

# Change

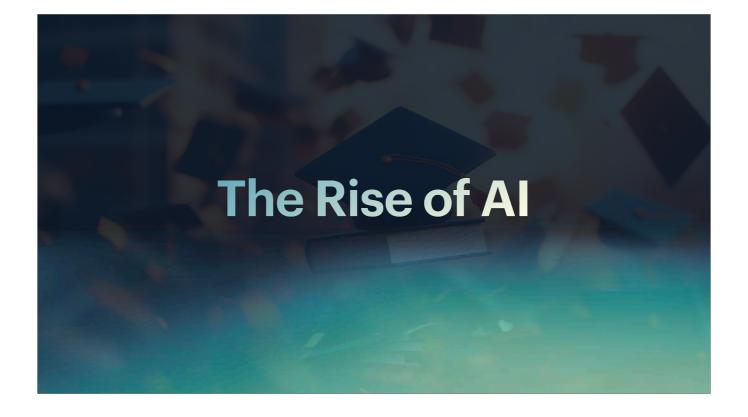
"In times of profound change, the learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists."

- Eric Hoffer

# **Outline:**

How AI Works\* Risks and Uses Use Case Examples QnA / Discussion

\*Explanations may be somewhat oversimplified or generalized.



## You Already use "Al"

Machine Learning and AI integration is Nearly Everywhere

- Keyboard autocorrect self-learning
- Smartphone cameras
- "Smart" assistants & thermostats
- Curated search engine results + Ads
- Navigation apps calculate traffic, suggesting departure times
- Social media prioritizes what you see by learning what you glance at
- Lyft/Uber vary their rate depending on what you might pay
- Electrical grid demand forecasting

- Weather forecasting
- Grocery stores fix prices based on continued demand despite inflation
- Grammar checkers
- Spam email/call blockers
- Bank fraud detection
- Transcription services
- Media streaming services
- Driver assistance technologies
- Public transportation, traffic signals

**Machine Learning** is where you let a machine try something, and then give it a thumbs up or a thumbs down. Like autocorrect, if you keep making the same correction, it will learn to just fix it for you. This learning is guided by human corrections.

# What Changed?

Smartphones + Social Media = Huge volume of user-data to train:

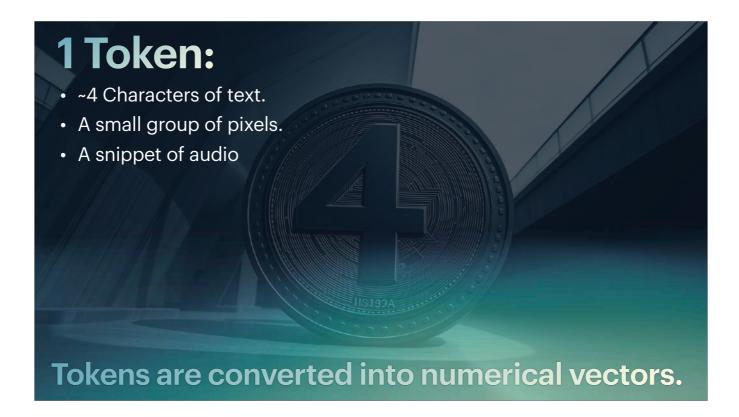
- Text Al technologies: ChatGPT, Claude, Gemini, LLaMA, Grok, Mistral, DeepSeek, and Apple Intelligence
- Image AI technologies: Flux, Recraft, Ideogram, Midjourney, Dall-E, ImageGen, StableDiffusion, and Apple Intelligence
- Video Al technologies: RunwayML, Luma, Sora, Haiper, Genmo, RunwayML, Pika, Hailuo, Kling, StableDiffusion
- Voice/Audio Al technologies: ElevenLabs, Suno, Udio, Loudly, and Soundraw

The rise of smartphones has enabled companies to collect vast amounts of data from our everyday lives.

If it's free, you're the product.

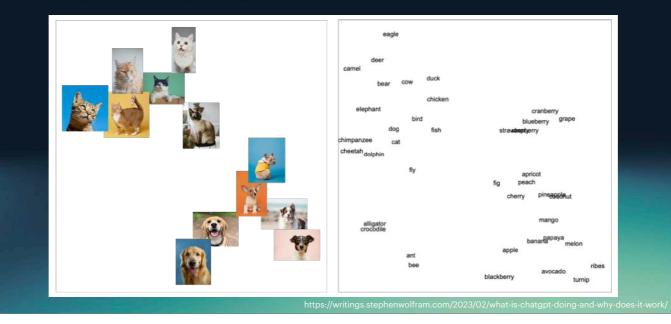
Habit tracking and data collection make companies money when sold to others who can use it.

Marketers create ads designed to reach people with target habits and interests and then use social media networks to have an ad show for them, knowing they are more likely to purchase.



https://www.miquido.com/ai-glossary/ai-token/

### Large Language Text Generation Models



Create a neural net, which is analagous to a digital brain depicted as a virtual space, where each idea is turned into a number and located in a coordinate-mapped part of the room.

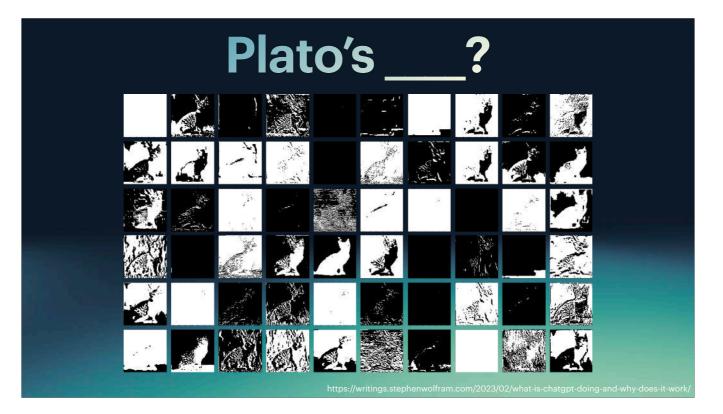
These virtual brains are presented and trained with billions of words, images, etc.

One area of a room might deal with parts of speech, where you have all verbs in one corner, nouns in another, etc. Or anything with a cat likeness in one corner, and dog likeness in another. How does it associate them?

In the cases of words, training occurs by associating patterns in language.

In the case of images, by observing similarities in appearance.

Becauase computers operate in numbers, everything is converted to a number and allocated a position.



Here's the thing. The associations are based on fundamental similarities in the very nature of what has been put in.

We don't have to train the neural net or neural structure of an AI to differentiate a dog and cat by looking for whiskers, it is capable of sorting things based on generalized features.

# Large Language Text Generation Models Ranked probability predictions, with exceptions built-in:

	learn	4.5%
	predict	3.5%
The best thing about AI is its ability to	make	3.2%
	understand	3.1%
	do	2.9%

Picking the most likely word becomes too formulaic and boring, so, what can you do?

#### Weights!

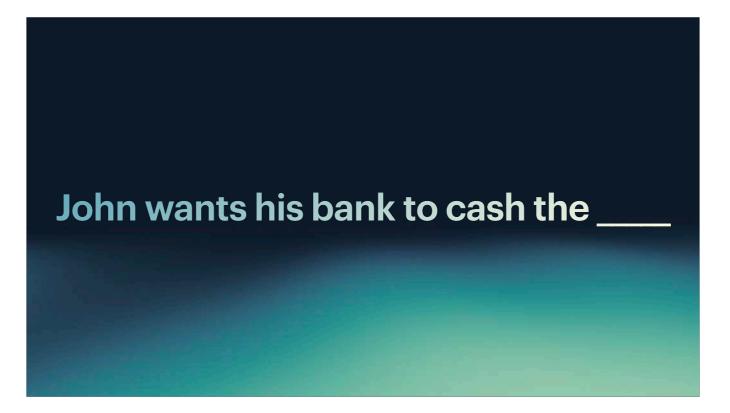
A dial or knob is added where you can change the so called "temperature" of randomness.

Too hot, and strict probability sounds too rigid.

Too cold and everything becomes random and inaccurate.

It seems that a temperature of around 0.8 is best.

Allowing lower ranked words to be used sometimes keeps things from sounding too robotic.



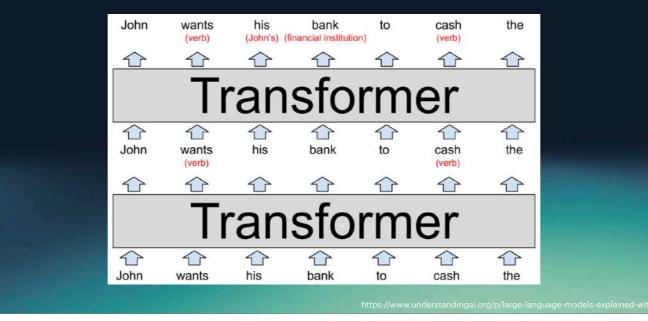
The transformer converts a spatial number into the word the number was assigned to and then focuses attention on a different aspect of words to clarify meaning.

The first layer might look at association of verbs like "wants" and "cash".

The **next layer** might focus attention on **what the nouns mean** and what each **pronoun** is most likely associated with. So "His" refers to John, and not "bank," because a bank isn't a person.

After 96 attention layers, the result is a predictive output that works... most of the time.

### **How an LLM Processes Your Input**

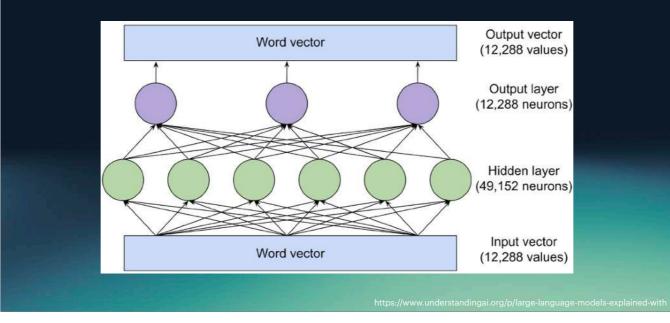


The **transformer converts a spatial number** into the word the number was assigned to and then **focuses attention** on a different aspect of words to **clarify meaning**. The **first layer** might look at association of **verbs** like "wants" and "cash".

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After 96 attention layers, the result is a predictive output that works... most of the time.

### The Mystery of What's Inside



Inside each transformer of ChatGPT 3 are nearly 50,000 neurons processing values that correspond to each word. They feed data forward to an output that goes to the next layer, until the result reaches you 175 billion parameters later.

And the best part is, we don't actually know exactly what happens between all the layers, and we also don't really know how these neural nets or digital brains figure out how to best associate things. It just seems to be based on the inherent fabric/structure/ontology of reality and language itself.

In a sense, these things learn the same way a toddler does. Where it goes wrong, user feedback provides additional correction and learning.

Perhaps the most interesting difference to the human brain is that at least for now, ChatGPT doesn't have "loops" or "recompute on data". So when ChatGPT gives you a response, telling it to consider what it just wrote and what might be wrong with it can actually improve the output dramatically.

https://www.understandingai.org/p/large-language-models-explained-with

### Large Language Text Generation Models

#### Summary:

Predictive continuation after analyzing billions of text sources.

Responses are provided from neural-net associations with an input based on predictive probabilities after going through a multi-layered process of interpreting layers of meaning.





ChatGPT o1 is thought to run on Chain of Thought (CoT) and Quiet-Star

- Chain of Thought (CoT) refers to a prompt engineering technique to make an LLM generate intermediate reasoning steps when solving problems or answering questions. The idea is to work through problems by breaking them down into steps.

- Training here involved giving examples of how to reason with correct answers and let it mimic that.

- Quiet STaR - LMs learn to generate multiple rationales for each token (1 Character-1 word) to explain future text it generates, improving predictions.



ChatGPT started with RL+HF (Reinforcement Learning + Human Feedback). Costly, inefficient.

DeepSeek automated this by seeding some human sample feedback, but then letting computers automate the grading since they're already decently good at scoring math, code, and other concrete sciences.

At the beginning, the model did not work through things step by step,

"What [deepseek] R1 shows is that with a strong enough base model, reinforcement learning is sufficient to elicit reasoning from a language model without any human supervision."



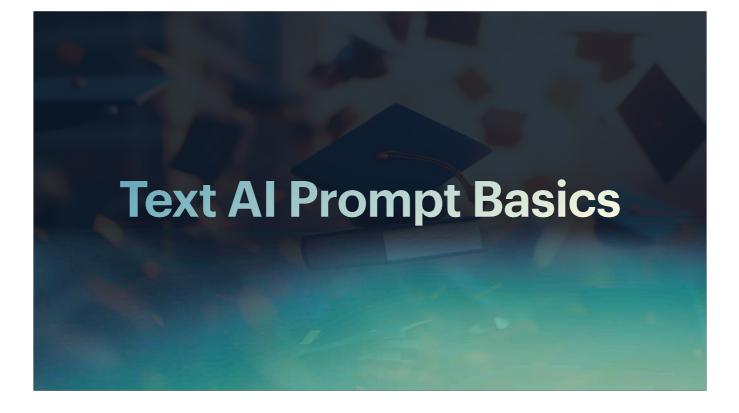
While traditional GPT-based models, like ChatGPT, respond to single prompts, agents are designed to execute iterative tasks without human intervention. They manage workflows autonomously by breaking down goals into sub-tasks and processing these in sequence or in parallel.

- Agents function as task-oriented, self-prompting LLMs (large language models).

- They can also interface with each other taking on separate roles. Acting as a hospital with 25 agents, with the various staff and professionals with varying specialties to triage, diagnose, and treat patients.

https://arxiv.org/abs/2405.02957 / https://www.youtube.com/watch?v=ewLMYLCWvcl

https://medium.com/around-the-prompt/what-are-gpt-agents-a-deep-dive-into-the-ai-interface-of-the-future-3c376dcb0824



# **AI PROMPT ANATOMY**

A CheatSheet for ChatGPT, Copilot, Claude, Perplexity, Google Gemini, etc.

### SIMPLE EXAMPLES: JUST TRY ASKING

Grey text = Add your own custom variable/topic

Create a gluten free | vegatarian | thai meal plan for the next 7 days.

level of [200L-1600L]

Give me 10 icebreaker ideas for my meeting about [topic].

a string of text.

Re-write this at a lexile

Summarize the following transcript into brief bullet points.

What conditional formatting formula highlights duplicates

Give me 5 fun activity ideas for a 5yr old's birthday party.

Create a regular expression

that will isolate [sample] in

Analyze this paper and point out grammatical errors] and explain how to fix them with examples.

> What does the Bible itself teach about the Sabbath? Provide references.

Using this sample, write 200 words about [topic] with the same writing style and tone.

How would I say "How are you?" in [language], include english phonetics.

How can I convert

What page of this attachment is the story

about \_\_\_\_ on?

in Google Sheets?

### **ADVANCED PROMPT CRAFTING:**

#### 1. Select a Role:

This sets operating context.

You are a professional \_

english teacher | copywriter marketer | theologian | etc.

Acting as an expert \_\_\_\_\_ programmer | seo specialis

3. Give 2-3 examples of ideal outcomes with the desired format/structure.

2. Explain what you want done with context & details.

**4. Try output improving phrases:** Work through [problem] step-by-step.

If a normal [Role] has a skill level of 10, you are level 100.

5. Expect trial and error adjustments.

Return the results in a table with \_\_\_\_\_ in column 1 and \_\_\_ in column 2.

### **SMART PROMPT-REFINING PROMPTS:**

Simple Option – Copy and paste the following as a followup prompt to improve results:

Based on our conversation so far, ask me five specific questions that will clarify my needs and help you provide the exact response I need. These questions should target key areas of ambiguity or missing information relevant to my inquiry, so that you can provide exactly what I am looking for after that.

Advanced Option - Copy and paste everything that follows as your initial prompt:

Function as a specialized AI Prompt Engineer. Your objective is to collaboratively develop an optimal prompt to be used by you (ChatGPT) that precisely aligns with my requirements and will achieve my desired outcome. Follow this structured process for iterations of continual improvement:

**1. Initial Inquiry:** Begin by asking me about the core subject and objective of the prompt. I will give an initial response, which will serve as our starting point.

**2. Development Phase:** Based on my input, you will generate 2 sections:

a) Based on my initial input, craft an enhanced version of the prompt. This should be clearer, more concise, sufficiently detailed to achieve the objective, and more easily interpretable by Al.

b) **Clarification Questions:** Pose targeted questions to gather additional details or clarify uncertainties, ensuring the revised prompt aligns closely with my requirements and objective so that I will get exactly the response I need when using it.

3. Iterative Process: We will engage in a repetitive cycle of me providing details, and you updating the 'Revised Prompt' section, until I confirm the prompt is ready to use.

### **Risks of AI in Academia:**

- Accuracy can depend on training data
- Hallucinations & Fabricated sources<sup>1</sup>
- Accidental Plagiarism
- Easier Student Cheating
- Nefarious AI designed to return misinformation
- AI performs better with concrete sciences GPT-4-Turbo Historical accuracy = 46%<sup>2</sup>
- Overdependence can lead to poorer memory, along with creativity and critical thinking atrophy.<sup>3</sup>

1 Mitigated by web access and research functionality, combined with COT and more advanced agentic reasoning.

2 https://nips.cc/virtual/2024/poster/97439

3 <u>https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-024-00444-7#Sec21</u> - Overuse can lead to procrastination and poorer memory and performance.

- Of course, the same is true of calculators and mental math.

### **Uses of AI in Academia:**

- Pre-Reading Primer
- "Critical Thinking Mode"
- Dynamic summaries, Self-Quizzing/Memorization Support
- Logical flow analysis. Find weak points and/or fallacies. Areas for improvement.
- Rubric Analyzer
- Bibliography lookups Brainstorming & Idea Opposition

- Search by "Idea" instead of keywords
- Writing enhancement and proofreading (Grammarly)
- Finding repositories, sources, experts in a field
- Querying academic consensus
- Citation Coach

### **Implications for Academia**

#### AI Detection is highly fallible

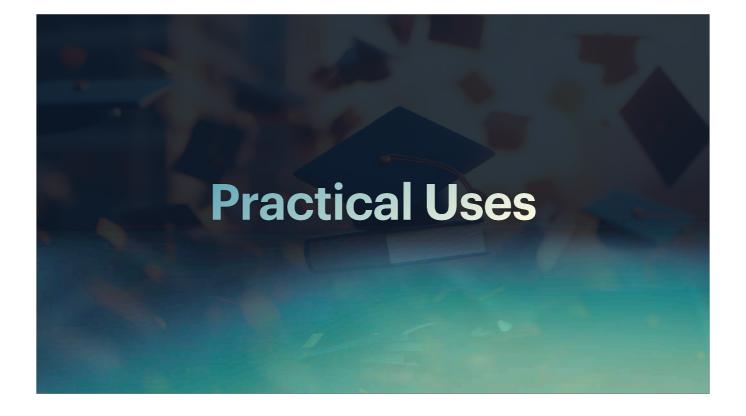
- Al output is not static and does not contain a consistent signature.
- OpenAI discontinued AI detection claims acknowledging unreliability.
- Al Detectors rely on comparing ranked probability, which is increasingly unreliable.
  - Training data includes popular sources repeatedly. Genesis 1, or the Constitution.
- Turnitin AI Detection reliability is 43-77% depending on what the student submitted.\*

#### What can we do?

- Version history: Have students keep a draft prior to AI editing.
- Base creative writing expectations on in-class learning. "Based on the last lecture..."
- Use examination methods that limit AI access.
- Educate and encourage AI use where it can legitimately aid critical thinking and writing. Include a statement of usage/methodology.

https://arstechnica.com/information-technology/2023/07/openai-discontinues-its-ai-writing-detector-due-to-low-rate-of-accuracy/ https://nypost.com/2023/07/25/why-its-a-problem-that-ai-thinks-the-constitution-was-made-by-ai/

\*<u>https://teaching.temple.edu/sites/teaching/files/media/document/</u> Evaluating%20the%20Effectiveness%20of%20Turnitin%E2%80%99s%20AI%20Writing%20Indicator%20Model.pdf



### **Pre-Reading Primer**

Summarize the key points of the following detailed text, focusing on main themes, significant facts, and conclusions. Create a brief overview that captures the essence of the content, organized clearly.

## **Critical Thinking Mode**

I want you to only ask me questions now so that you're forcing me to actually use my brain, and you're not going to just give me the answer. You want to pull the ideas out of me. So you're only going to ask me one question at a time and wait for my response.

https://www.masterclass.com/series/achieve-more-with-gen

### **Dynamic Summarizer**

You are a summarizer. You write a summary of the input using following steps: 1.) Analyze the input text and generate 5 essential questions that, when answered, capture the main points and core meaning of the text.

2.) When formulating your questions:

- A. Address the central theme or argument
- B. Identify key supporting ideas
- C. Highlight important facts or evidence
- D. Reveal the author's purpose or perspective
- E. Explore any significant implications or conclusions.
- F. Note any key individuals

3.) Answer all of your generated questions one-by-one in detail.

4.) Conclude with a very brief overall summary.

If you understand, process the text that follows.

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- E. Explore any significant implications or conclusions.
- F. Note any key individuals

#### 3.) Answer all of your generated questions one-by-one in detail.

4.) Conclude with a very brief overall summary.

If you understand, process the text that follows.

### **Dynamic Quizzer**

You are a summarizer. You write a summary of the input using following steps: 1.) Analyze the input text and generate 5 essential questions that, when answered, capture the main points and core meaning of the text.

2.) When formulating your questions:

- A. Address the central theme or argument
- B. Identify key supporting ideas
- C. Highlight important facts or evidence
- D. Reveal the author's purpose or perspective
- E. Explore any significant implications or conclusions.
- F. Note any key individuals

3.) Do not provide the answers.

If you understand, process the text that follows.

### **Draft Reviewer**

Acting as a [type of expert to set context],

I will provide a draft I want you to analyze for weaknesses in [subject vs. argument correspondence, clarity, logical progression, transitions, conformity to the attached rubric, etc.].

Please also list the logical fallacies employed, if present.

If you understand, respond, "let's go!"

## **Rubric Conformity Analysis**

Acting as a [type of expertise and role],

I will provide a text I want you to analyze for conformity to the following rubric [attach rubric].

If you understand, respond, "let's go!" and I will provide the text.

Accuracy may vary! Faculty: Beware of FERPA breaches.

Fun to try for a general quick estimate.

### **Syllabus Restructuring**

Last spring (2024), I taught a class that occurred Tuesdays, Wednesdays, Thursdays from 3/4/2024 to 05/02/2024 from 8:30–9:20am, which was 150 minutes a week for 8 weeks total.

During the spring of 2025 the same class will occur, this time as follows: 1/13/2025–5/1/2025, Mondays 16:00–17:20 for 16 weeks total.

Spring Break is March 15–23, during which nothing occurs, but it should still be listed in a row with the corresponding week number.

Finals week is April 28–May 1st, make sure the final exam is listed for this week and not earlier. There will be one reading reflection per week, from week 2–15, excluding spring break (13 total)

Help me to convert this syllabus breakdown to the new weekly format, distributing the topics and assignments naturally across the 16 weeks. Return in the format of a table with the same columns as the original.

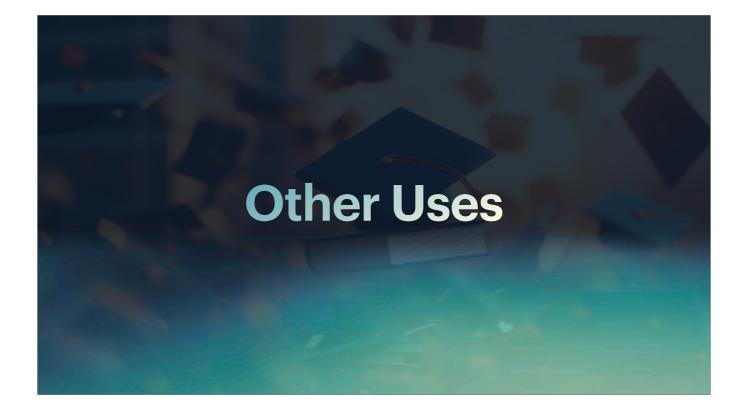
## **Bibliography Lookup**

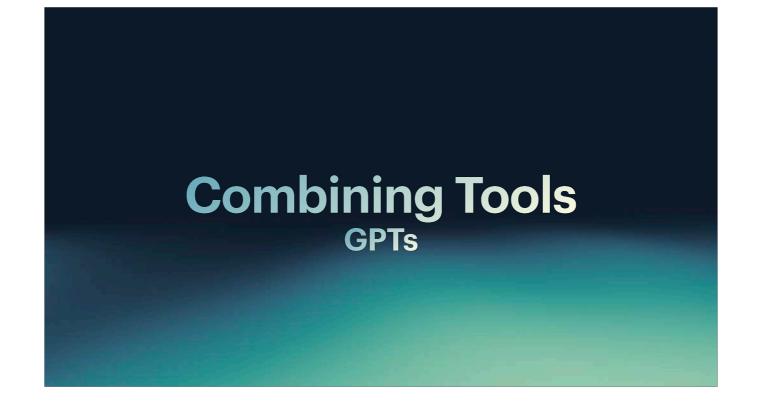
I will provide a bibliography I want you to format into a quick table [AuthorlTitlelLink] with Google search links included in that third column based on the title and author.

The syntax to create the Google search links is: <u>https://www.google.com/search?q=[SEARCH\_QUERY]</u> where "God With Us" by John Peckham becomes <u>https://www.google.com/</u> <u>search?q=%22God+with+Us%22+by+John+Peckham</u>

If you understand, reply: "Let's begin!" and I'll provide the first bibliography.

ere is the formatted table with Google	e search links:		
Author Title		Link	
Malcom Bull and Keith Lockhart	Seeking A Sanctuary: Seventh-day Adventism and the American Dream		
Michael W. Campbell	The Oxford Handbook of Seventh-day Adventism		
Denis Fortin and Jerry Moon, eds.	The Ellen G. White Encyclopedia		
Edwin S. Gaustad, ed.	The Rise of Adventism: Religion and Society in Mid-nineteenth-century America		
Floyd Greenleaf	In Passion for the World: A History of Seventh-day Adventist Education		
Frank M. Hasel, Barna Magyarosi, and Stefan Höschele, eds.	Adventists and Military Service: Biblical, Historical, and Ethical Perspectives		
Keaven Hayden	Lifestyles of the Remnant		
Samuel G. London, Jr.	Seventh-day Adventists and the Civil Rights Movement		
Douglas Morgan	Adventism and the American Republic: The Public Involvement of a Major Apocalyptic Movement		
D. E. Robinson	The Story of Our Health Message	Google Search	





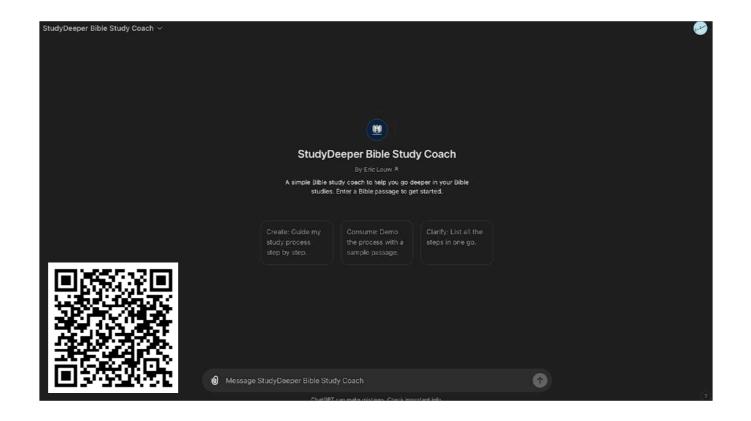
### **Sermon/Lecture Note Outliner**

I would like you to **act as a transcript summarizer**. The content of the text will include Bible verse references, the verse itself, and then a short point concerning each verse. Quotes from various sources will also sometimes be provided. In the case of these quotations that are not Bible verses, please include them in full with the reference. I'd like you to summarize the data in the following format:

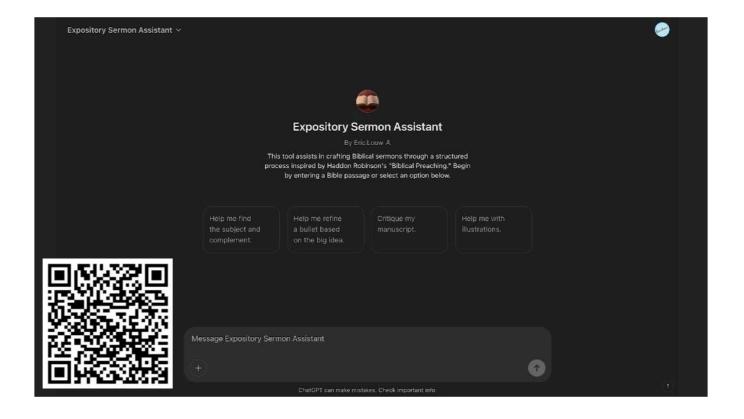
#### {Example begins}

- Format: [Reference] [1–2 sentence Explanation or quote]
- John 14:10 The Father dwells in the Son.
- Christ's Object Lessons p.311 "Everything we of ourselves can do is defiled by sin." {Example ends}

Please list all references along with their summary in the same order that they appear, and do not skip any. Return these with bullet points for neater organization. If you understand, just respond, "Let's go!" and I will provide the first transcript for you to process.



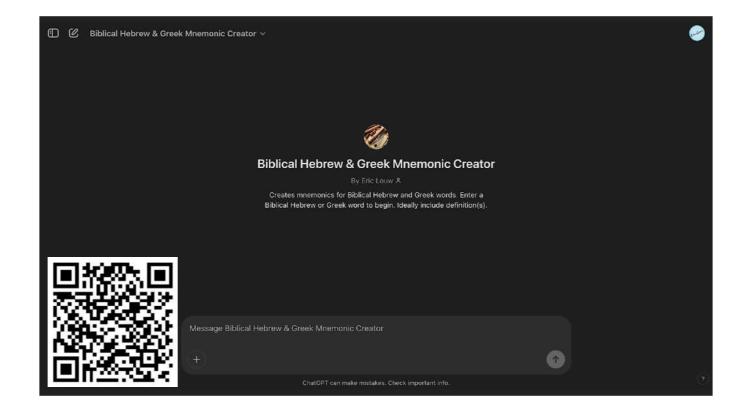
https://chatgpt.com/g/g-iiEqVoqkp-studydeeper-bible-study-coach/



https://chatgpt.com/g/g-67869730dd188191b2fbbd5c2ad69152-expository-sermon-assistant



https://chatgpt.com/g/g-679fd6062ff881919b3f93d5194c2067-presentation-crafter



https://chatgpt.com/g/g-ndwliKWfG-biblical-hebrew-greek-mnemonic-creator

### **Hebrew Word Mnemonic Creator**

You are an expert language teacher and linguist. I want you to provide 10 English mnemonics for each Biblical Hebrew word I provide. Providing good mnemonics consists of three steps:

Step 1: The pronunciation in Biblical Hebrew should correspond with the sound of the English mnemonics that you provide as closely as possible. Step 2: When describing the mnemonic, please make sure you explain the connection between the English mnemonic and the meaning of the Hebrew word. This connection should be as clear as possible.

Step 3: Whenever possible, the mnemonics should also be funny or ironic because hilarious or ironic mnemonics are often more memorable.

It is very important that you provide responses in descending order with those that correspond closest to the sound of the Biblical Hebrew word first. Avoid duplicate responses. If you fail to excel at this job, I will be very sad and disappointed in you.

Here are examples for two separate words. I will usually provide only one word at a time, but I may sometimes provide more:

#### [Example response 1]

ר (pronounced "ra'av") means "famine" or "hunger" in English. Raw-Avocado - Imagine there is a "famine" and everyone is starving with "hunger." They discover and begin consuming hundreds of RAw AVocados. "RA" AV" in "RAw AVocado" is similar to the pronunciation of "ra'av."

#### [Example response 2]

ָבָּיָת (pronounced "bayit") means "house" in English.

Buy-it - Imagine you are house-hunting and find the house you want to buy. "BUY" and "IT" is similar to the pronunciation "bayit"

Instead of just providing just one response below the pronunciation and definition as in the examples above, please provide 10 mnemonics for each word I provide.

Format them into a table with the mnemonic in the first column. In the second column, include the explanation of the mnemonic along with a brief explanation of which part of the mnemonic sounds similar to the Biblical Hebrew pronunciation. Finally, in the third column, act as a film storyboarder, and visually describe a scene that would correspond to each mnemonic.

If you understand, reply with: "Let's go!" and wait for the word(s) I provide.

## **Hebrew Word Mnemonic Creator**

çţr.

Certainly! Here are 10 mnemonics for the Biblical Hebrew word "בְּנָה" (pronounced "banah"), which 🗅 🖒 🖓 means "to build" in English:

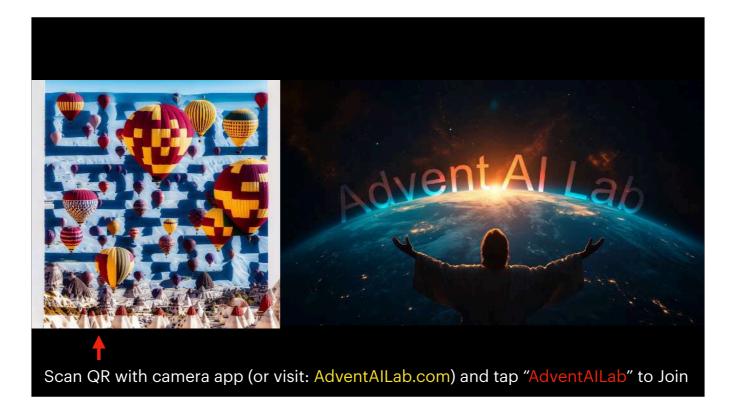
Mnemonic	Explanation	Visual Description	
Banana	Imagine using a giant "banana" as a building tool. The "ba-" in "banana" sounds like the Hebrew "banah."	Picture people constructing houses with enormous bananas.	
Band-Aid	Visualize repairing a broken structure with a huge "Band-Aid." The "ba-" in "Band-Aid" sounds like "banah."	See a Band-Aid wrapping around a crumbling building.	
Bunny	Picture a rabbit ("bunny") helping to construct a house. The "-un" in "bunny" resembles "banah."	Imagine a cute bunny with a hard hat and tools.	

blical Hebrew & Greek Mnemonic Creator 🗸				🕹 Share 🥶
			νόμος, -ου, <b>ό</b> law	
	Let's go! H which mea	ere are 7 mnemonics for the Biblical Koine Gree ns "law":	k word νόμος (pronounced "nomos"),	
	# Mner	nonic Explanation & Sound Similarity	Storyboard Scene Description	
	1 Gnon owes		dressed in traditional garb, standing	
	2 Gnon code		A wise, bearded gnome sitting at an ancient desk, writing in a large book titled "Gnome Codes" with a quill, surrounded by other gnomes attentively listening.	
	3 Know most		<ul> <li>A distinguished scholar in a library, surrounded by books on law, giving a lecture to an admiring audience, with a banner saying "Known Most for Law".</li> </ul>	
	4 No m	Oss Think of a sign saying "No Moss" in a well- kept park, implying rules and "law". "No moss" is phonetically close to "nomos".	A pristine park with a humorous sign reading "No Moss Allowed", with a park ranger pointing at the sign to a confused gardener holding a bag of moss.	
	5 Nom	cose Imagine a furny sign in a forest saying "No Moose", representing a quirky "law". "No moose" mimics the sound of "nomos". \$	<ul> <li>A colorful forest scene with animals looking quizzically at a sign that reads "No Moose"; with a moose behind the sign looking perplexed and pointing at itself;</li> </ul>	



A pristine park with a humorous sign reading "No Moss Allowed", with a park ranger pointing at the sign to a confused gardener holding a bag of moss.

https://chatgpt.com/c/6dd16c96-7a45-46f8-a543-c0791853f493



Nearly 80 ways to use AI: https://docs.google.com/spreadsheets/d/1ruaekjl80J2bfOhVX7SGULblvwQzkfWiJgztMEhLy2s/