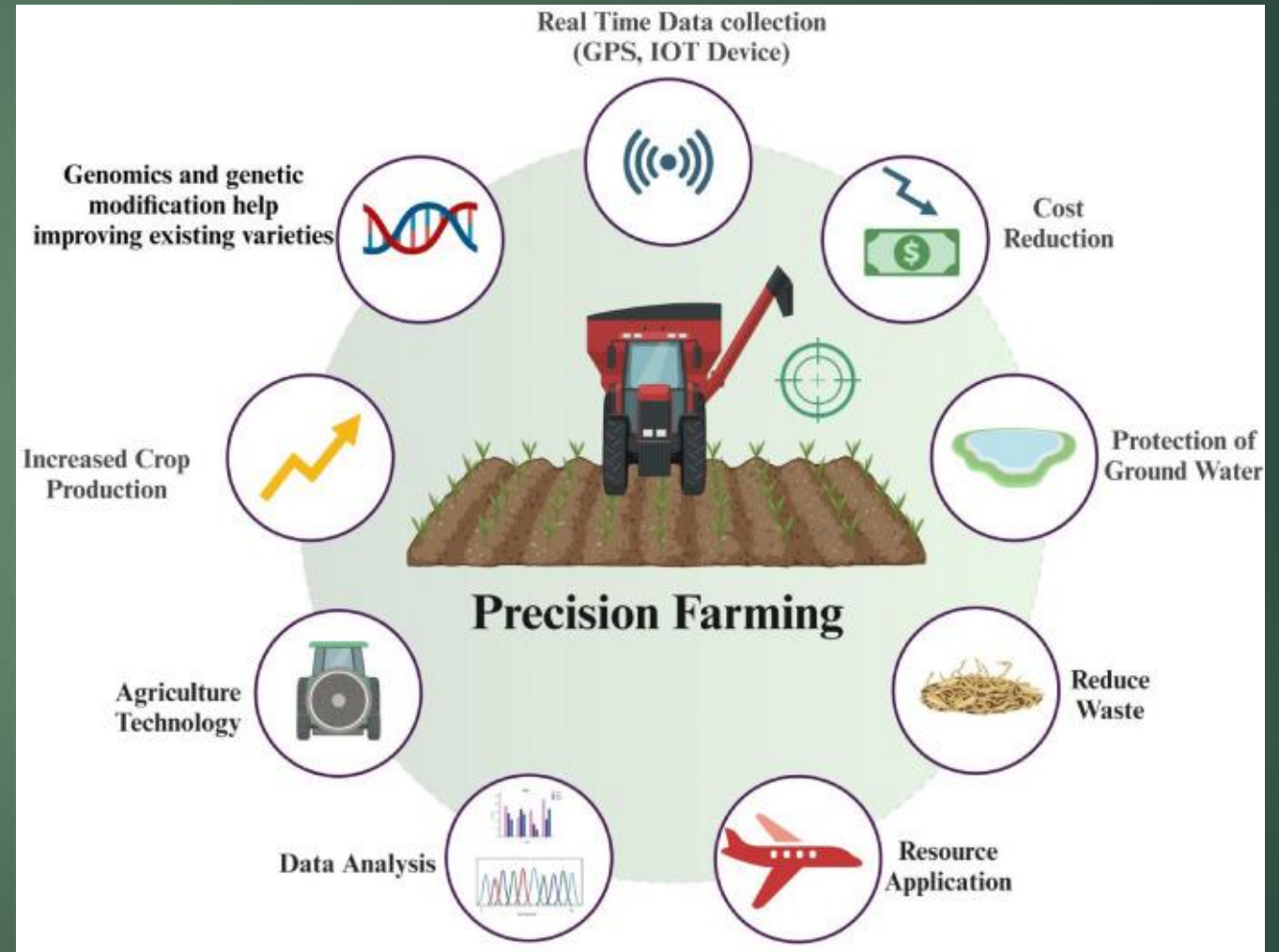


Image via <https://www.sciencedirect.com/science/article/pii/S2666154325001334>

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 – check Sources slide)

“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/>

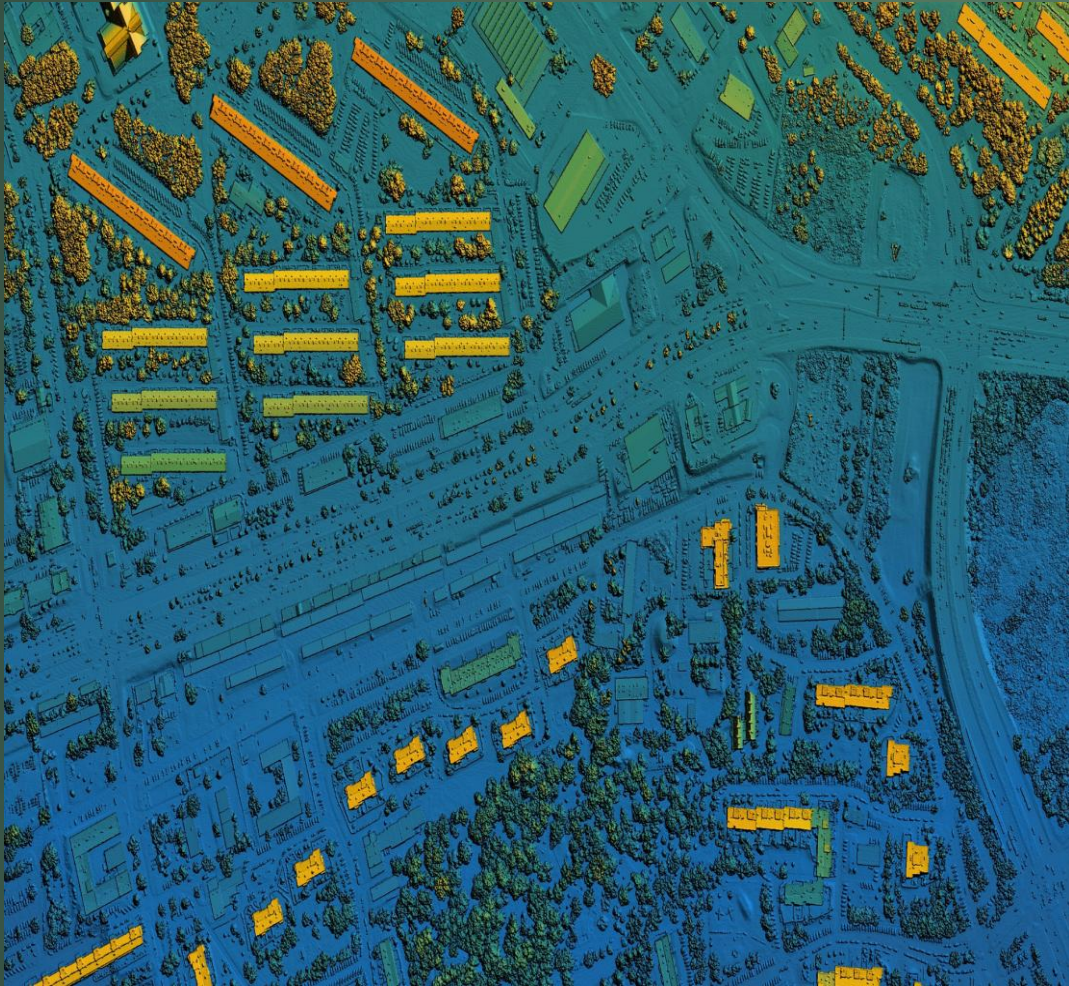


ARTIFICIAL INTELLIGENCE AND THE EMERGENCY SERVICES

SECTOR – BENEFITS AND CHALLENGES:

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

GeoAI



“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>

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.

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



Google Earth AI

- Google's EarthAI is used for geospatial analysis, which can aid in:
 - Direct aid response
 - Flood forecasting, info now covering more than 2 billion people (<https://ai.google/earth-ai/>)
- Maps Image Grounding feature in Google Maps can create a storyboard for a construction project in projected Google Street View screen area.
- Aerial & Satellite Insights feature allows for businesses and users to access Google's massive imagery database.

<https://techcrunch.com/2026/04/22/google-maps-is-about-to-get-a-big-dose-of-ai/>

<https://blog.google/innovation-and-ai/technology/health/google-earth-ai-global-public-health/>

Google's GeoSpatial Reasoning

- Geospatial Reasoning: Gemini-powered framework allowing for AI to automatically connect different Earth AI models for complex situations. These models include:
 - weather forecasts
 - population maps
 - satellite imagery

"Instead of just seeing where a storm might hit...Geospatial Reasoning [can be used] to identify which communities are most vulnerable and what infrastructure is at risk, all at once."

"...Geospatial Reasoning empowers the nonprofit GiveDirectly to respond to disasters by combining flood and population density information, helping them identify who needs direct aid most."

<https://blog.google/innovation-and-ai/technology/research/new-updates-and-more-access-to-google-earth-ai/>

BOSTON DYNAMICS & AI ROBOT INSTITUTE

- <https://bostondynamics.com/news/boston-dynamics-and-the-robotics-ai-institute-partner/>
- <https://rai-inst.com/>

“We need to make robots smarter, more agile and dexterous, and generally easier to use - more like people. Once we do that, robots and other types of intelligent systems will increase productivity, free people from dangerous work, care for the disabled, and help people live better lives.”

Marc Raibert
Executive Director, Robotics and AI Institute



V. THE MEANS



LIFE-LONG LEARNING

- Who to Follow for Staying Current with AI, compiled by Nicole Hennig:

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



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>



THE MEANS

- As sources from Part I. of this presentation series have pointed out, the elaborate construction of our tech infrastructure, per mining methods and ideological ambitions, are problematic. As is unethical extraction of data.
- While reports based on past/current environmental and infrastructural stressors reflect recorded data, they do not offer futures based in certainty.



“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

(*Forgot the source for this quote, Duck.ai helped!)

ONWARD...

- Positives and negatives co-exist.
- As we live with AI, we can build fair and transparent structures—thinking back to how civilizations long ago learned to develop with the technological advancements of their time.
- 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.

“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...”

-IEA 2024 Electricity Report, Analysis and Forecast to 2026



AI Uses/Interfaces:

“Claude Dispatch and the Power of Interfaces” by
Ethan Mollick

[https://www.oneusefulthing.org/p/claude-
dispatch-and-the-power-
of?publication_id=1180644&post_id=192379643&i
sFreemail=true&r=5ea8kk&triedRedirect=true](https://www.oneusefulthing.org/p/claude-dispatch-and-the-power-of?publication_id=1180644&post_id=192379643&isFreemail=true&r=5ea8kk&triedRedirect=true)

AI & Art:

“AI art divide: Revolutionary or a gimmick?”

<https://m.youtube.com/watch?v=gLPV-hb1CKU&pp=ygURNjAgbWludXRlcyBhaSBhcnQ%3D&ra=m>

“Popularity is not the sign of success...AI is art. AI will be art...It’s new, it’s young.”

-Jerry Saltz, Pulitzer Prize-winning art critic for New York Magazine

“I think one has to recognize that works of art that challenge you are always going to be misunderstood by many at first.”

-Glenn Lowry, American art historian, museum director



- Updated AI Sources

Per DCL Website:

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

▶ VI. 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/>
- <https://www.ibm.com/think/insights/unregulated-generative-ai-dangers-open-source>
- <https://www.wrmea.org/2026-january-february/israels-tech-lab-how-surveillance-sustains-occupation-and-spreads-worldwide.html>

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- <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.iweathernet.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/>

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- <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/>
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THANK YOU!