

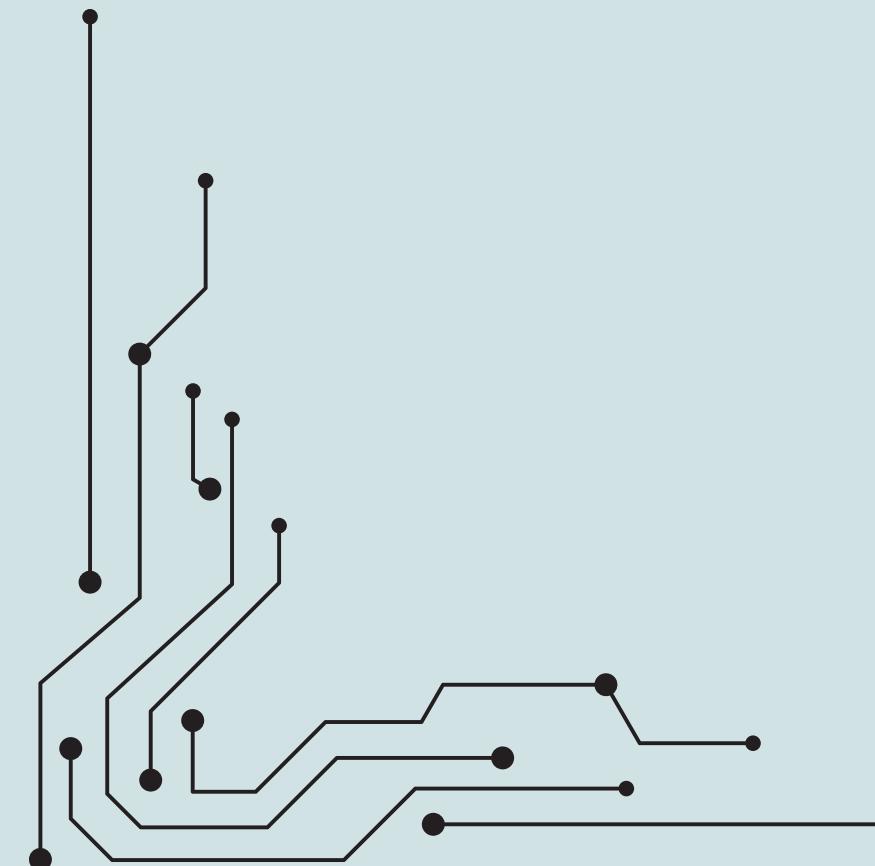
AI: Foundational Training





Matt

- Co-Founder | Orchard
- Co-Founder | Viridity Technologies
- XU Professor | AI & Emerging Tech



Aedhan

- Lead AI Engineer | Viridity Technologies



Matt | 3 Truths and 1 Lie

I majored in marketing

I have citizenship in Ireland

I hate scary movies

I have no pets



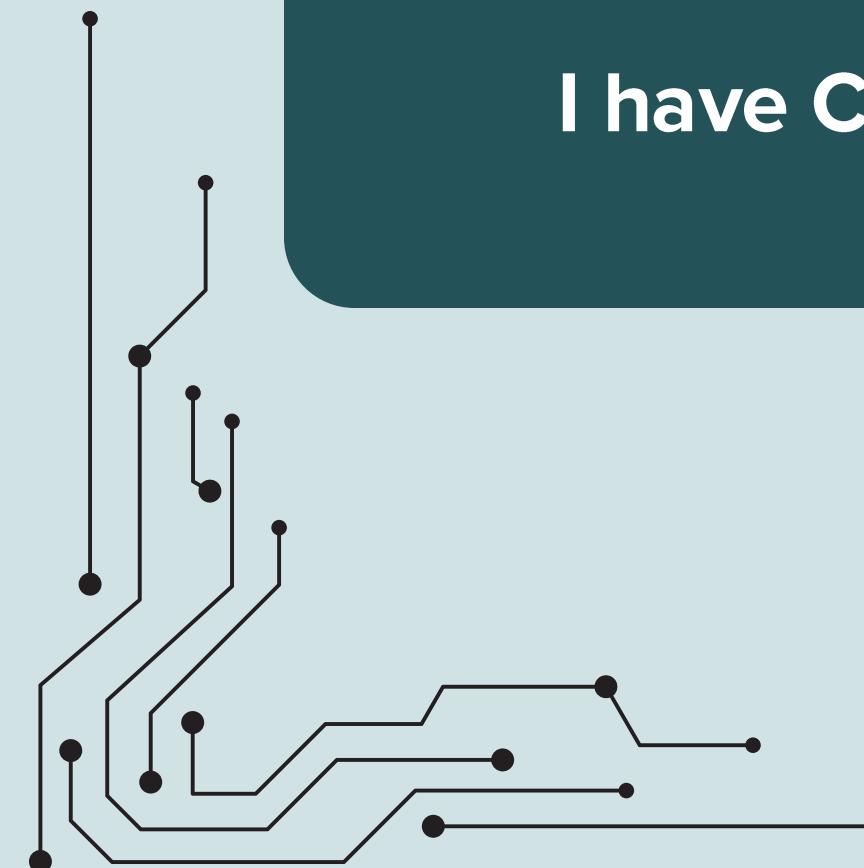
Aedhan | 3 Truths and 1 Lie

Aedhan is my middle name, not my first name

I lived in Austria for a year

I have Canadian Citizenship

I've hiked up a volcano

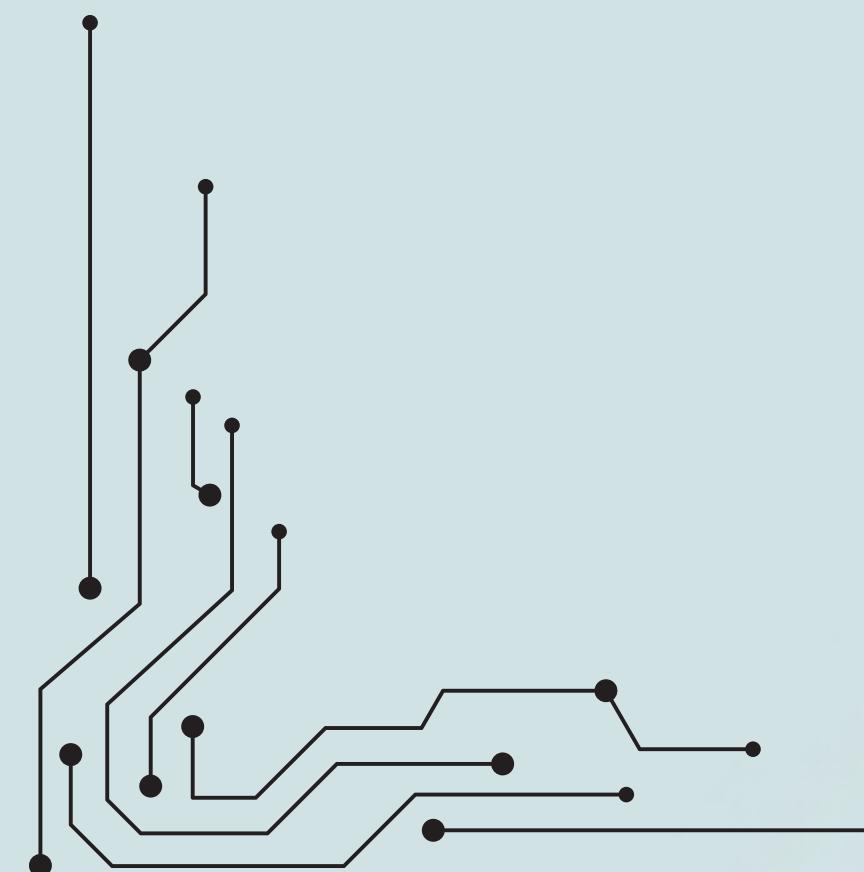




How frequently do you use Large Language Models (GPT, Gemini, Claude) at DeanHouston

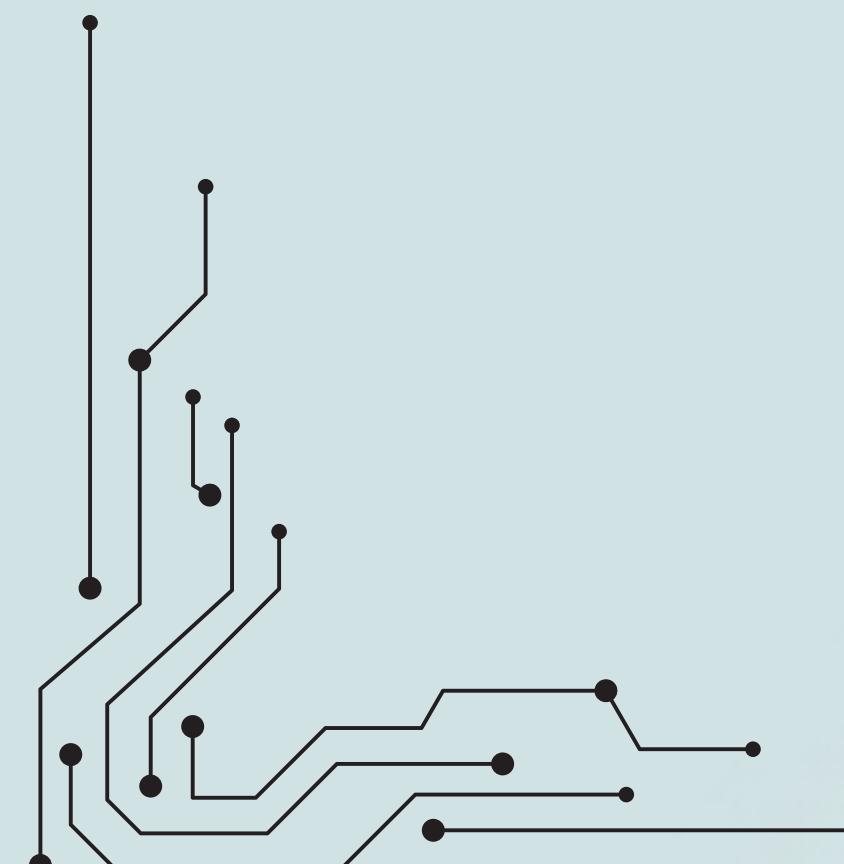
- ⓘ The Slido app must be installed on every computer you're presenting from

Role Play Exercise



**I am a DeanHouston client.
I asked you about your POV on AI.**

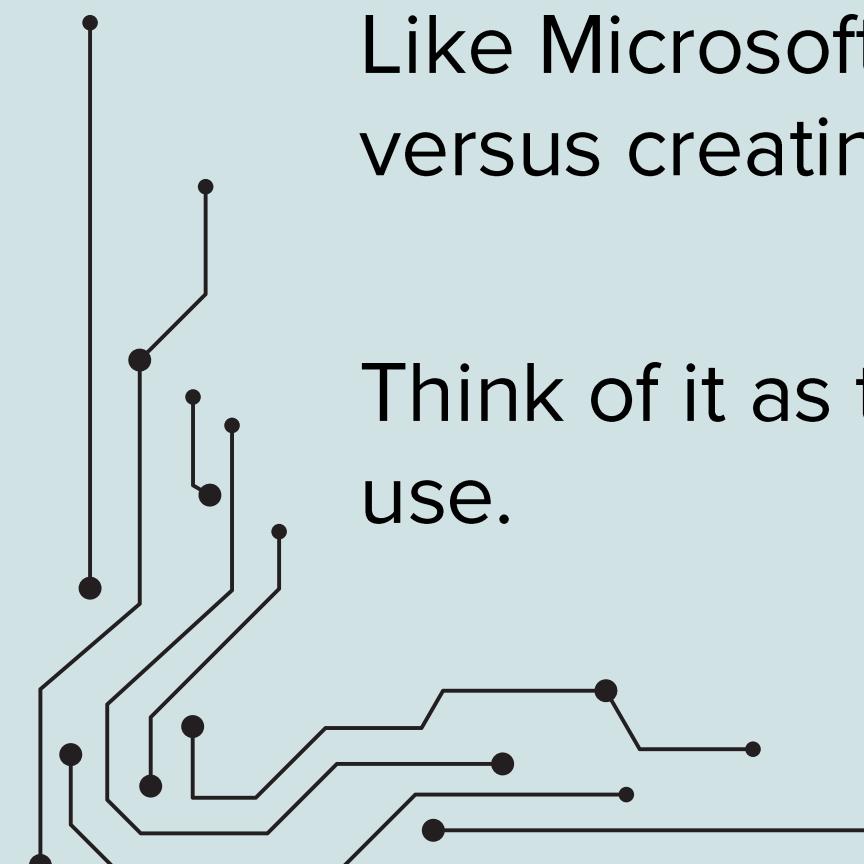
Q: What do you say?



Thoughts on a Simple, Approachable POV

AI isn't new to us, but it's evolving rapidly.

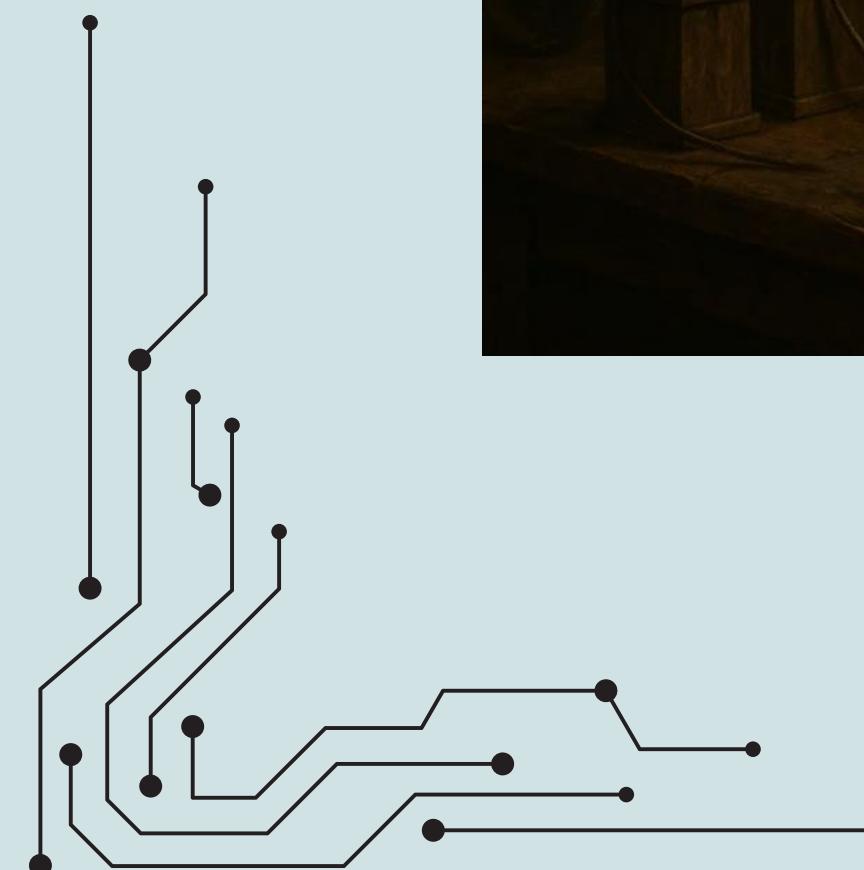
It's just like any other Business Technology. It should either increase revenue or reduce cost.



Like Microsoft Excel or Google Sheets – these are more proficient technologies to use versus creating tables and calculations by hand.

Think of it as the next step after automation, analytics, and marketing tools we already use.

(R)Evolution



Our promise to you...

Build foundational knowledge of generative AI

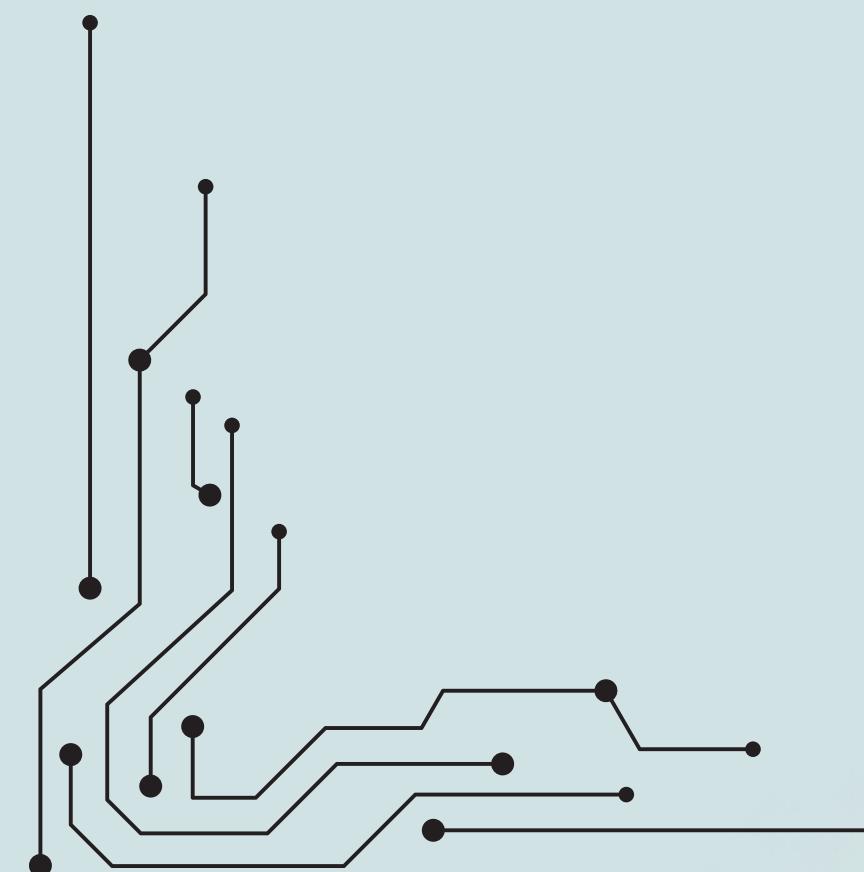
Establish DeanHouston's common language for cross-team AI discussions

Develop confidence in approaching AI as a strategic tool

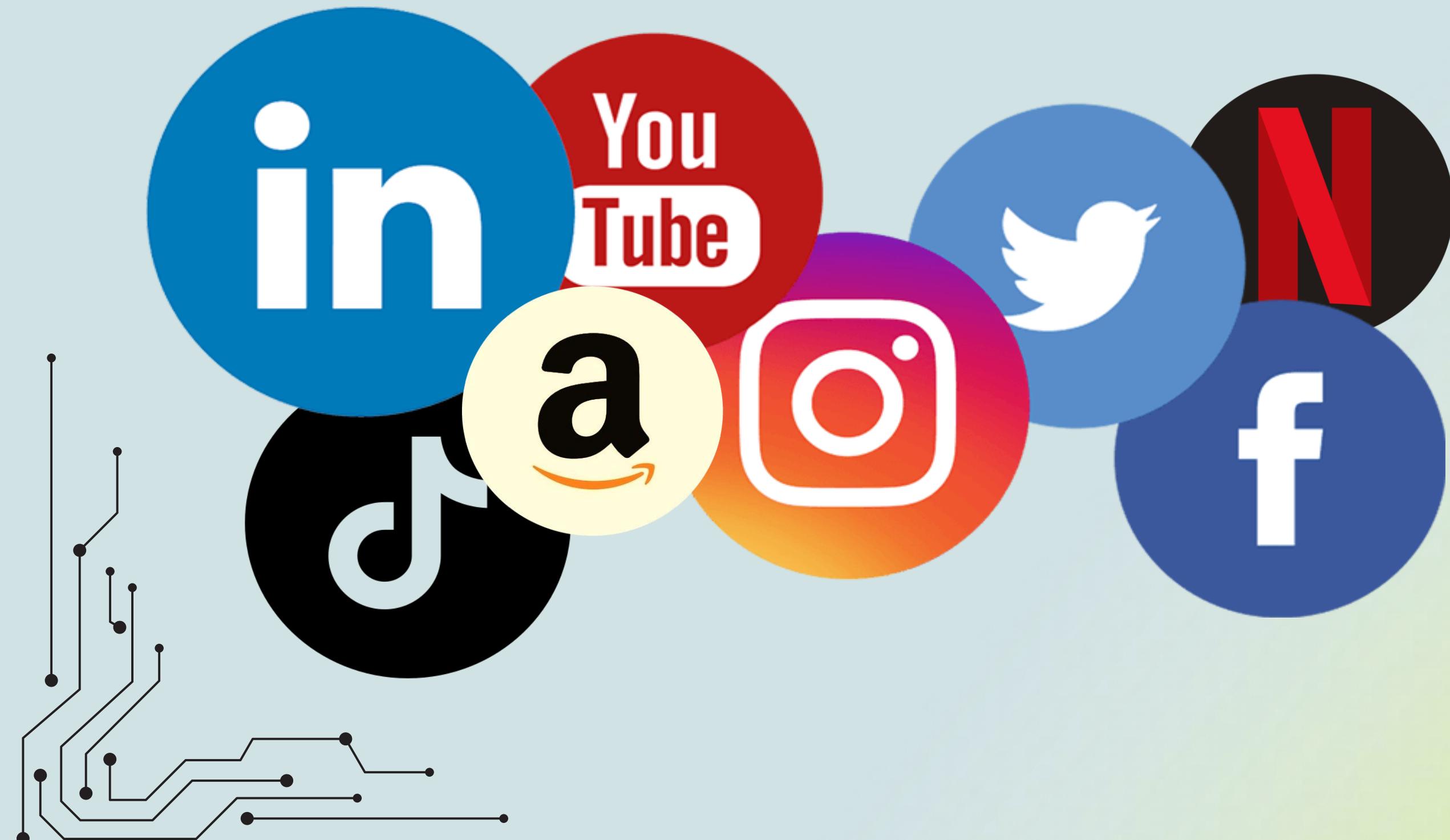
Understand ethical considerations and best practices



AI Introduction



1st Moment of Contact with AI



2nd Moment of Contact with AI

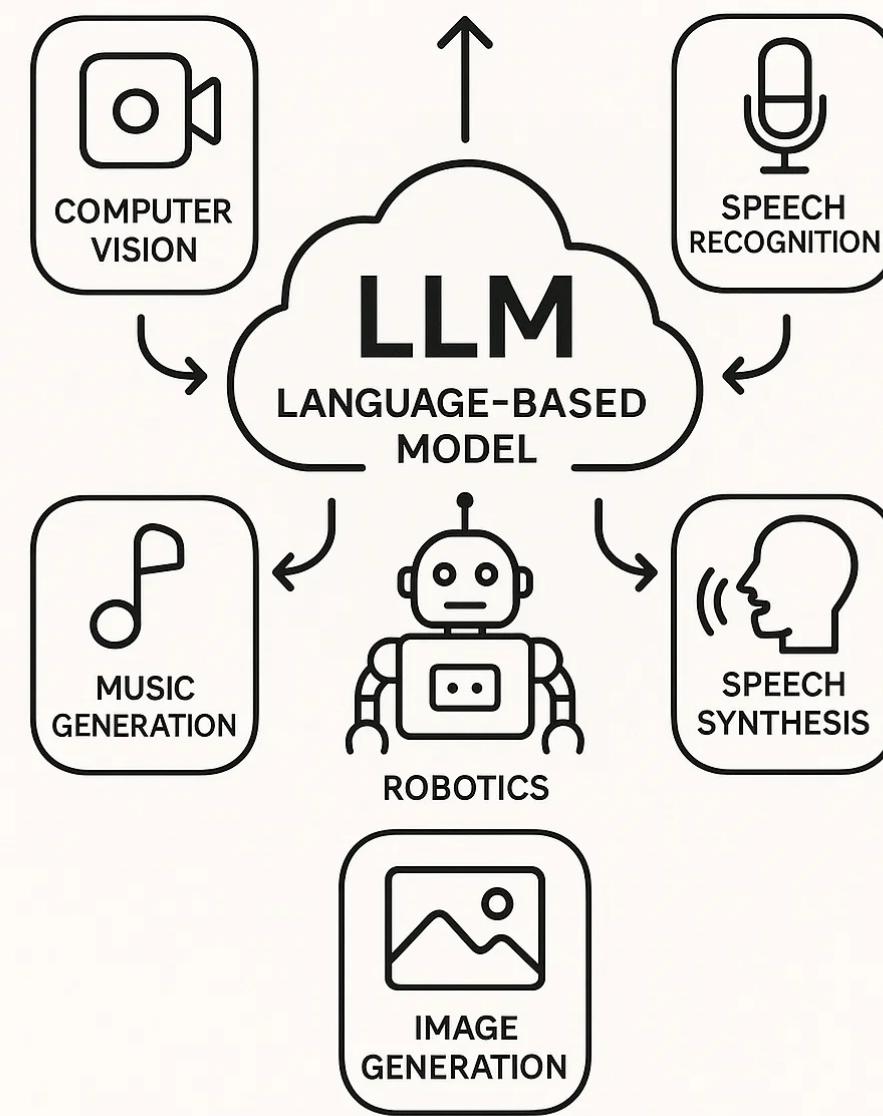
Artificial Intelligence used to have separate fields:

- Computer Vision
- Speech Recognition
- Speech Synthesis
- Robotics
- Music Generation
- Image Generation

All fields united under Language or a Language Based Model producing an LLM or what is known as Generative AI.

Generative AI

Separate fields unite under a Language-based Model

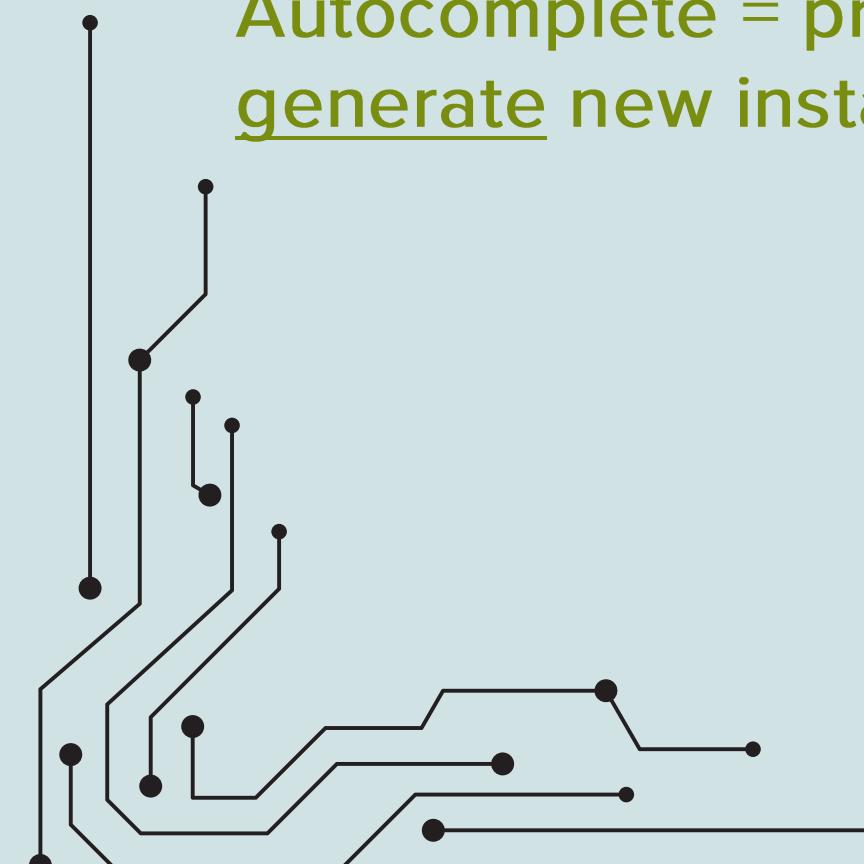


Large Language Models (LLMs)

Think of LLMs as fancy autocompletes

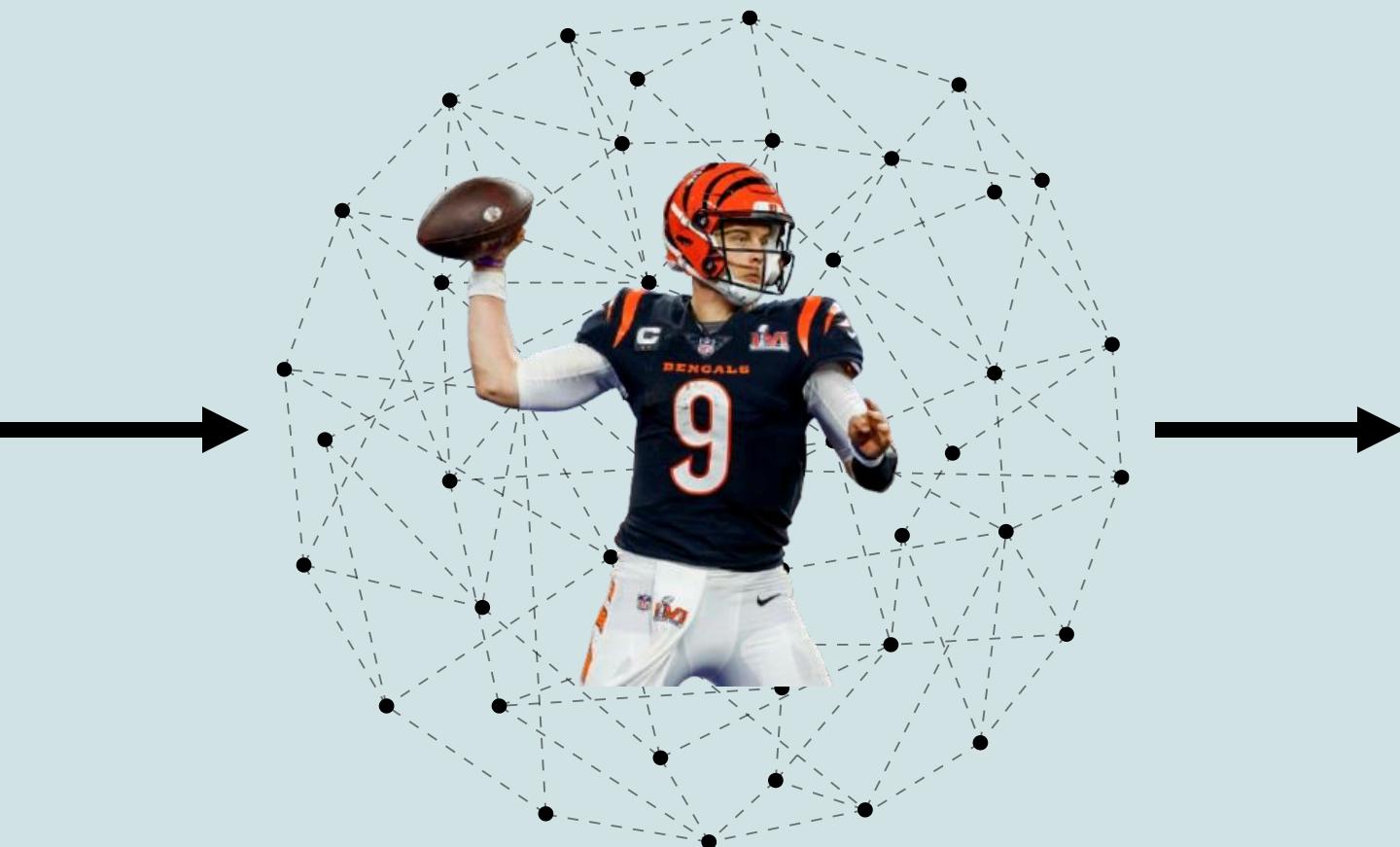
1. Joe Burrow plays professionally for the Cincinnati _____.
2. Whenever You're Feeling Good and Hungry, it's _____ !

Autocomplete = probability. Language Models learn probability distributions that represent data and generate new instances from a sample of that distribution



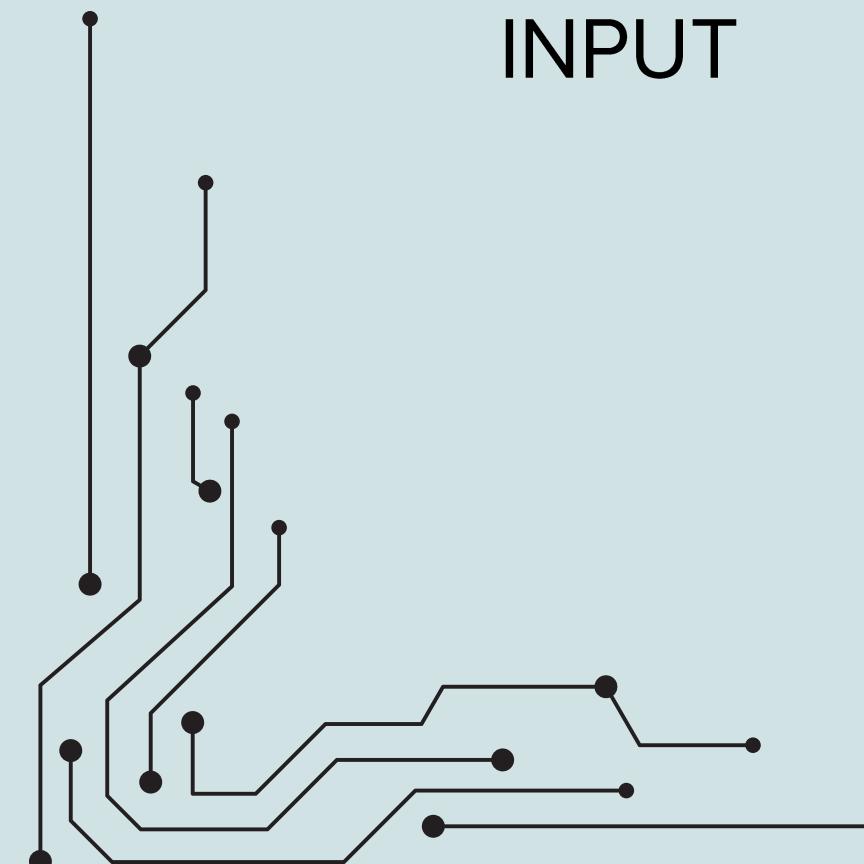
Joe Burrow plays
professionally for the
Cincinnati __

INPUT

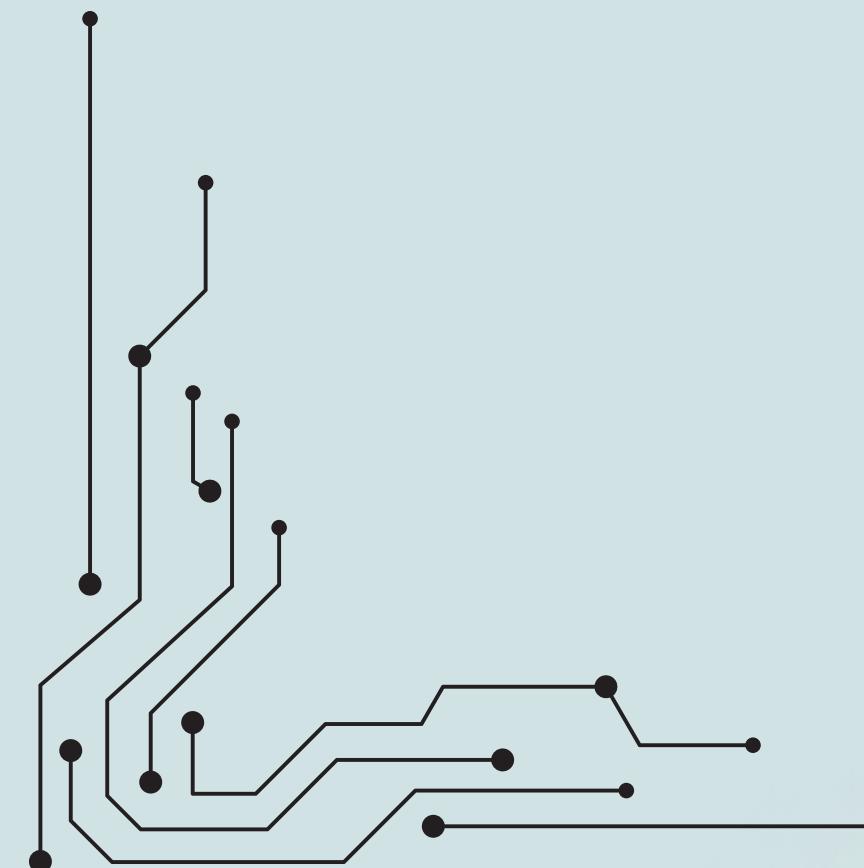


WORD	PROBABILITY
Browns	0.002
Bears	0.001
Tigers	0.041
Bengals	0.085

OUTPUT



How do Language Models Work?



HOW A LARGE LANGUAGE MODEL WORKS

PROMPT

Explain how a large language model works

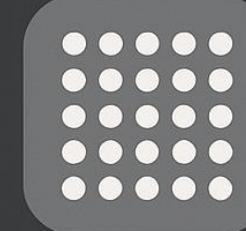
TOKEN

Explain | how | a | large

TOKENIZATION



TRAINING DATA



PARAMETERS



PARAMETERS

LLM

A large language model is a type of ...

OUTPUT RESPONSE

DH+

Content Window

What is a large language model?

Prompt

Token

Tokenization

Training Data

Parameters

LLM

Output

A large language model is a type of AI system that processes and generates human language.

DeanHouston

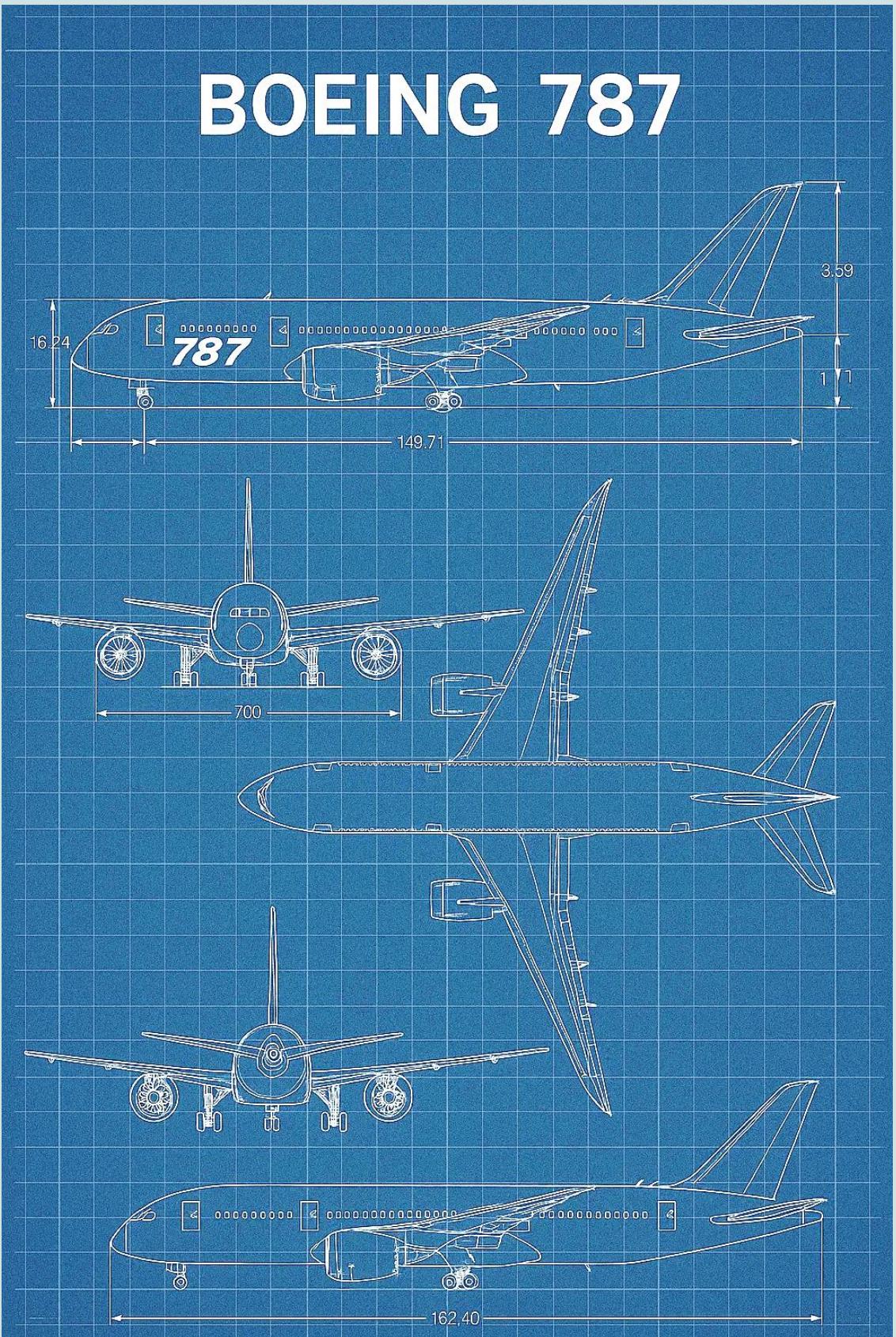
So, What's the Big Deal?

787 airplane is an engineered object.

We designed it. We know how it behaves. We don't want any surprises...

A Large Language Model was created by us not really engineered.

They are constantly surprising us.



Frontier Models

Largest, most advanced.

Achieve “benchmark-busting” scores.

Excel in complex tasks.

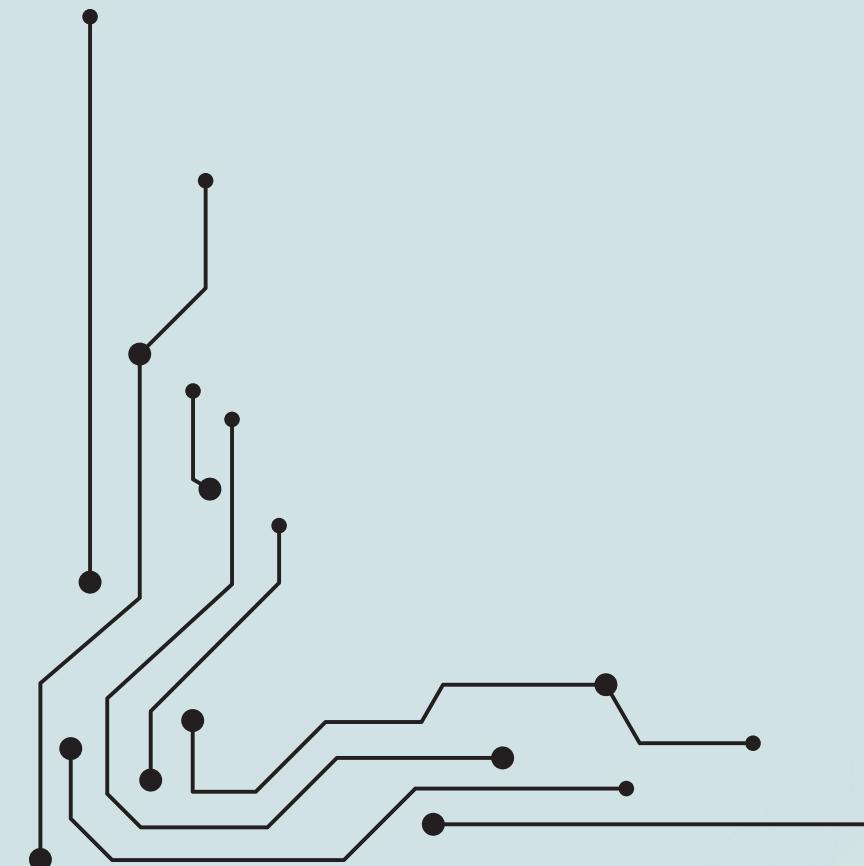
Continuously improved.

You should use these the most!

Feature	Frontier LLMs	Other LLMs
Model Size	Largest (billions/trillions of params)	Smaller to mid-sized
Performance	State-of-the-art, benchmark leaders	Good, but not leading
Capabilities	Multimodal, advanced reasoning, coding	General language tasks
Use Cases	Complex, high-stakes, enterprise, R&D	Everyday applications
Examples	GPT, Claude, Gemini	Llama 2, Mistral 7B, smaller models
Access	Proprietary, sometimes open-weight	Open-source or proprietary
Feature	Frontier LLMs	Other LLMs
Model Size	Largest (billions/trillions of params)	Smaller to mid-sized



Creating a Common Language





What is prompt engineering?

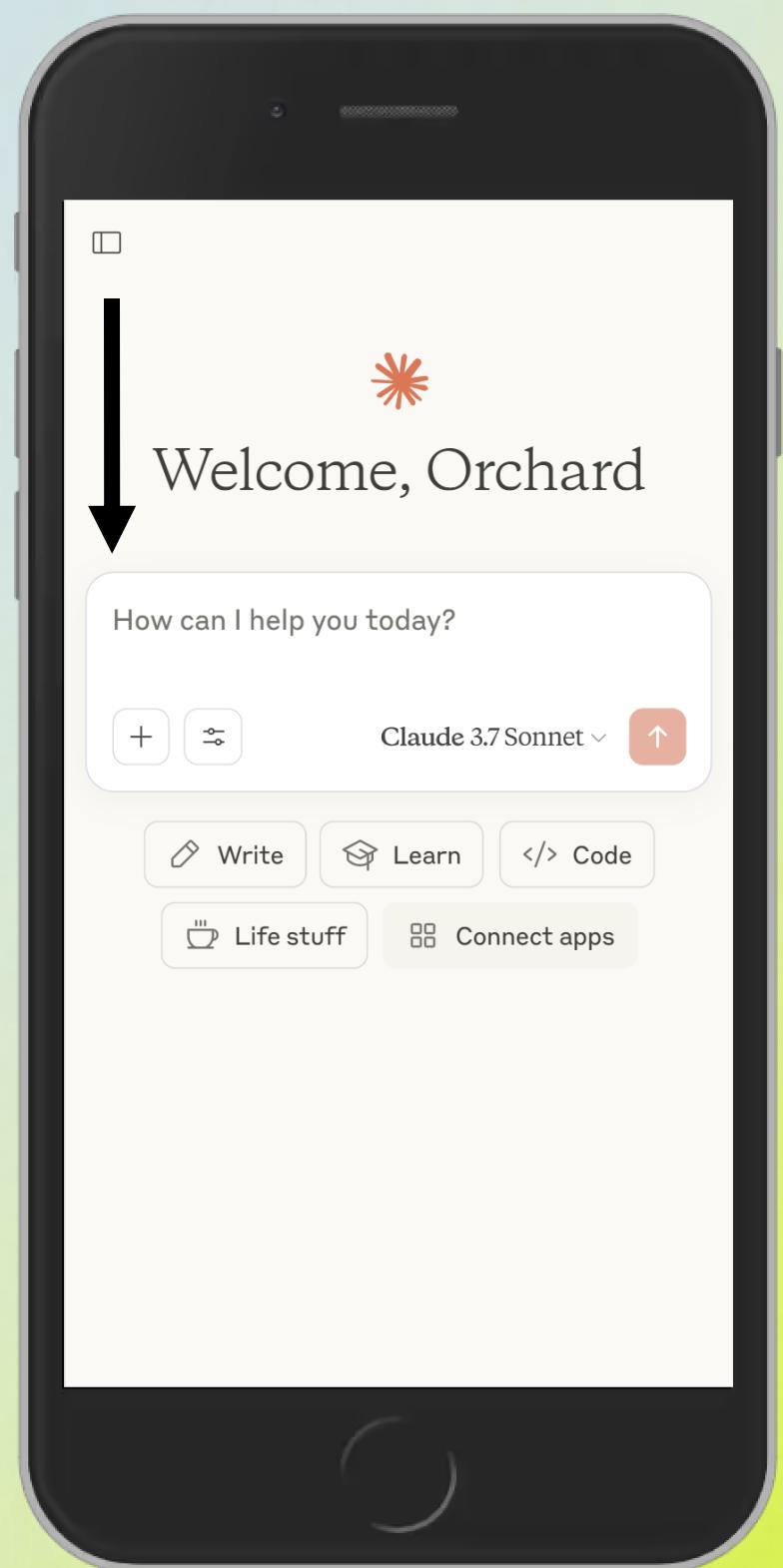
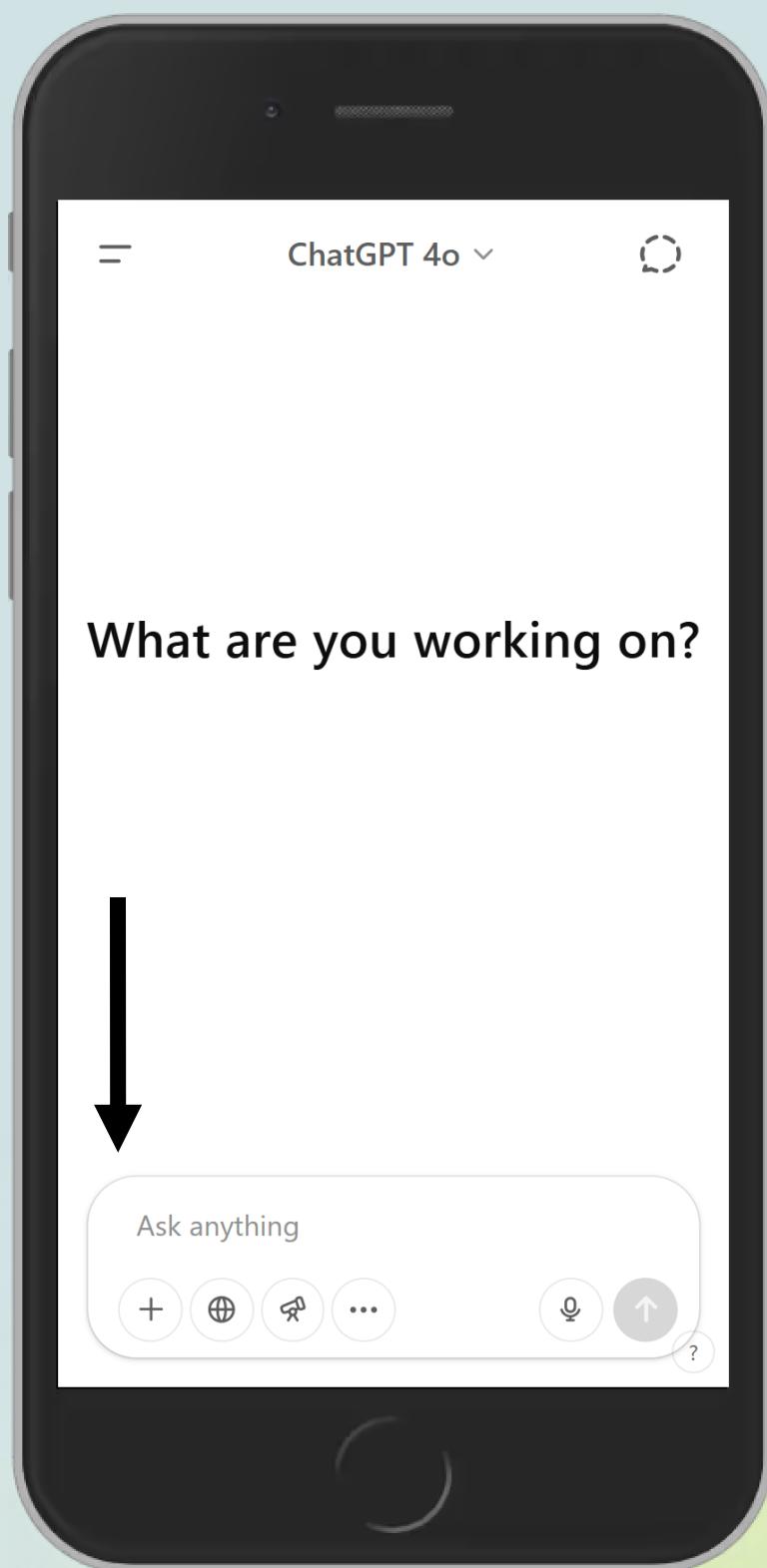
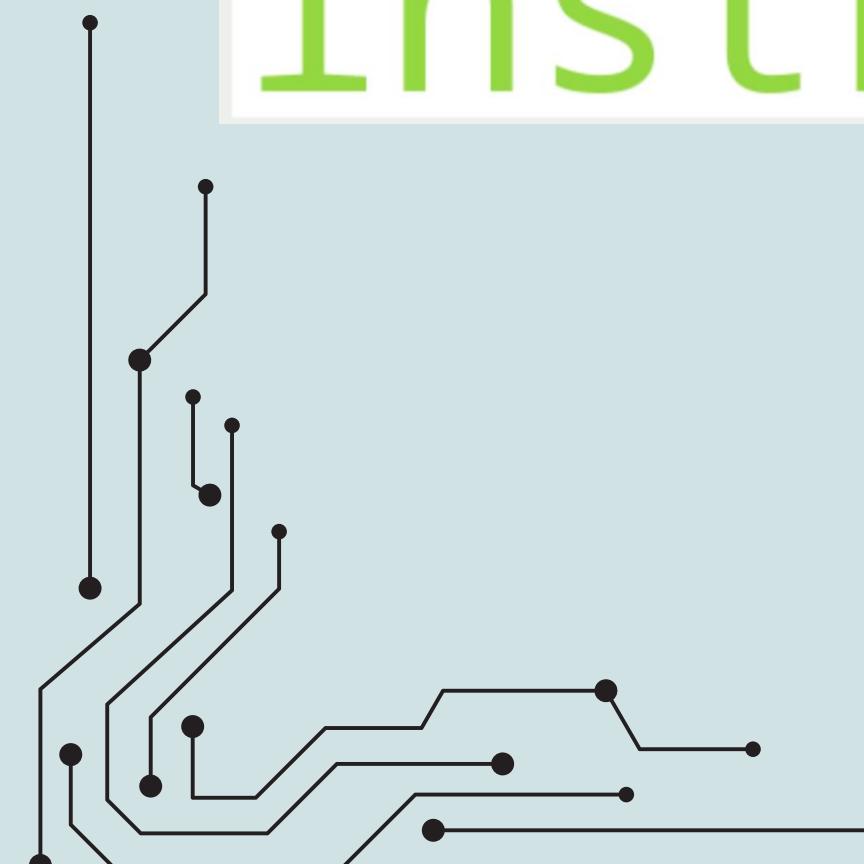
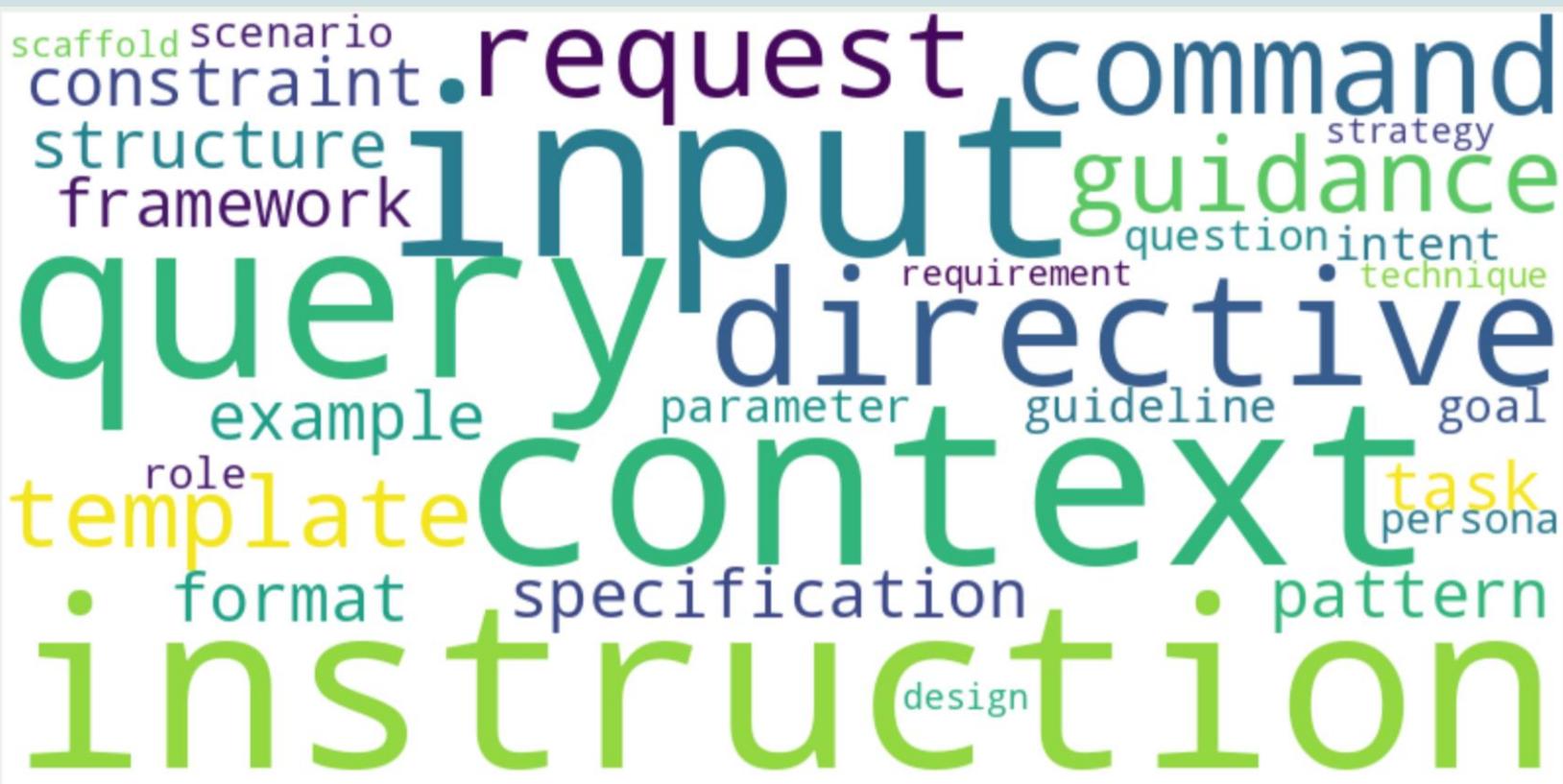
- ⓘ The Slido app must be installed on every computer you're presenting from



True or False: How you prompt a LLM is not important

- ⓘ The Slido app must be installed on every computer you're presenting from

A Prompt



Context Window = Size of Prompt

Digital Memory

A context window is the amount of text a LLM can "remember." It's measured in tokens.



Size Matters

Larger context windows allow AI to handle more information at once.



Learning Applications

Context windows determine how well a LLM can help with your task.



Exponential Growth of Context Length in Language Models

Tracking the growth in input context length over time

Created by: artfish.ai

1M

- OpenAI
- Google
- Anthropic

Input Context Length (tokens)

100K

10K

1K

512 tokens

2018

2019

2020

2021

2022

2023

Model Release Date

Note: Bubble size corresponds with input context length.

GPT-3

GPT-1

BERT

T5

512 tokens

1K

Model Release Date

Note: Bubble size corresponds with input context length.

Model Release Date

Note: Bubble size corresponds with input context length.

Model Release Date

Note: Bubble size corresponds with input context length.

Model Release Date

Note: Bubble size corresponds with input context length.

Model Release Date

Google's Gemini 1.5 can (almost) fit the entire Harry Potter + Lord of the Ring series in its 2 million context window

Gemini 1.5 2M
(June 2024)



Claude 2.1
(July 2023)



GPT-4 Turbo
(March 2023)



GPT-3.5 Turbo
(March 2022)



Gemini 1.5 Pro 2M
2M tokens

Claude 2.1

Claude 1.2

GPT-4-32K

GPT-3.5 Turbo

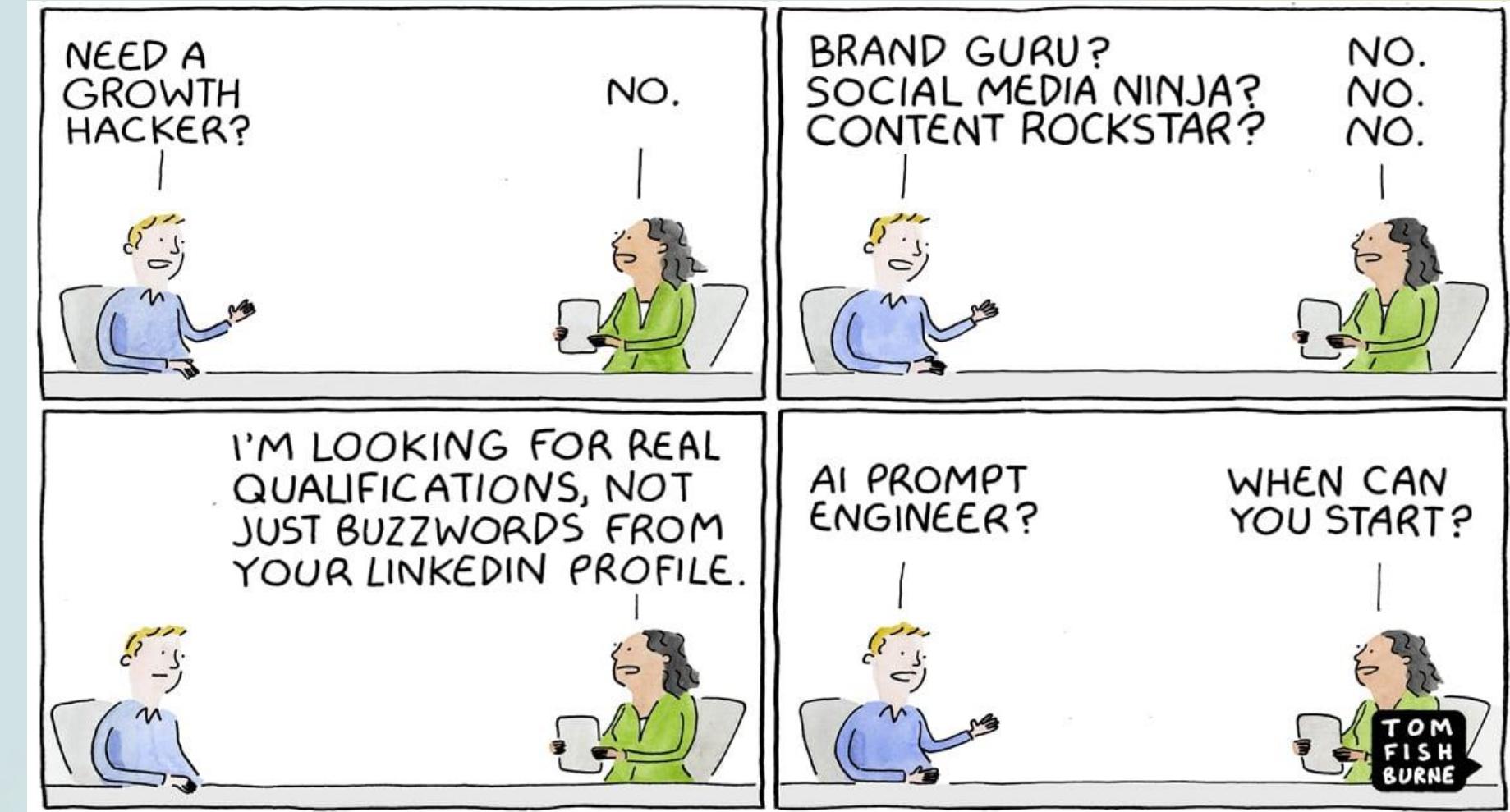
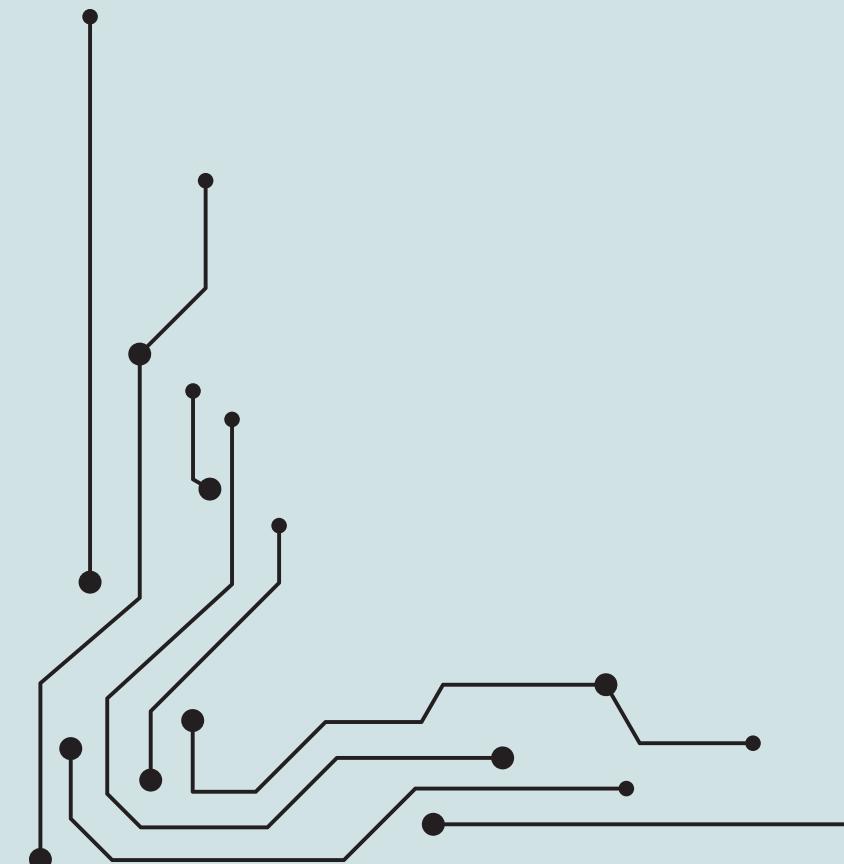
GPT-4

Gemini 1.0

Prompt Engineering

The practice of designing and refining input text prompts for LLMs to elicit desired outputs.

There should never be a time where you give a LLM 1 prompt and you're done.



What Makes a Good Prompt Engineer?

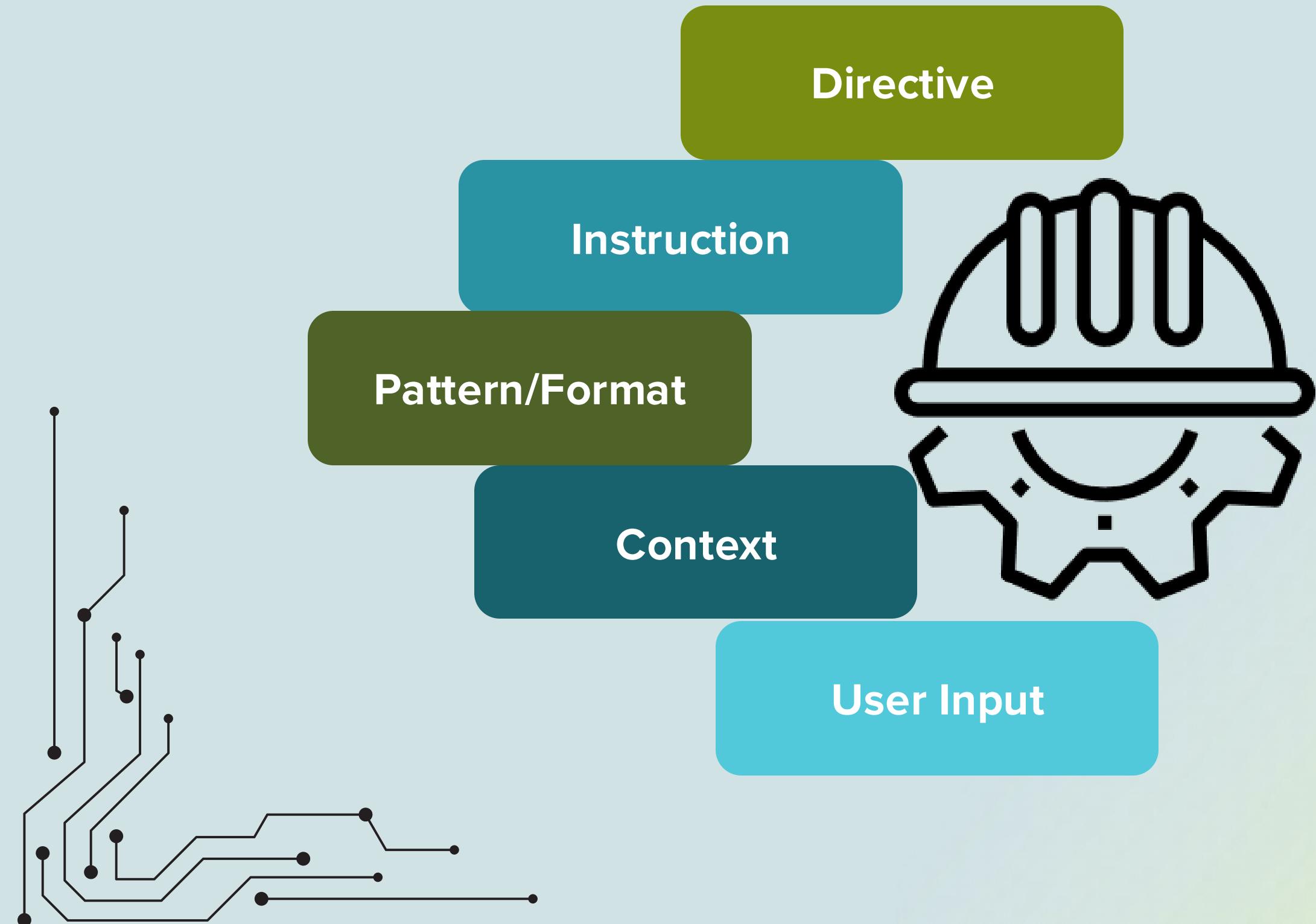
(Ability to state things
clearly, describe
tasks/concepts +
willingness to iterate)

=

Good Prompt Engineer



Prompt Engineering Tips



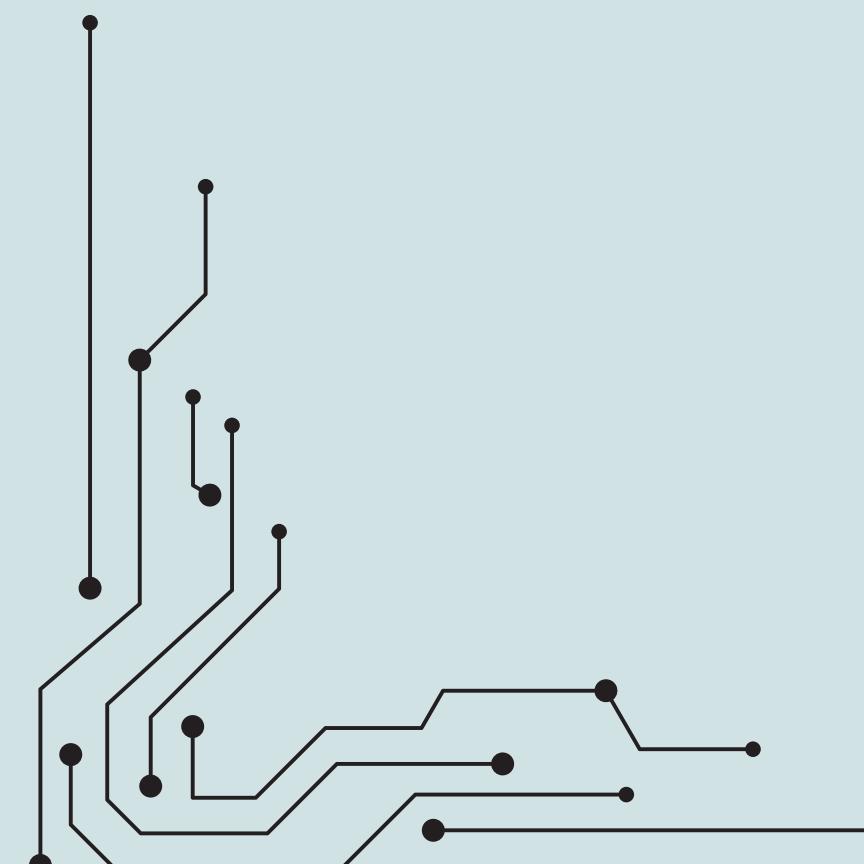
- Be Clear, Specific, Concise
- Use Structured Patterns/Formats
- Provide Relevant Context
- Iterate and Refine

Peanut Butter and Jelly Sandwich Framework

Imagine you have...



...if you had to describe how to
make a peanut butter and jelly
sandwich – what would you say?



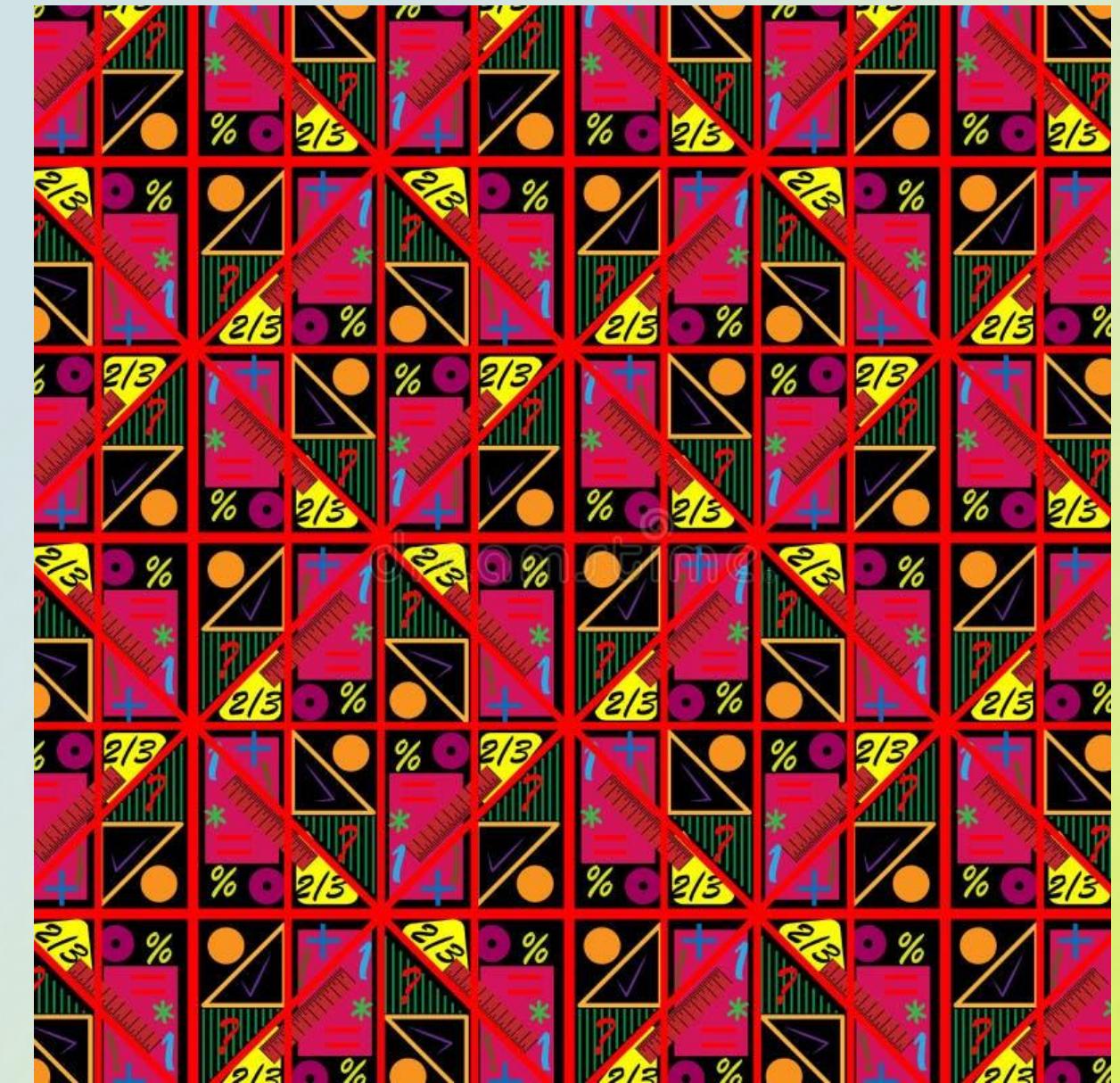
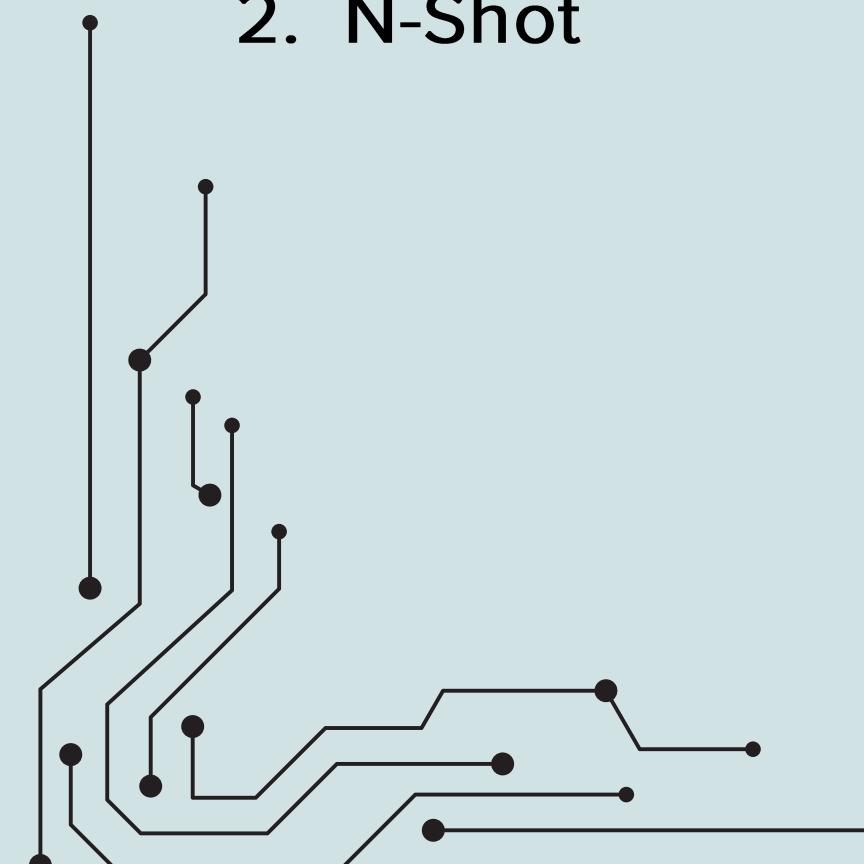


Prompt Patterns = High Quality

Help you structure your instructions to LLMs in a way that improves the quality, consistency, and relevance of responses.

Two Patterns to Use Daily:

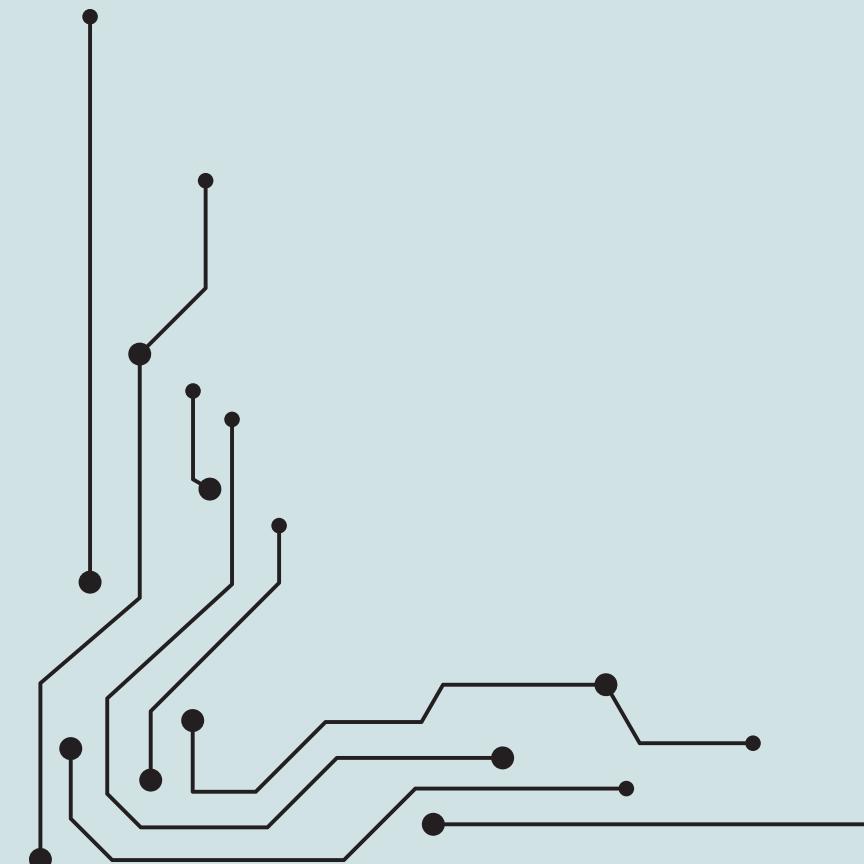
1. Persona Modification
2. N-Shot



Persona Modification Prompt Pattern

Act as Persona X

"Act as a B2B marketing strategist..."
"Act as a copywriter for OPW Global..."



Act as a B2B marketing strategist

Absolutely, Mr. Matt, my AI master. Let's dive into strategy mode.

Today's inspiration: *"The best marketing doesn't feel like marketing."* – Tom Fishburne

What B2B strategy are we solving today? Are we working on:

- A go-to-market strategy for a new product or service?
- Positioning and messaging to a new vertical?
- Lead generation and funnel optimization?
- Account-based marketing (ABM)?
- Content marketing or SEO alignment?
- A sales enablement overhaul?

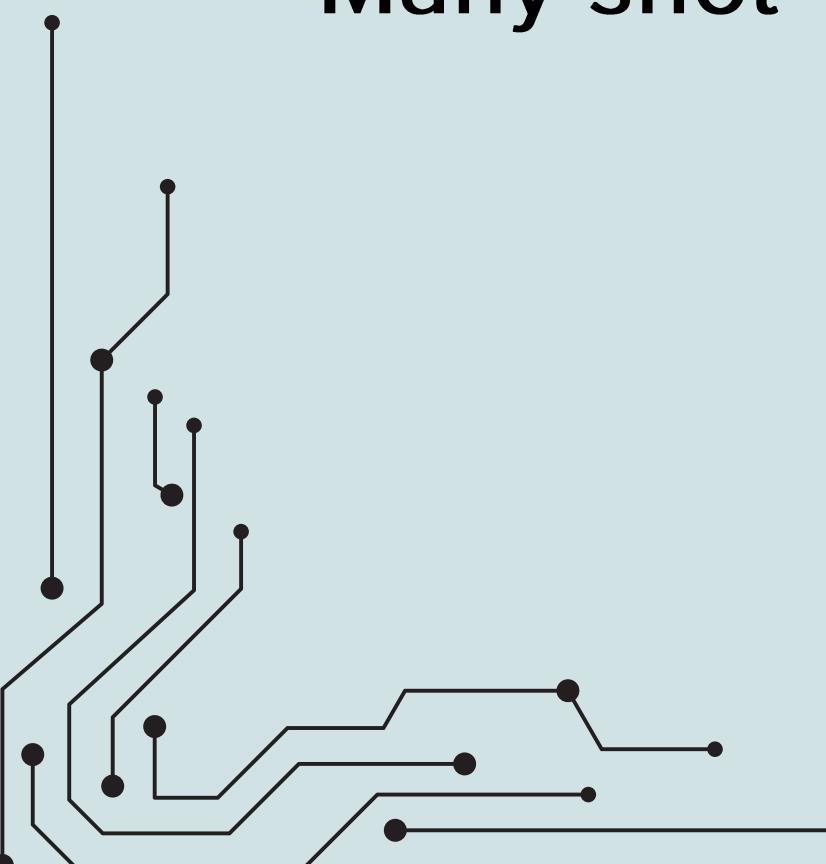
Let me know the goal, target audience, product/service details, and any channels or KPIs you're working with. Then I'll get you a battle-ready plan.



N-Shot Prompt Pattern

Give a specific number (N) of examples

- Zero-shot
- One-shot
- Few-shot
- Many-shot



0

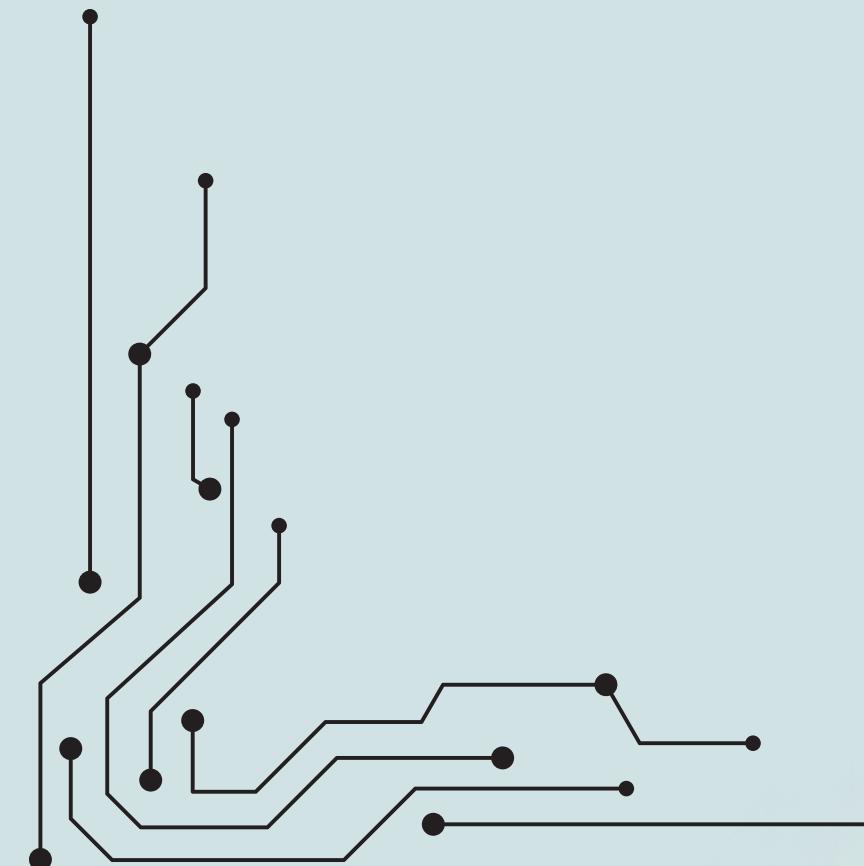
Assign sentiment of "positive" or "negative" to the last text based on these examples:

1. "DeanHouston is awesome." - Positive
2. "DeanHouston has great people." - Positive
3. "DeanHouston is a premiere B2B marketing agency." - Positive
4. "DeanHouston is not that cool."

Based on the examples provided, the sentiment for "DeanHouston is not that cool." would be:

Negative

Types of Models and Capabilities



Types of Models and Capabilities

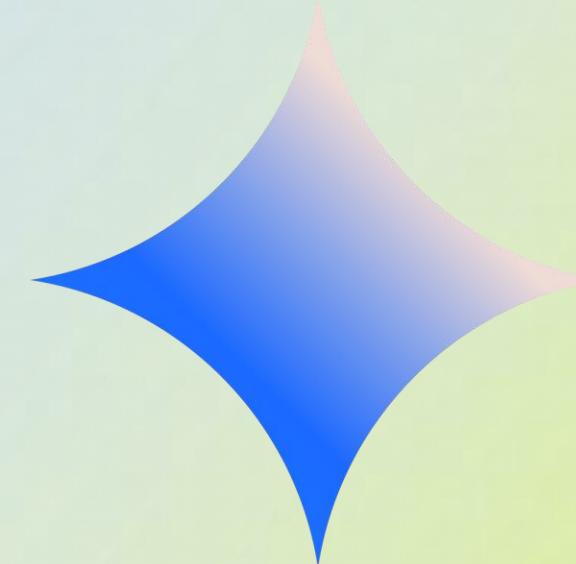
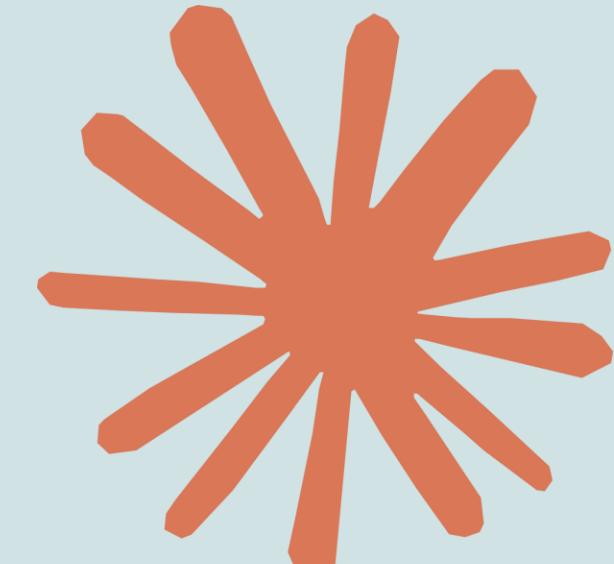
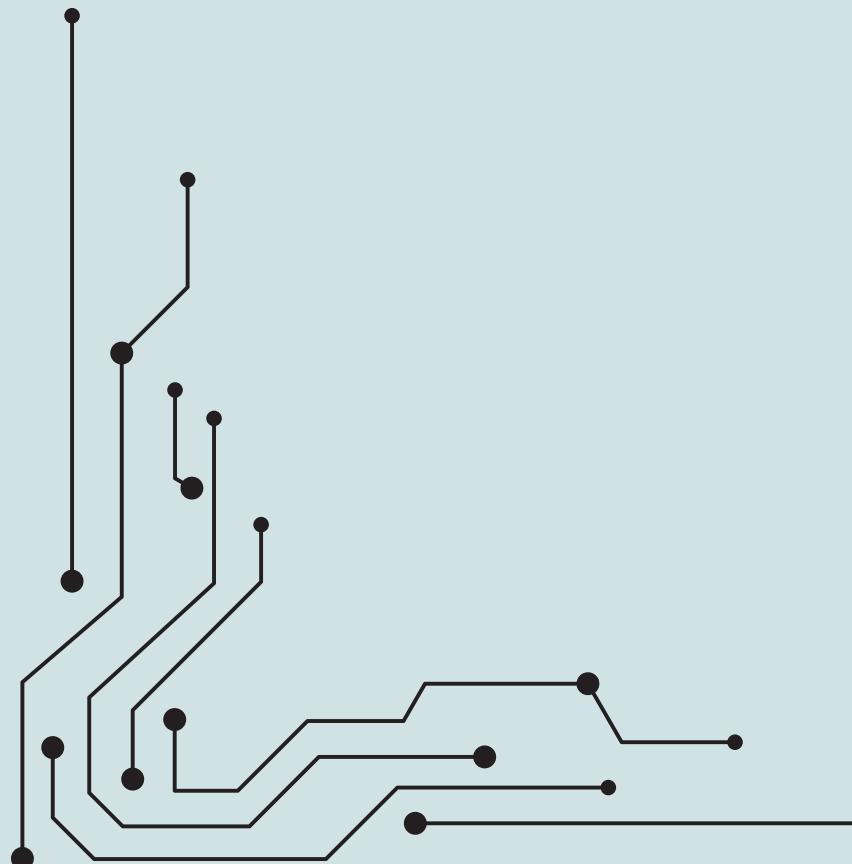
Modality	What the Model Does	Popular Model Families & Tools	Common Use-Cases
Text	Generates or interprets natural language	GPT-4o, Claude 3, Llama 3, Mistral Large	Chatbots, summarization, code completion
Image	Creates or analyzes static visuals	DALL·E 3, Stable Diffusion XL, Midjourney v6	Marketing mock-ups, product photos, object detection, OCR
Video	Generates or edits moving imagery	OpenAI Sora, Pika Labs, Runway Gen-2	Storyboarding, synthetic ads, upscaling, scene editing
Audio / Speech	Converts text↔speech or crafts music & sound	Whisper (ASR), OpenAI Voice Engine, ElevenLabs, Suno AI	Voice-overs, transcription, podcast clipping, music generation
Multimodal	Reason across text + vision + audio in one model	GPT-4o Vision, Gemini 1.5 Pro, Claude 3 Opus	Chat with images, explain charts, write alt-text, multimodal search

Text Based LLMs (Frontier Models)

Extensive and powerful Guardrails

File Upload
Conversation Recall
Learns about the User

These are the mode's you've heard of before (ChatGPT,
Claude, Gemini)

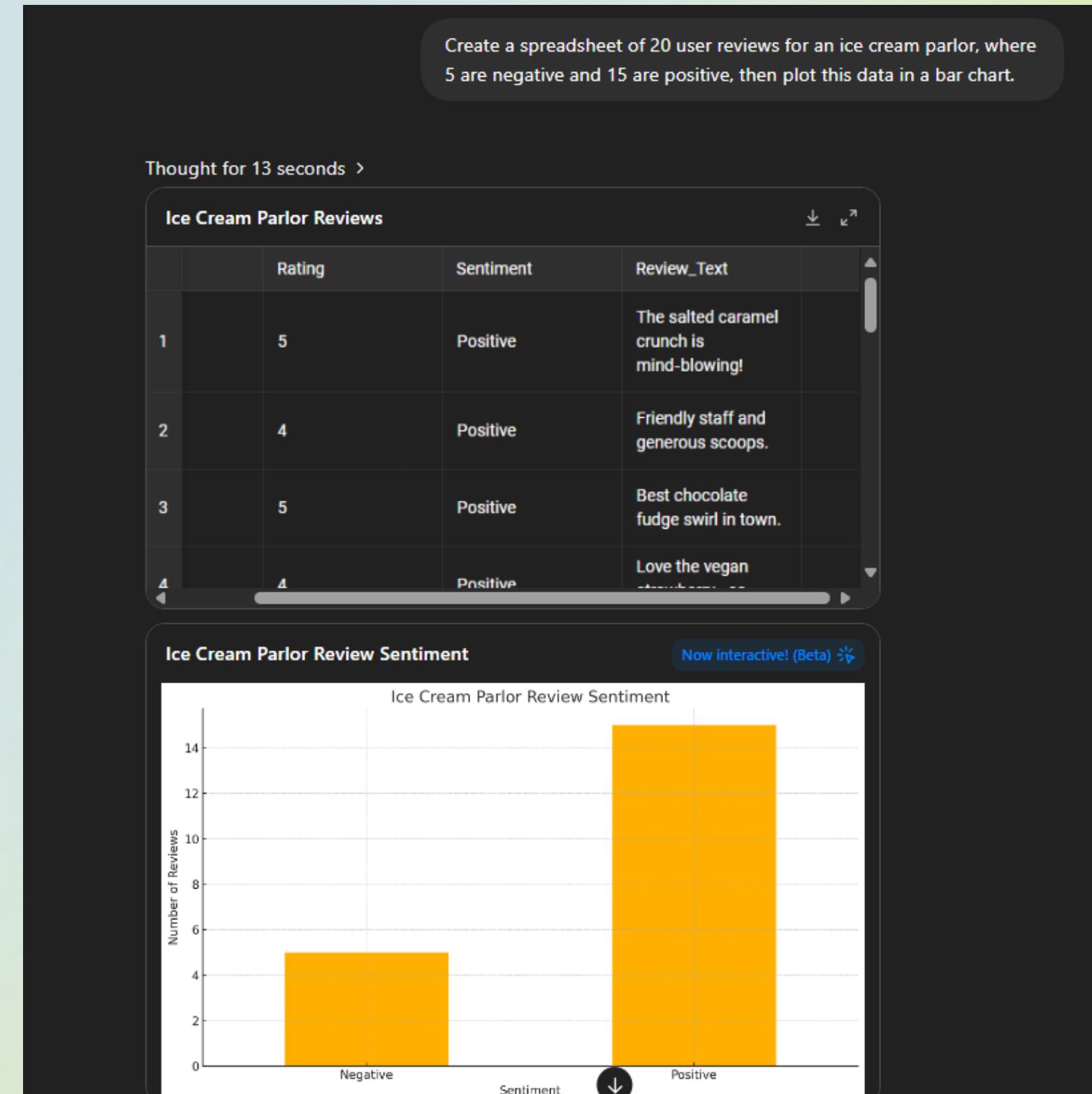


The Big Three: Claude ChatGPT and Gemini

ChatGPT (o3)

Demo Time!
[ChatGPT](#)

Impressive Reasoning
Supports File Upload
Runs Code Inline
Custom GPTs
Images and Video (with Sora)



Anthropic's Claude



Enhanced Data Privacy and Security



Many similarities to chatGPT

Demo Time!
[Anthropic](#)



Advanced visualization options

 Claude

BY ANTHROPIC

Interactive Bubble Graph of Friends Character Relationships ▾

S Create a json file of all the relationships of the characters in friends and then make it an animated bubble graph I can interact with.

Plotted interactive Friends character relationship network visualization ⏱ 6s ▾

I'll create an interactive visualization of the Friends character relationships for you. This will involve creating a JSON data structure and then implementing an interactive bubble graph using React and D3.js.

First, let's use the analysis tool to validate our JSON structure:

Analyzed data View analysis ▾

Great! Our JSON data structure for the Friends relationships is valid. Let's now create an interactive bubble graph visualization using React and D3.js:

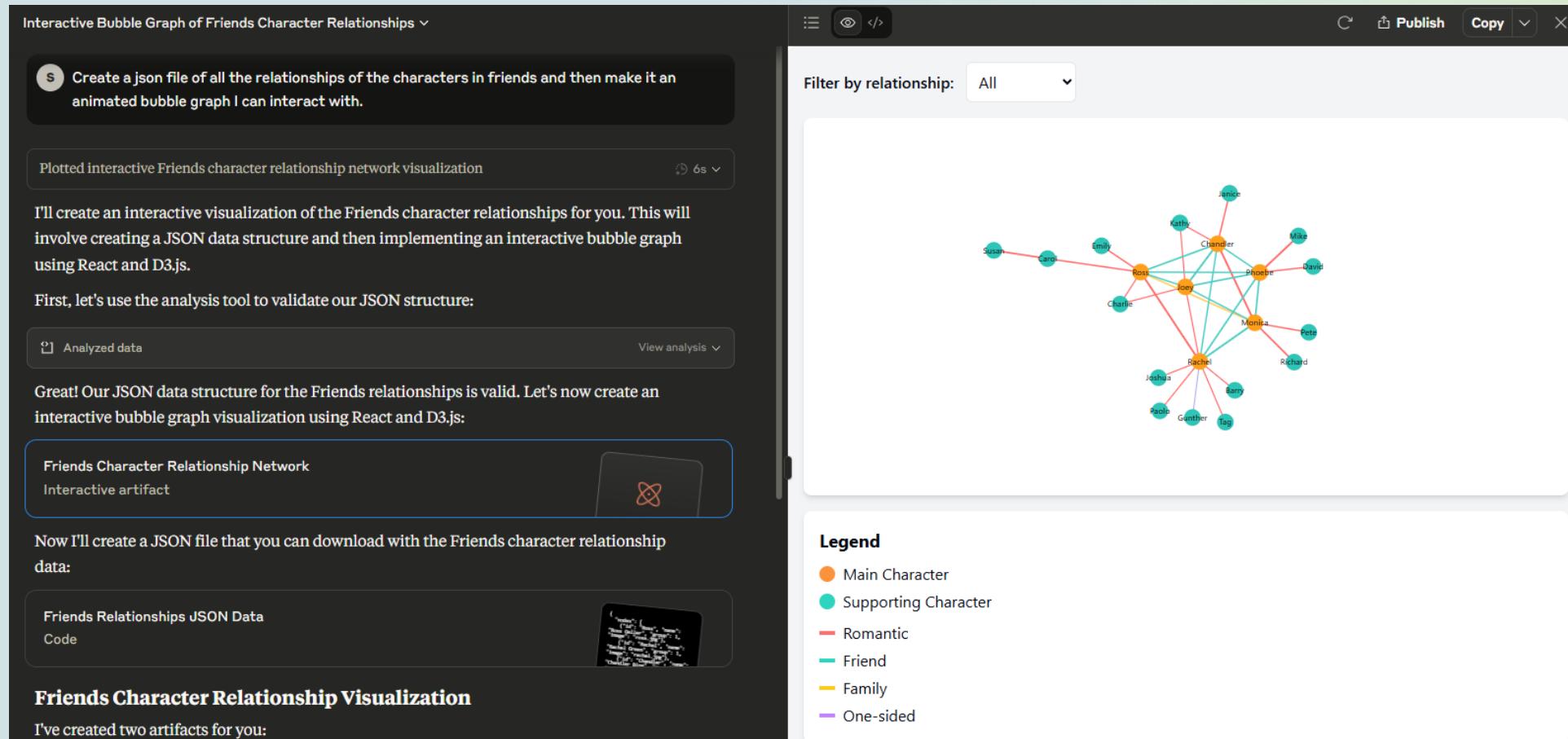
Friends Character Relationship Network Interactive artifact

Now I'll create a JSON file that you can download with the Friends character relationship data:

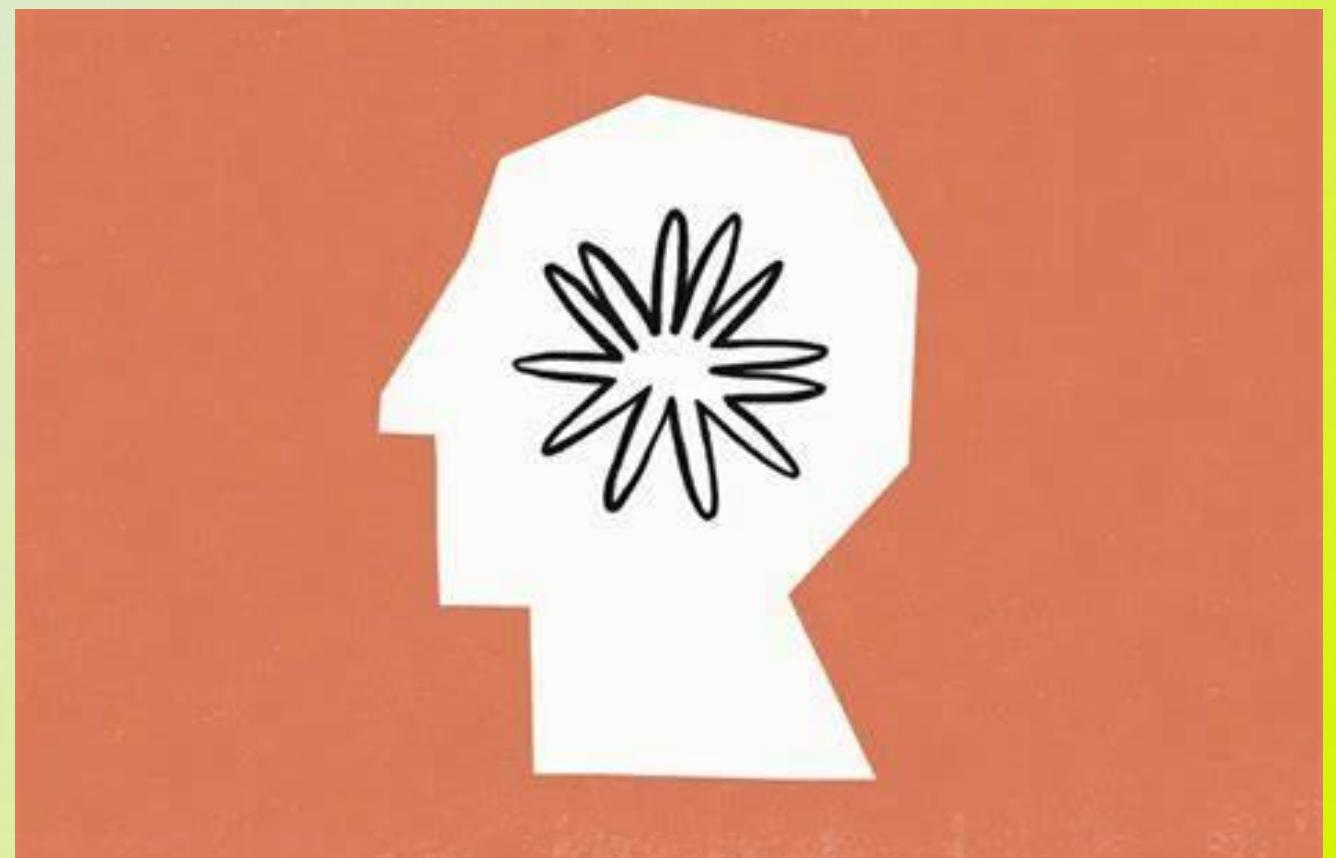
Friends Relationships JSON Data Code

Friends Character Relationship Visualization

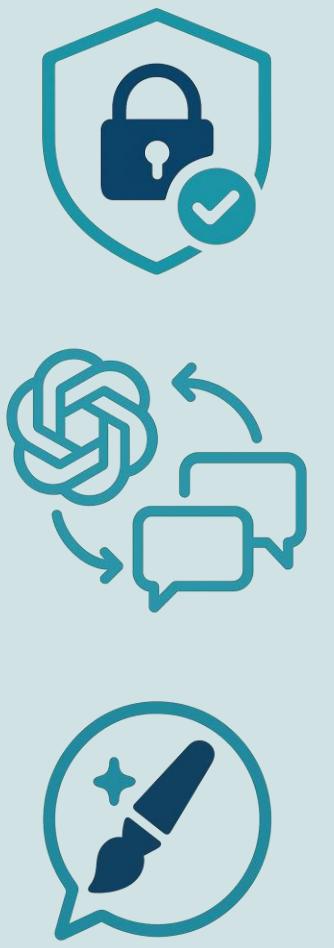
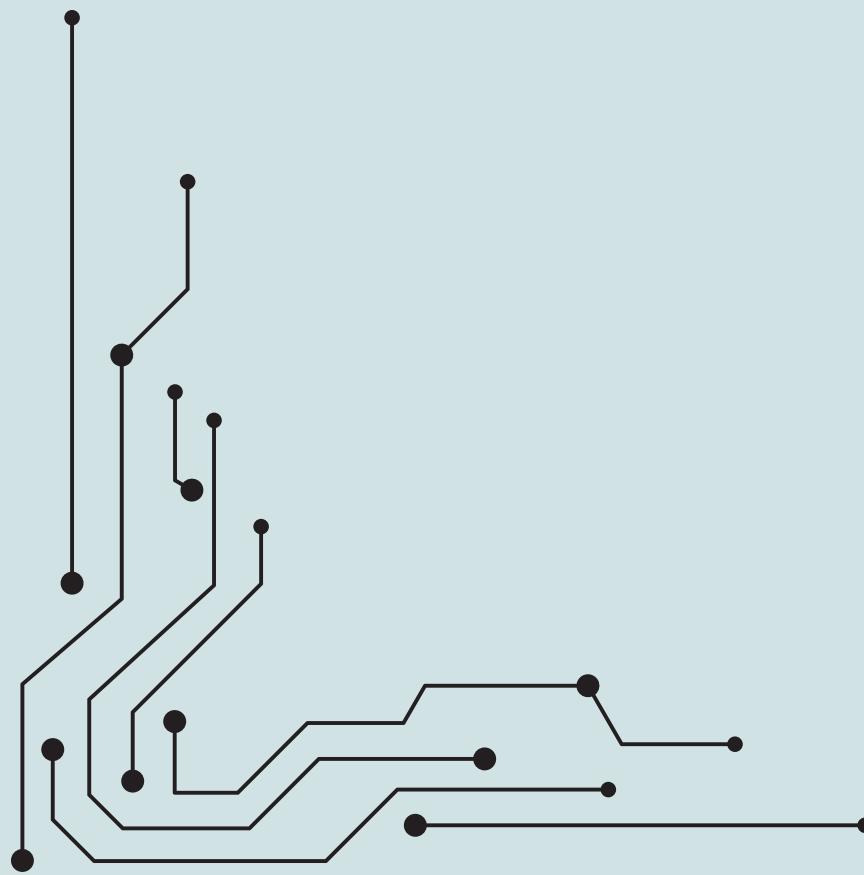
I've created two artifacts for you:



The screenshot shows the Claude interface with a dark theme. On the left, there's a sidebar with a tree-like structure of nodes and connections. The main area displays a JSON analysis step, a legend for a bubble graph (Main Character: orange, Supporting Character: teal, Romantic: red, Friend: cyan, Family: yellow, One-sided: purple), and a preview of the Friends character relationship network. The preview shows characters like Chandler, Monica, and Joey connected by various colored lines representing different relationship types.

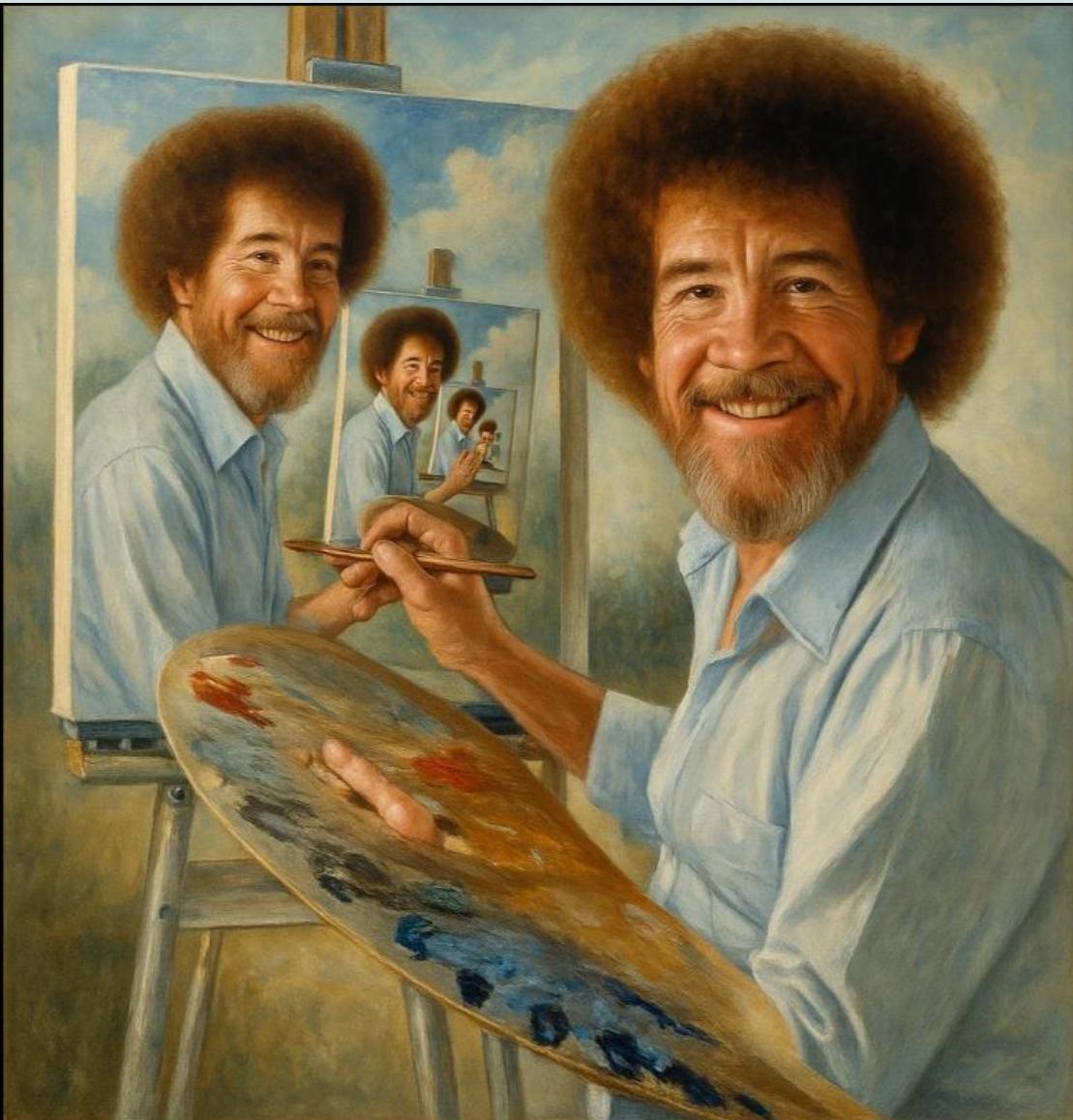


AI Image Generation



AI Image Models and Services

Sora (Open AI)
Short Prompts



Bob Ross painting a self portrait, which is painting a self portrait



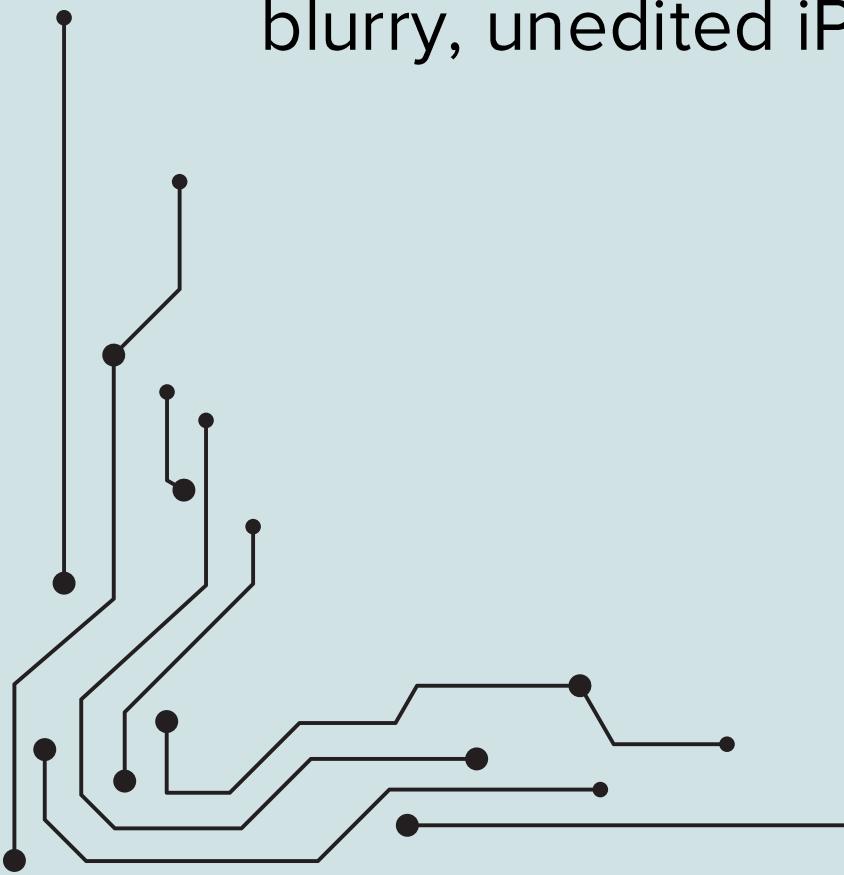
Mr Rogers from Mr Rogers Neighborhood having a sitdown talk with Mike Tyson who has his feet up relaxing on an ottoman

AI Image Models and Services

Demo Time!
<https://sora.chatgpt.com/>

Sora (Open AI)
Long Prompts

“Steve irwin in a tan colored space suit with no helmet grappling with a large crocodile on the ISS in zero g. The crocodile is trying to bite and claw at them but the astronaut is hugging it lovingly. The crocodile is motion blurred and thrashing. The astronaut is motion blurred. Stray perfectly spherical droplets of dirty water are floating everywhere near the camera man. Chaotic encounter. A Hastily taken, slightly blurry, unedited iPhone picture”

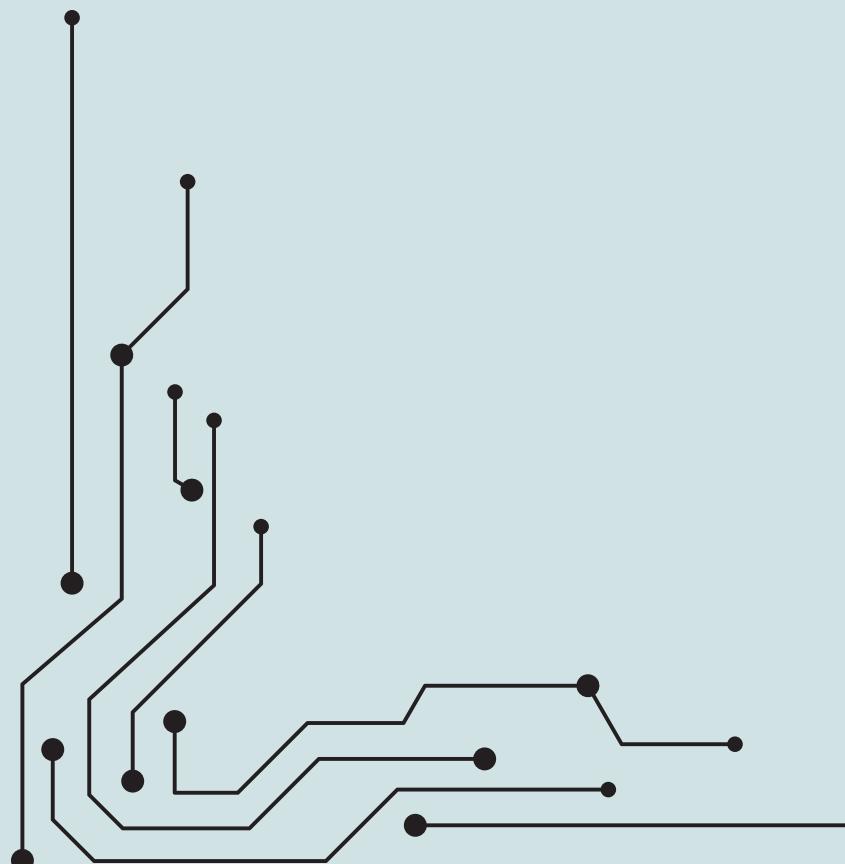


AI Image Models and Services

Black Forest Lab's Flux 1.1
Short Prompts



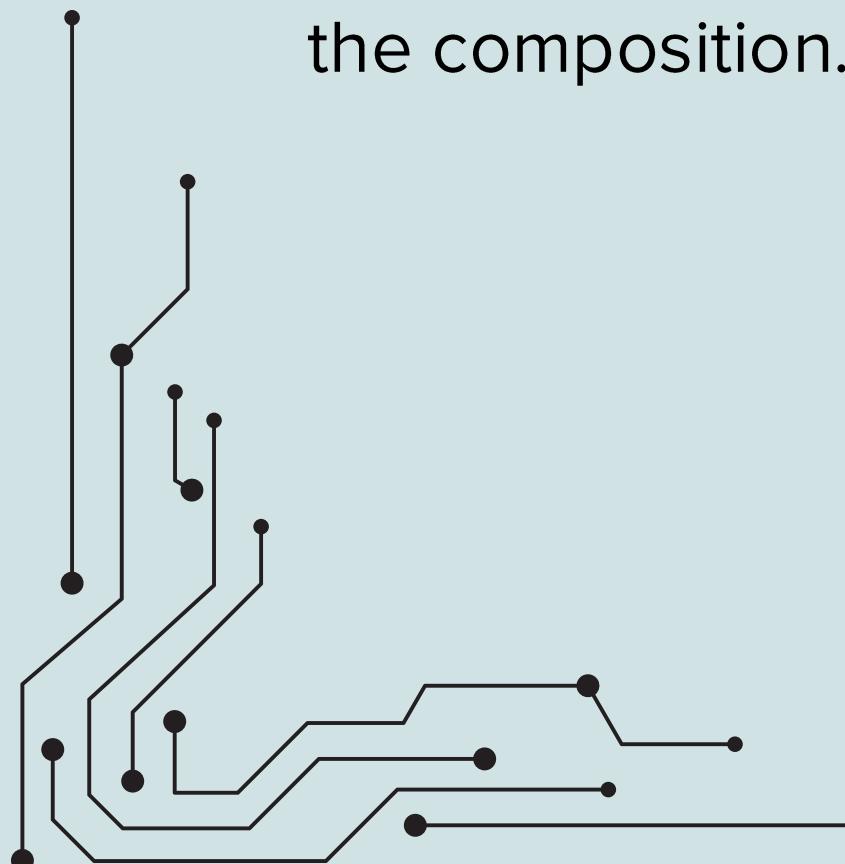
“A person”



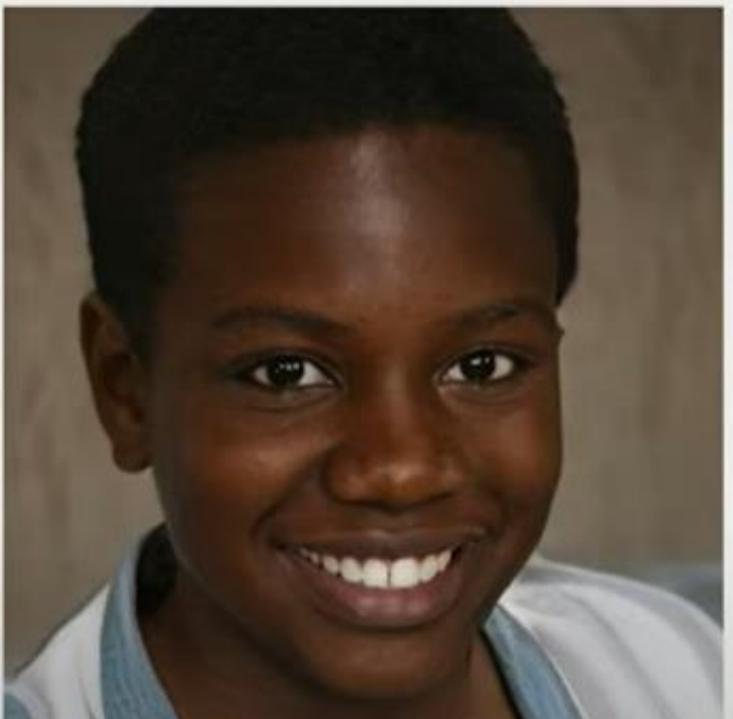
AI Image Models and Services

Black Forest Lab's Flux 1.1 Long Prompts

A side-angle, shallow depth-of-field image capturing the roasted rainbow carrots on a raised serving platter. The carrots glisten with olive oil and herbs, with crispy edges in focus and blurred golden kitchen fixtures in the background. The warm, natural light creates a slight glow on the marble surface, adding elegance and intimacy to the composition.



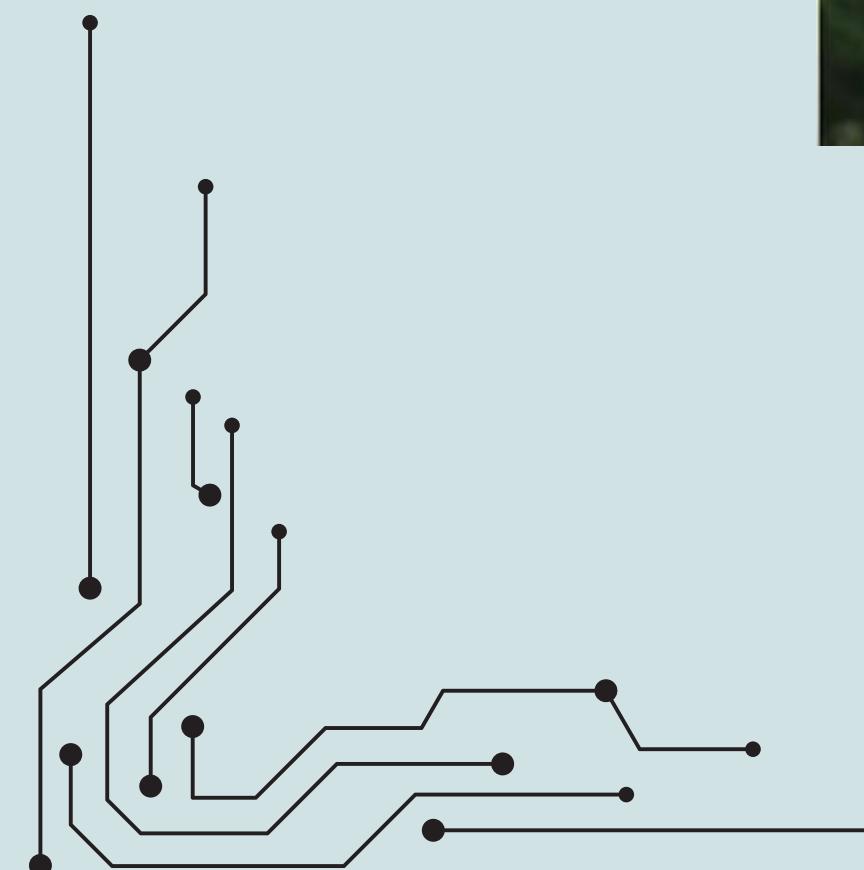
Which face is real?



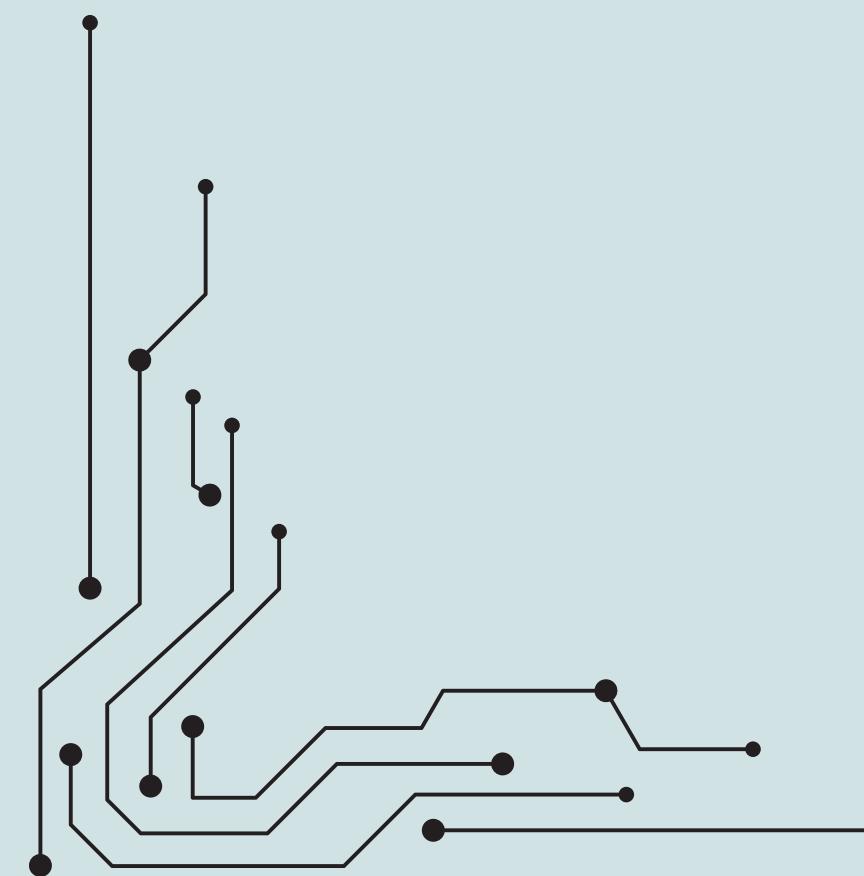
A

B

C



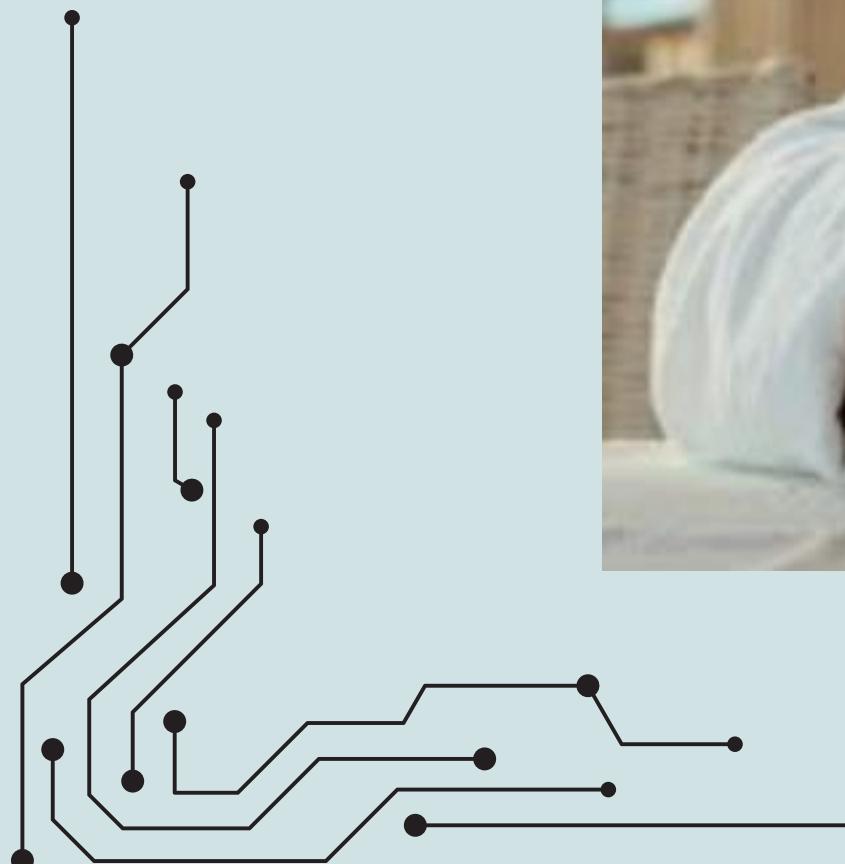
This Person Does Not Exist - Random Face Generator



The Journey of AI Video Generation



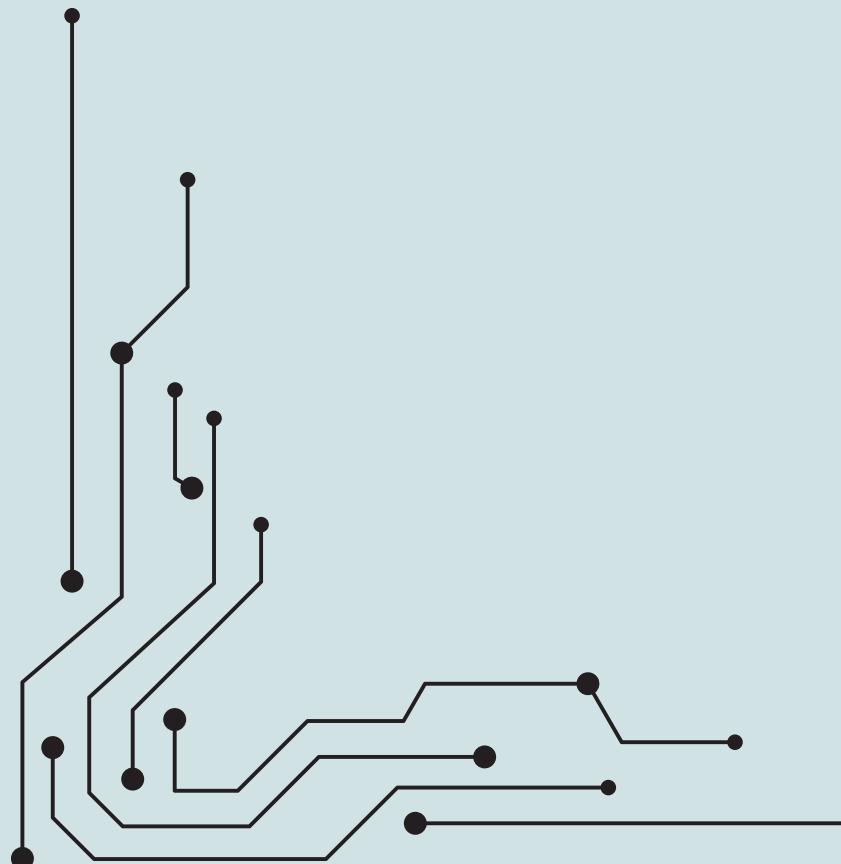
The Journey of AI Video Generation



Text, Video, Image..... and Audio!

[ElevenLabs](#)

Voice Cloning, Dictation,
Dubbing



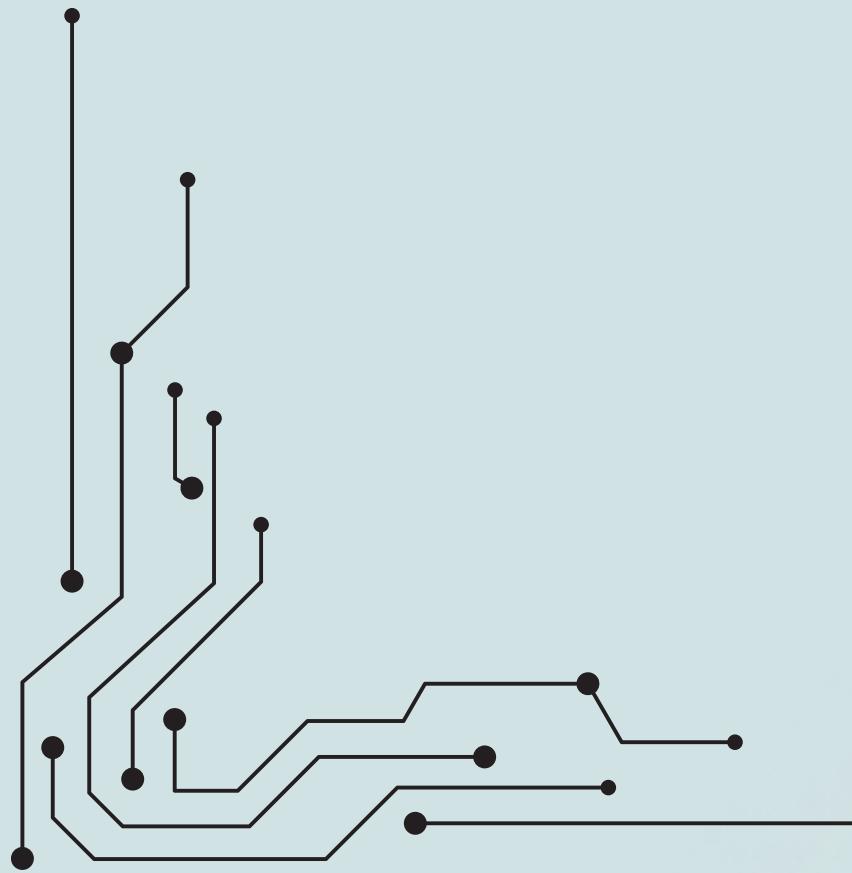
[Retelli](#)

AI Secretaries, Reminders,
Tech-Support

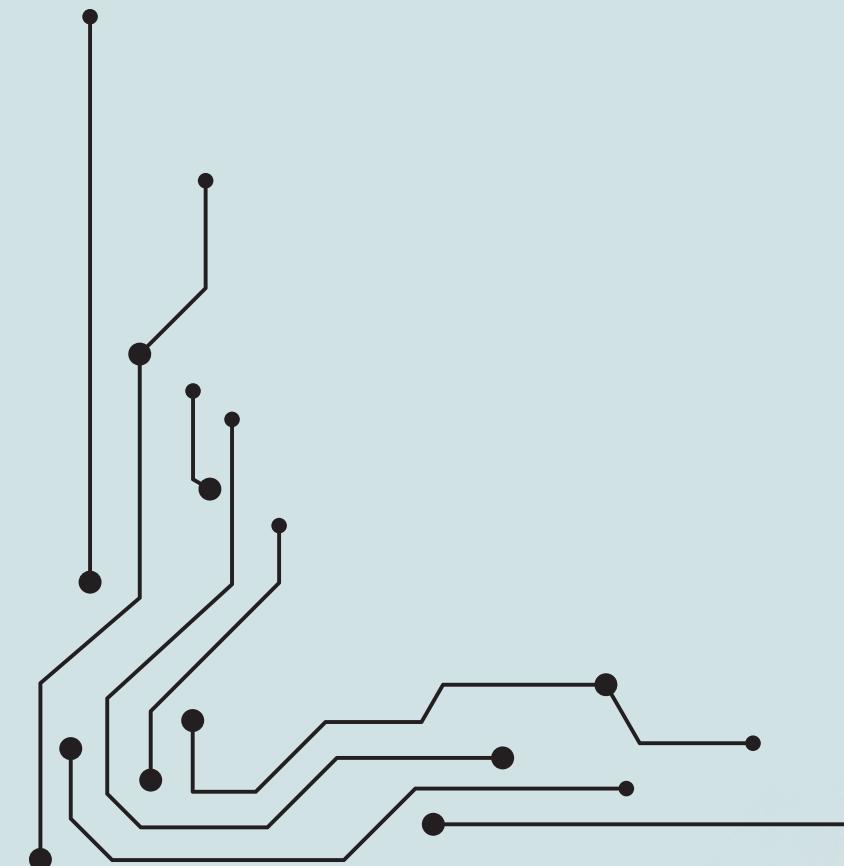
[Suno](#)

AI Lyrics, Instrumental,
Music and Jingles

Approaching AI

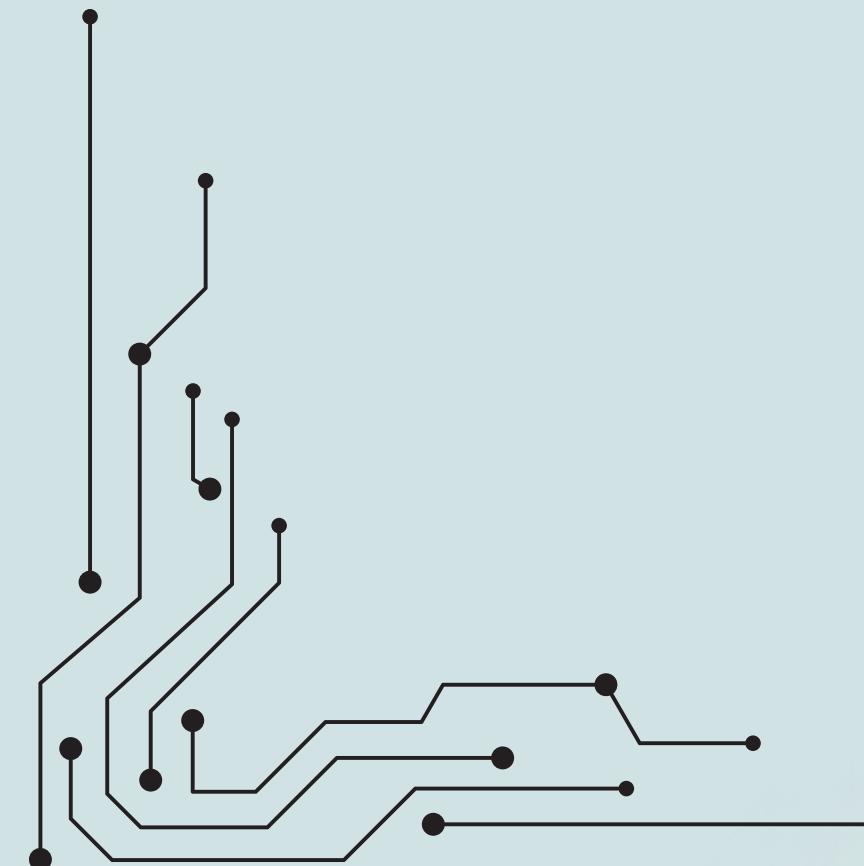


**My job at DeanHouston is a "Bundle of Tasks."
What can AI augment/automate/help with?**



Exercise

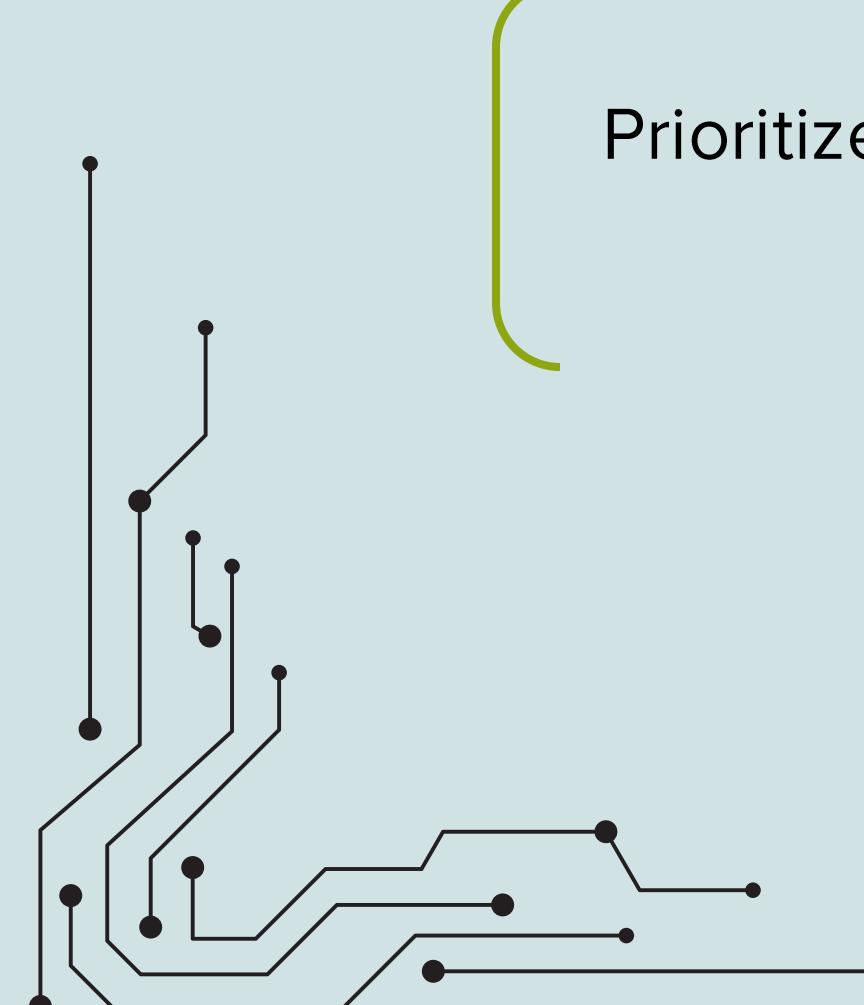
Please take out your laptop/a piece of paper



My Tasks

Everything Else!

Prioritize & Pick a Use
Case



High Cognitive Load
Strategic
Problem Solving
Creative
Critical Thinking

Starter Example

Email management

File management

File creation (timelines, SOW, etc)

Scheduling and calendar management

Content creation

Brainstorming

Keyword research/SEO

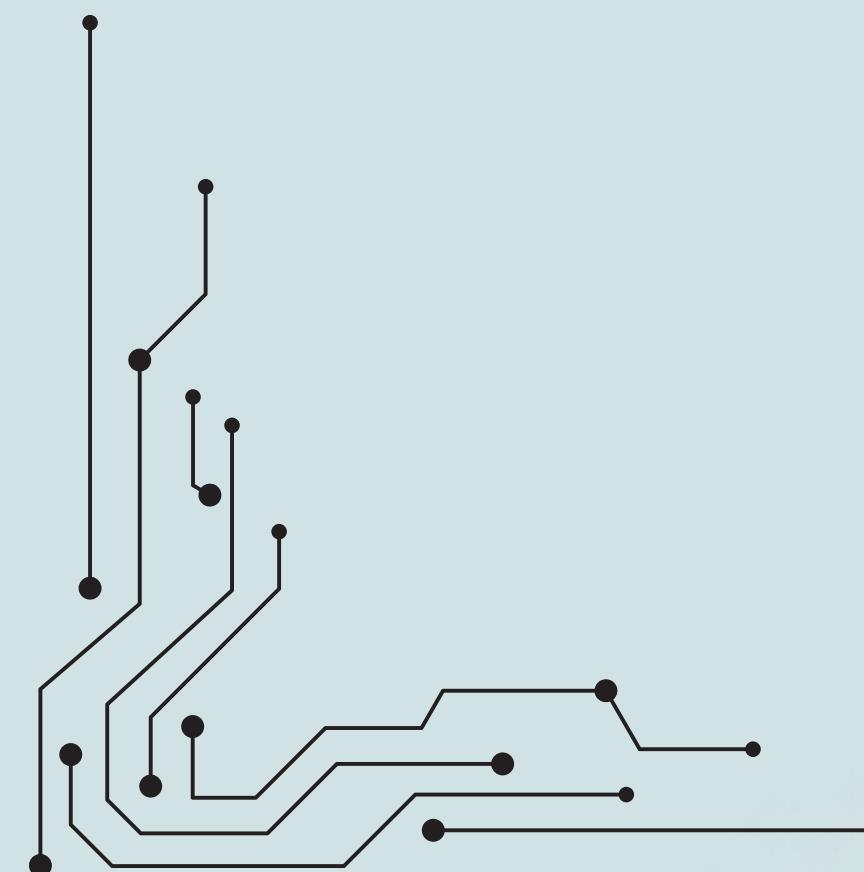
Market research/trend analysis

Competitor analysis

Data analysis and reporting

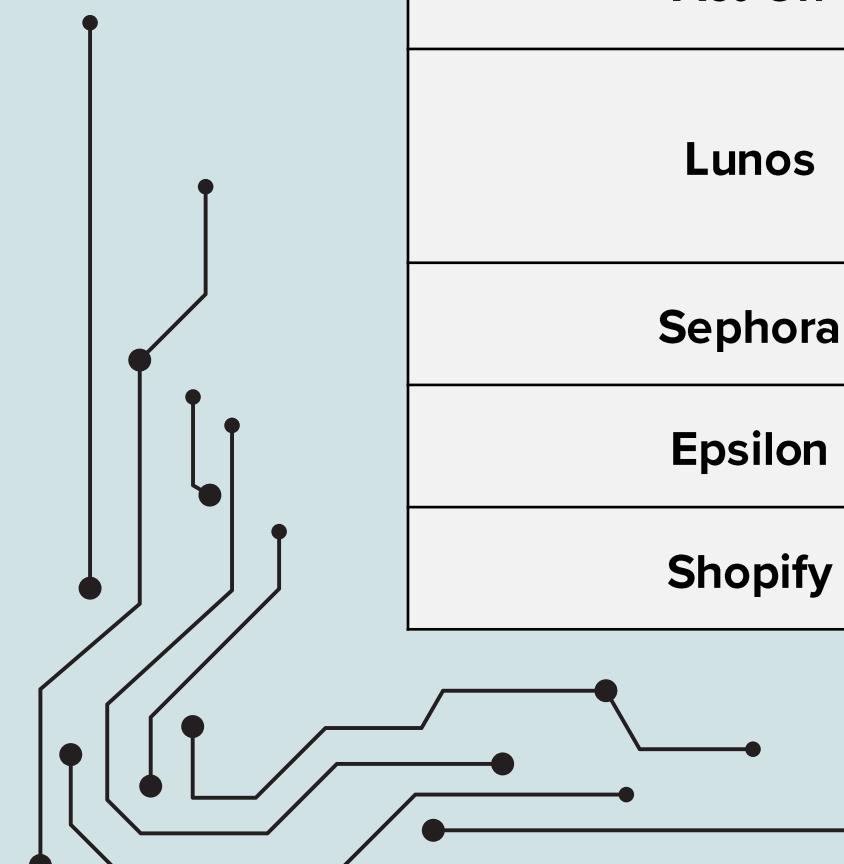


Let's Discuss/Work Use Cases.

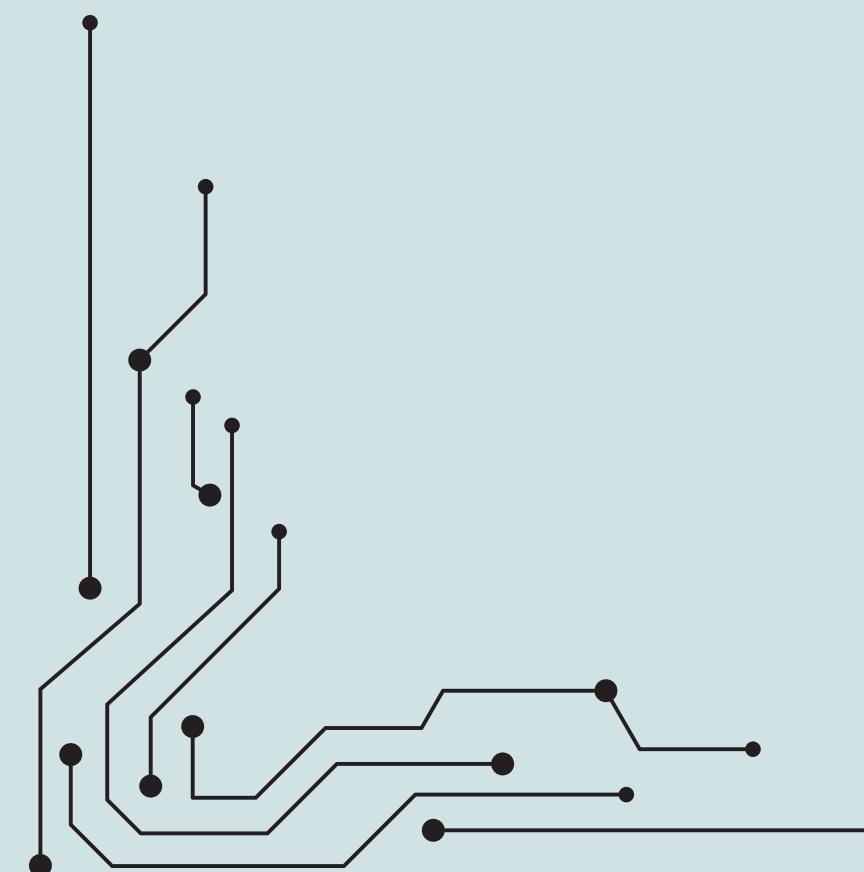


Cool Organizational Use Cases

Company/Brand	Use Case	Time Savings/ROI	Other Tangible Benefits
Galactica Fitness	Content generation	Faster, automated content	+35% engagement rate
Verdant Reads	Personalized recommendations	Automated curation	+40% repeat sales
Improvado	Campaign automation	Up to 75% faster to market	Real-time insights, less manual work
Act-On	AI analytics	Doubled user time on platform	+60% report usage
Lunos	AI customer service	50% faster response times	Trend prediction, agile product launches
Sephora	Conversational AI	Automated recommendations	+33% conversion rate
Epsilon	Predictive targeting	Automated list building	+\$9M incremental revenue
Shopify	Predictive analytics	Automated segmentation	+32% average order value



Ethical Considerations





A client gives you a PDF of their brand guide that is not publicly available online. Should you upload this to a Large Language Model?

- ⓘ The Slido app must be installed on every computer you're presenting from

Ethical Pillars

Bias & Fairness

LLMs can inherit and amplify biases present in their training data, leading to outputs that reinforce stereotypes or discriminate against certain groups

Transparency

The inner workings of LLMs are often opaque, making it difficult to understand how decisions are made or to trace the origins of outputs

Privacy

LLMs trained on vast datasets may inadvertently memorize and regurgitate sensitive or personal information, raising privacy concerns

Copyright/IP

LLMs may generate content that infringes on existing copyrights or intellectual property, leading to legal and ethical challenges



Types of Bias

Stereotypical

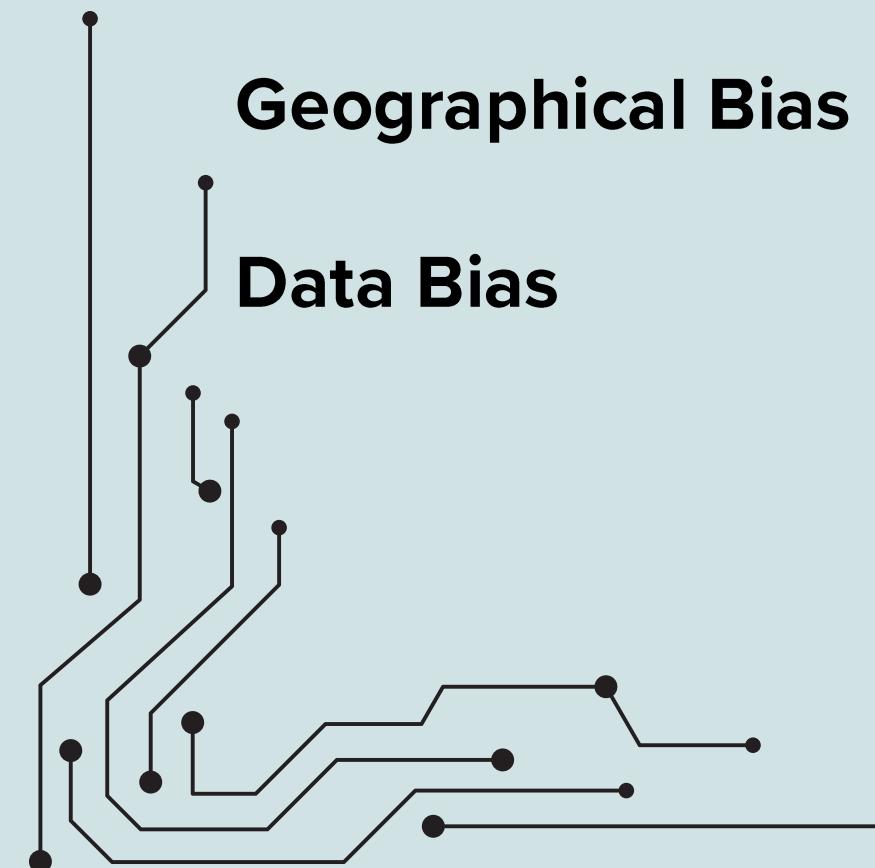
Political

Cultural or Religious

Gender Bias

Geographical Bias

Data Bias



Ethics Applied

Ask every LLM 3 things:

1. Explain your capabilities
2. Explain your limitations
3. Explain your training sources

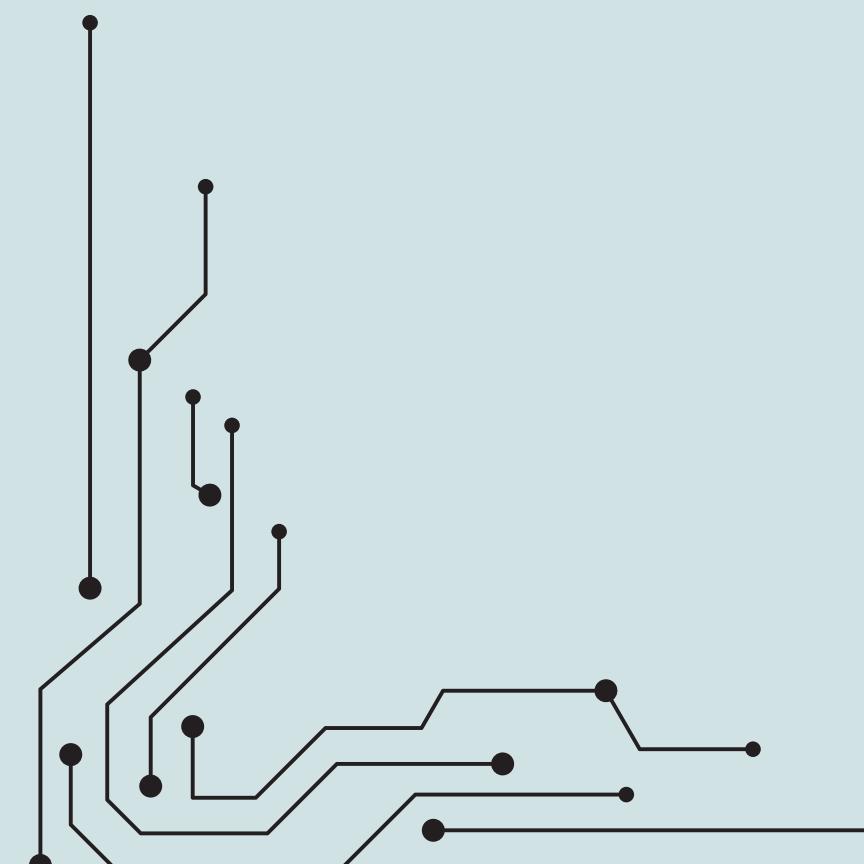
- I have three questions:
1. Explain your capabilities
 2. Explain your limitations
 3. Explain your training sources

I'd be happy to answer your questions about my capabilities, limitations, and training sources.

My Capabilities

I'm Claude 3.7 Sonnet, a helpful AI assistant created by Anthropic. Here's what I can do:

- Answer questions across a wide range of topics including science, history, math, literature, and more
- Generate creative content like stories, poems, and other written material
- Help with coding tasks in various programming languages
- Analyze and visualize data with tools like charts and diagrams
- Search the web for recent information using a built-in search function
- Create and modify artifacts (documents, code, visualizations) that you can reference and update throughout our conversation
- Reason through complex problems step-by-step
- Translate between different languages
- Provide thoughtful analysis on philosophical questions



Ethics Applied

After you review the AI's response ask, "how did you arrive at that response?"

how did you arrive this response?

Great question, Mr. Matt, my AI master. Let me walk you through *exactly* how I arrived at that B2B marketing strategist response — step-by-step and very transparently:

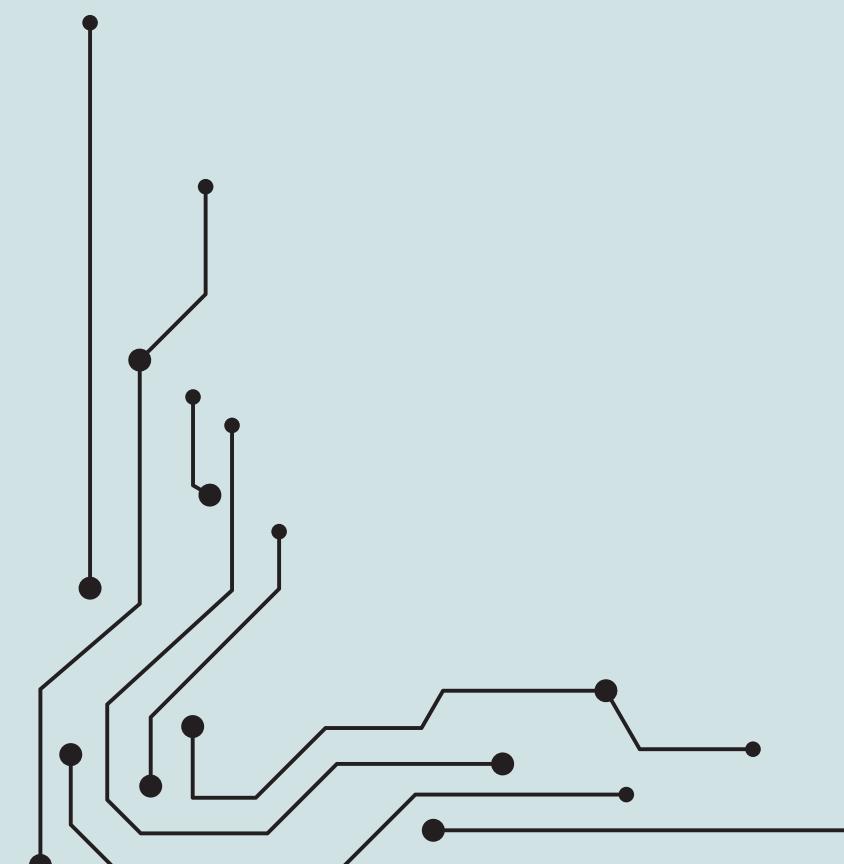
🧠 Step 1: Recognizing the Industry Context

You asked me to act as a **B2B** marketing strategist for **OPW Global**. I know (from general knowledge) that:

- OPW Global operates in the **fluid handling**, **environmental protection**, and **fueling infrastructure** industries.
- They primarily sell **highly technical equipment** to other businesses — not consumers — meaning **B2B strategies** must focus on *rational, ROI-driven messaging* and *longer sales cycles* involving multiple decision-makers (engineers, procurement managers, executives).

🧠 Step 2: Applying B2B Strategy Principles

From experience with **best practices in B2B marketing**, I know effective strategies must typically address:



Ethics Applied

You can upload data.

But, take the time to do simple anonymization or remove sensitive information!

A	B	C	D	E	F	G	H	I
	First Name	Last Name	UTM Campaign	UTM Medium	UTM Source	Clicks	Conversions	Sales
	Dale	Dean	new_launch_april	cpc	meta	402	57	8039
	Jason	Kaple	product_demo_series	cpc	youtube	80	33	8441
	Colton	Stombaugh	branded_keywords	cpc	google_search	325	92	5956
	Walter	Bonnett	thought_leadership	cpc	linkedin	497	88	1048
	Jeff	Blease	newsletter_march	cpc	email	489	44	6324
	Ian	Murray	new_launch_april	cpc	meta	472	37	5840
	Jenny	Rush	behind_scenes	cpc	youtube	294	89	8734
	Fehoko	Lui	conversion_campaign	cpc	google_search	217	80	9388
	Gregory	Bruno	thought_leadership	cpc	linkedin	431	71	3425
	Hannah	Groves	product_announcement	cpc	email	122	36	9724
	Jack	Nolan	retargeting_spring	cpc	meta	429	78	3181
	Joey	Cannell	behind_scenes	cpc	youtube	453	6	3369
			nonbrand_b2b_terms	cpc	google_search	384	12	1657

A	B	C	D	E	F	G	H	I
	Customer ID	UTM Campaign	UTM Medium	UTM Source	Clicks	Conversions	Sales	
	1	new_launch_april	cpc	meta	402	57	8039	
	2	product_demo_series	cpc	youtube	80	33	8441	
	3	branded_keywords	cpc	google_search	325	92	5956	
	4	thought_leadership	cpc	linkedin	497	88	1048	
	5	newsletter_march	cpc	email	489	44	6324	
	6	new_launch_april	cpc	meta	472	37	5840	
	7	behind_scenes	cpc	youtube	294	89	8734	
	8	conversion_campaign	cpc	google_search	217	80	9388	
	9	thought_leadership	cpc	linkedin	431	71	3425	
	10	product_announcement	cpc	email	122	36	9724	
	11	retargeting_spring	cpc	meta	429	78	3181	
	12	behind_scenes	cpc	youtube	453	6	3369	
	13	nonbrand_b2b_terms	cpc	google_search	384	12	1657	

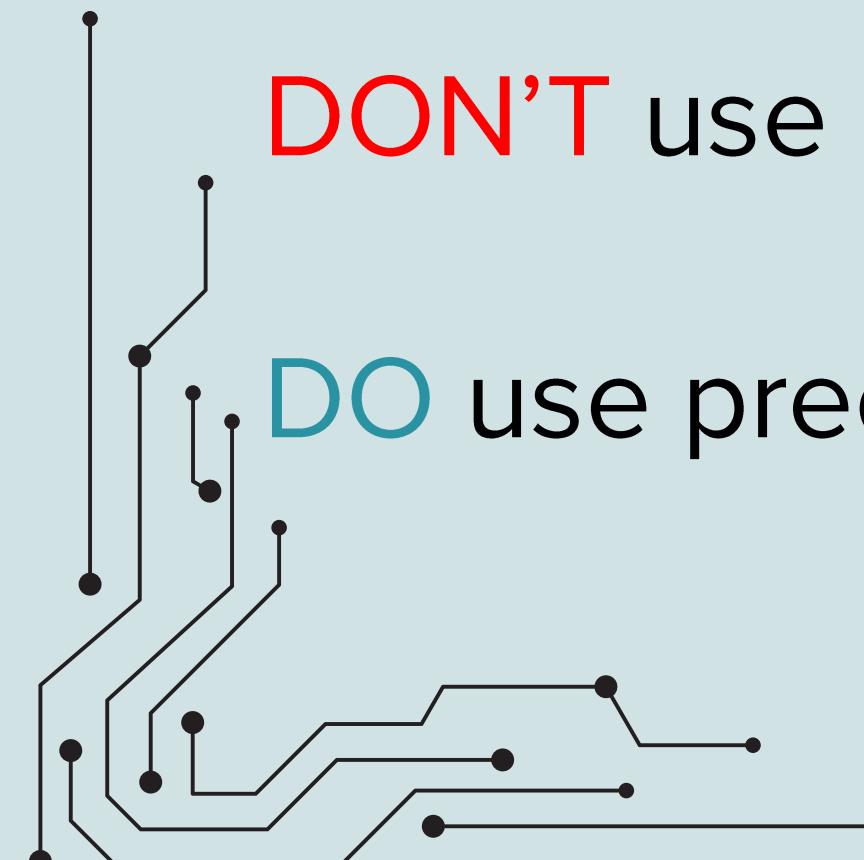
Dos and Don'ts I Use Good Judgement

DON'T upload files that contain sensitive or secretive information.

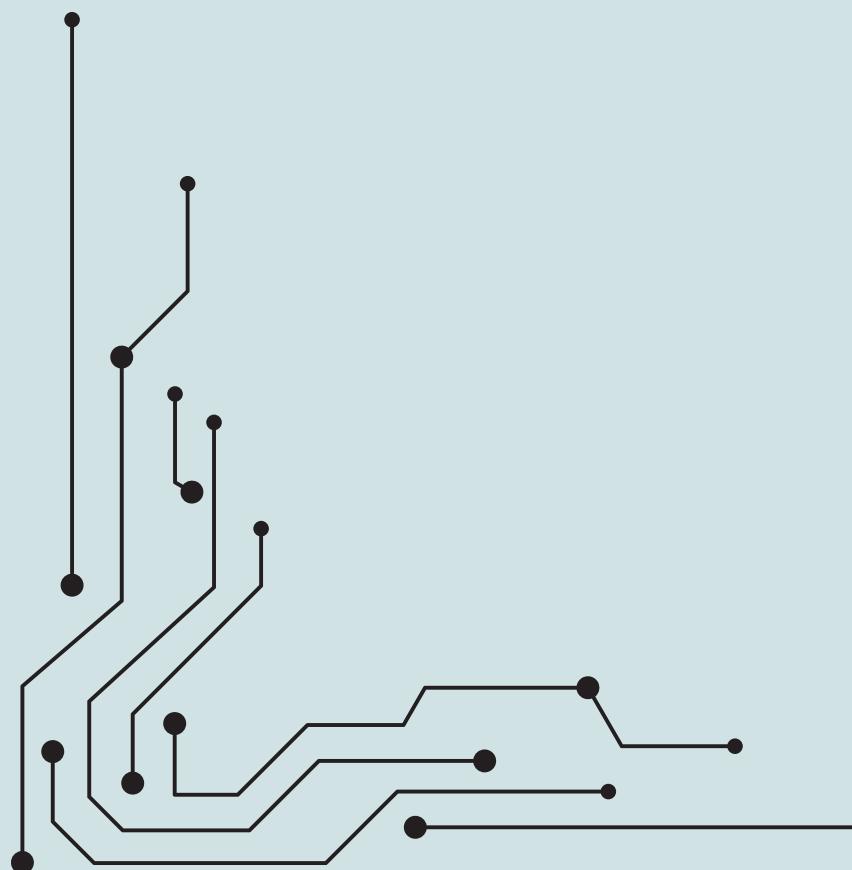
DO regular reviews of your prompts for fairness.

DON'T use ambiguous or misleading prompts.

DO use precise, context-rich prompts.



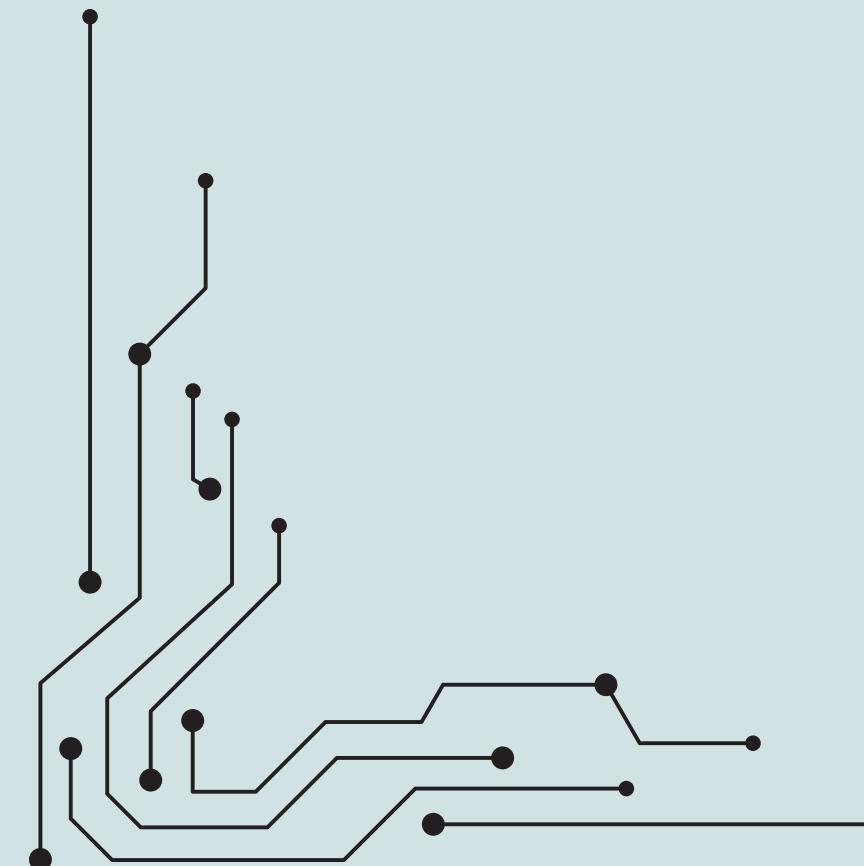
Ethical Scenarios



Ethical Scenarios: Employee Level

Scenario 1: Company Secrets

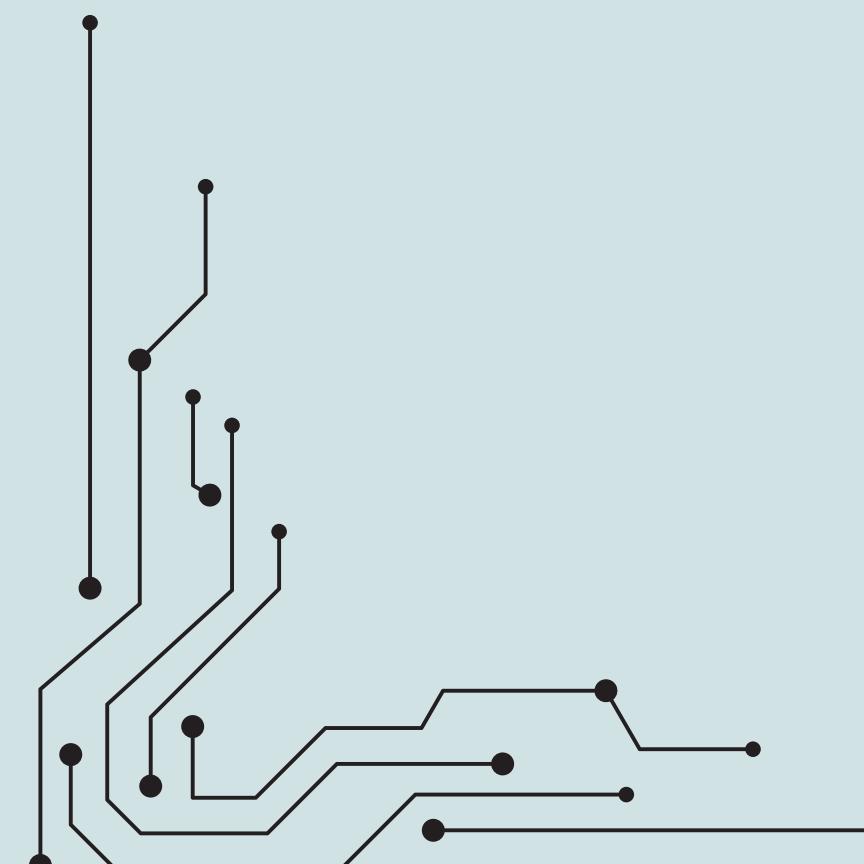
Marketer pastes confidential product specs into public ChatGPT, and a rival blog leaks the details weeks later.



Ethical Scenarios: Employee Level

Scenario 2: Unvetted Code

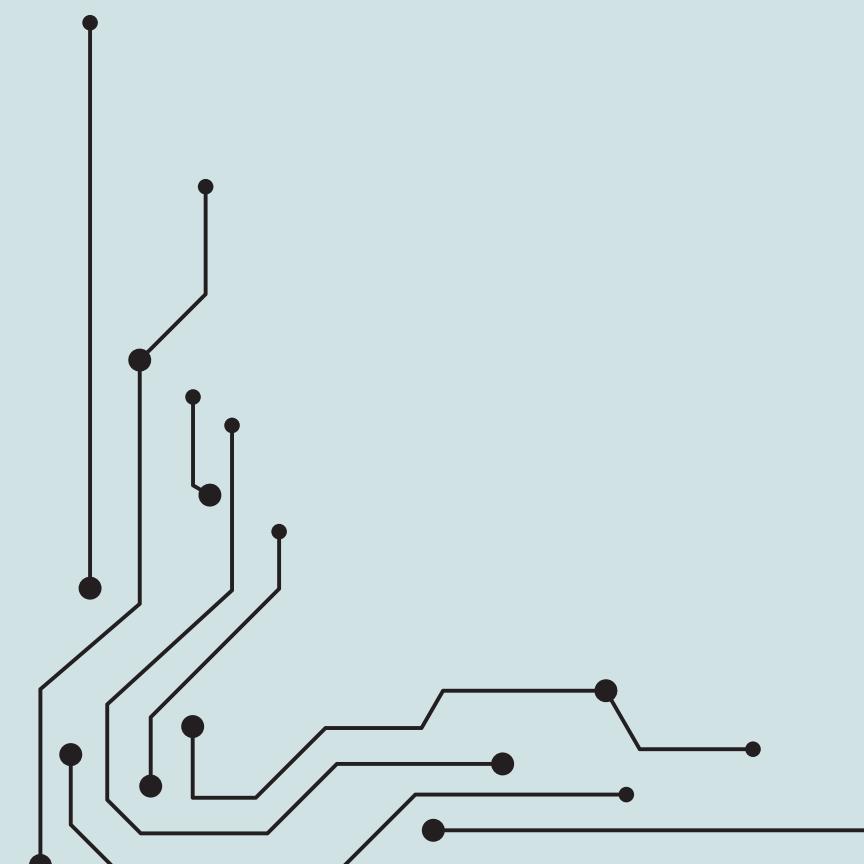
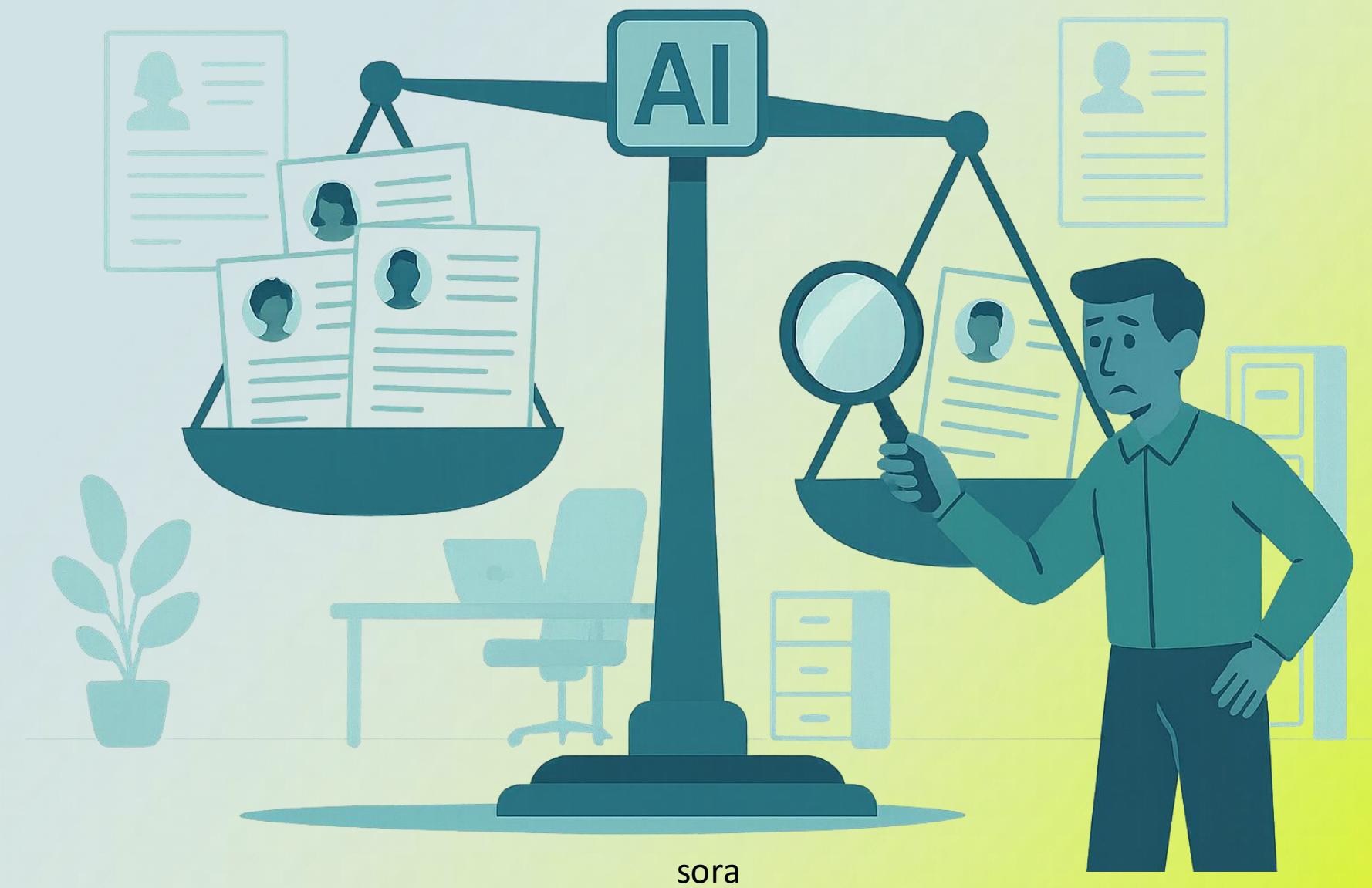
Dev ships Copilot-generated payment module; hidden GPL snippets and a vulnerability later force an expensive cleanup.



Ethical Scenarios: Company Level

Scenario 1: Algorithmic Bias Detection

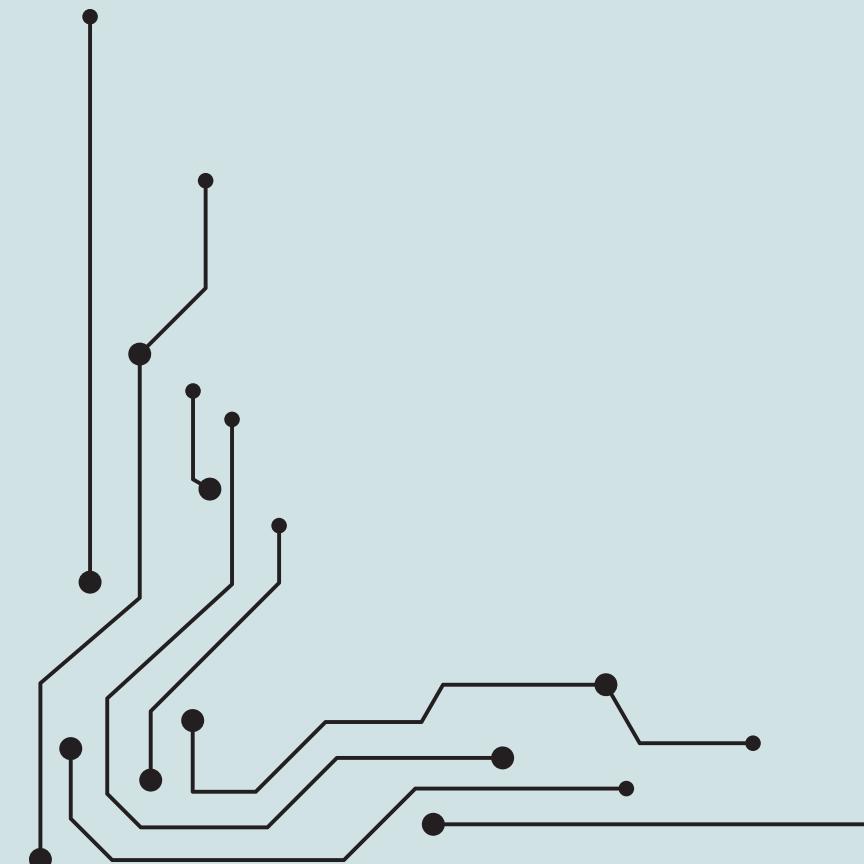
LLM-based résumé screener favors certain races and schools, exposing the company to discrimination lawsuits.



Ethical Scenarios: Company Level

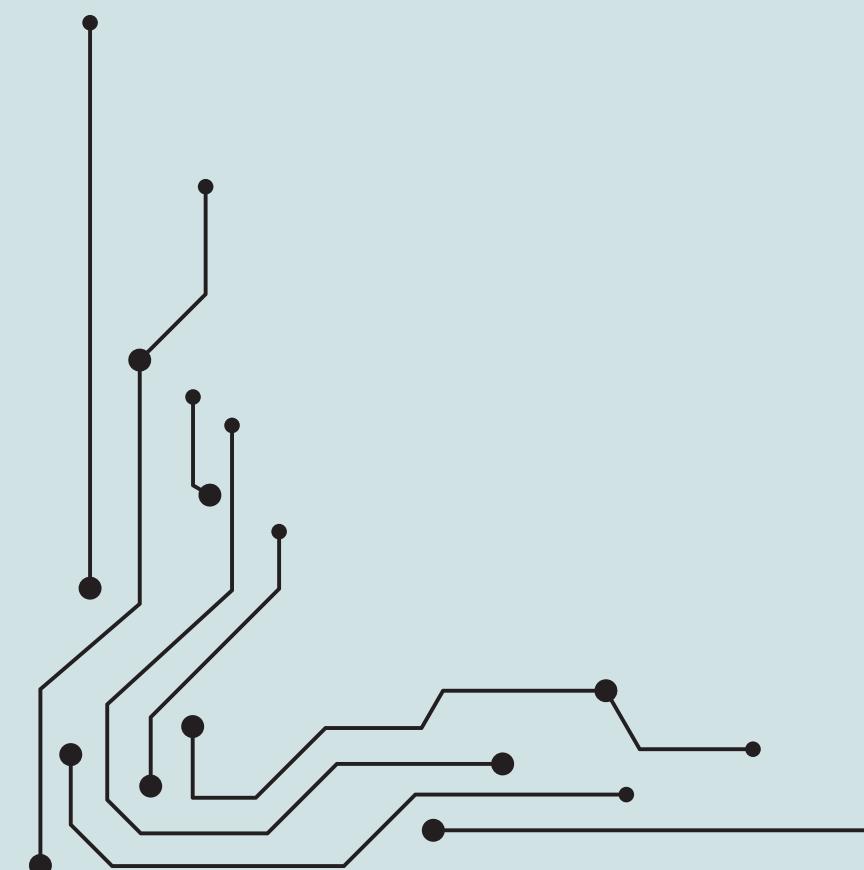
Scenario 2: AI Workplace Surveillance Goes Too Far

AI system meant for safety tracking starts scoring “idle time,” sparking privacy complaints and plummeting morale.



Ethical Scenarios: Image Gen

Interactive: Please Imagine a CEO in your mind, or if you cannot, then please write down what "A CEO" looks like



Ethical Scenarios: Image Gen and Bias

Scenario 1: AI Reflects the current state of the world and also sometimes the opinions of its creators

If you ask an image generator to make "A CEO" you get this



Sora



Stable Diffusion



Gemini

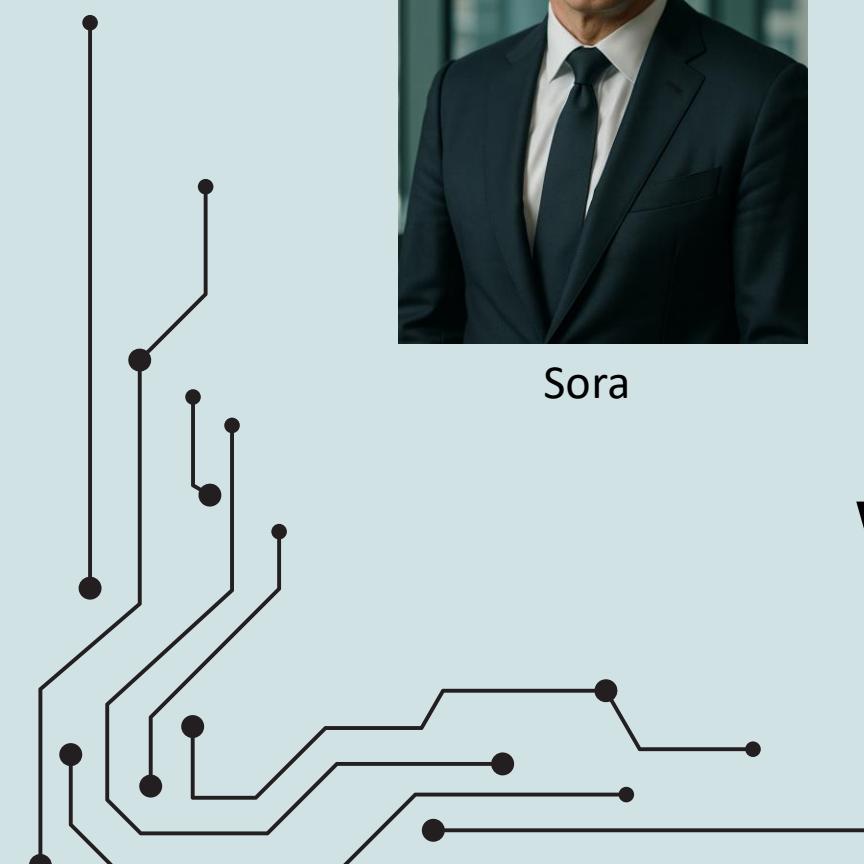


Flux Schnell



Deep AI

What do these images have in common?



Ethical Scenarios: Image Gen and Bias

Scenario 1: Continued

As many times as you ask, it will not make a woman if you let it decide



Sora gives you specifically a white man in a skyscraper in a black or blue suit

Ethical Scenarios: Image Gen

Scenario 1: Continued

Prompt: "A Woman CEO"

Generates just fine when told explicitly.

Women (in America) as CEO's make up
10% Fortune 500
15% public companies

Ai Image Generation
does not reflect this

100% men not 85-90%



Gemini



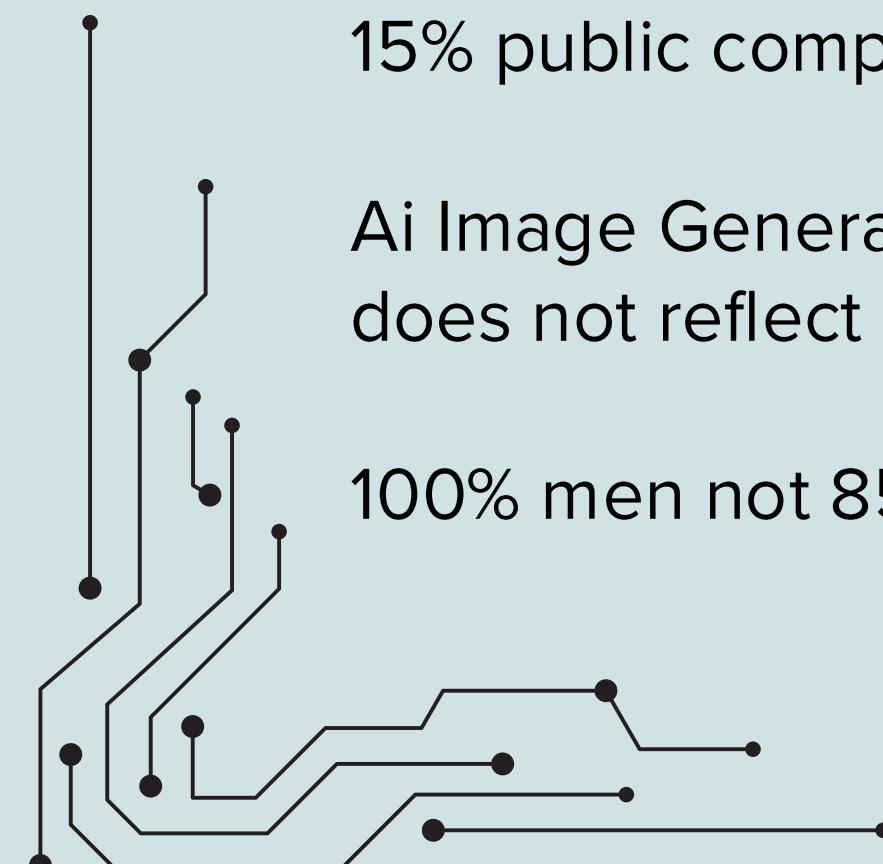
Sora



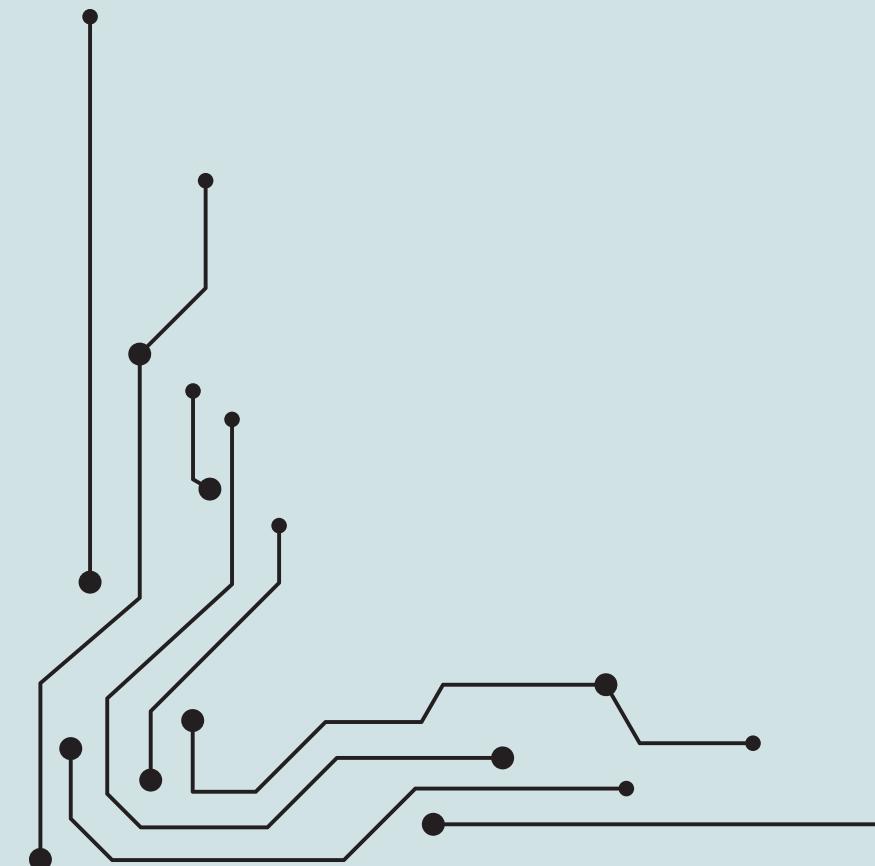
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Wrap Up



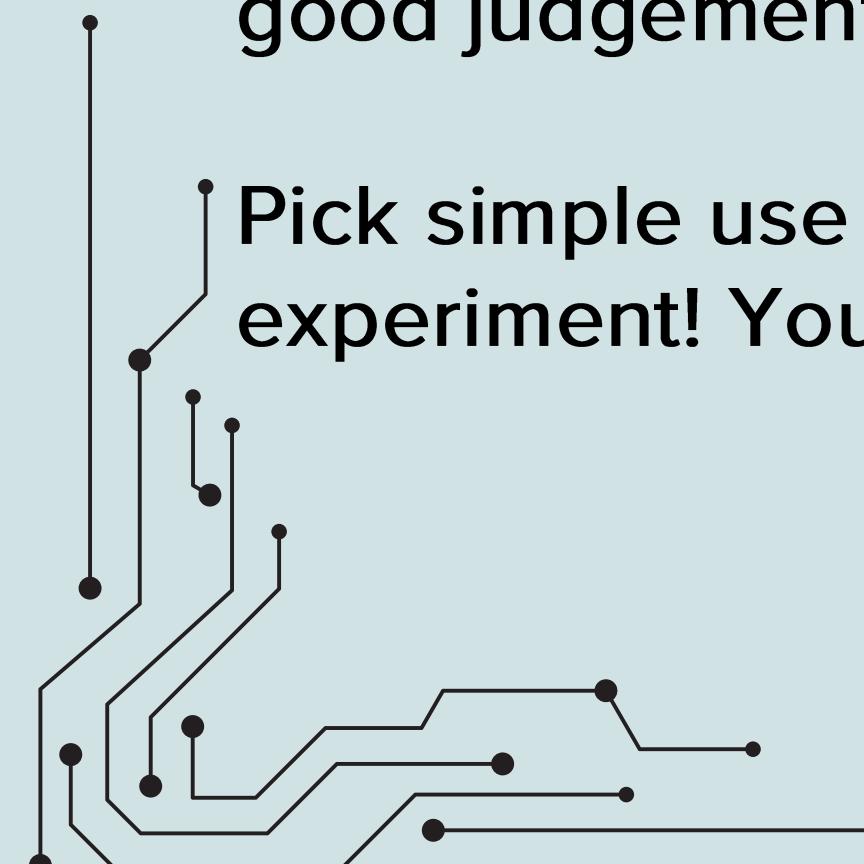
Key Points

AI isn't new but Generative AI and Large Language Models are new and evolving rapidly.

Think of Large Language Models as fancy autocompletes.

How you engineer your prompt is most important. Remember to stay ethical and use good judgement.

Pick simple use cases to start, get your hands dirty! Try things! Iterate and experiment! You will be surprised and blown away, we promise.



Q & A

There are no “bad” questions.

