

Wenatchee Valley Continuing
Education

Artificial Intelligence for Everyday Use

Introduction to Prompt Engineering
February 1, 2025

Copyright©2025 Becky Peltz



ChatGPT Dall-e

Welcome!



Becky Peltz

Software Developer/Educator

Agenda

Introduction

Tools: Getting to know ChatGPT

Technology Timeline

AI Basics and Terminology

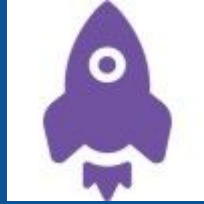
Prompt Engineering Hands On

Working Through Use Cases

More Tools and Inputs

Recap

Introduction: Becky's Employers



Introduction: Where Becky Taught



Introduction: Hobbies



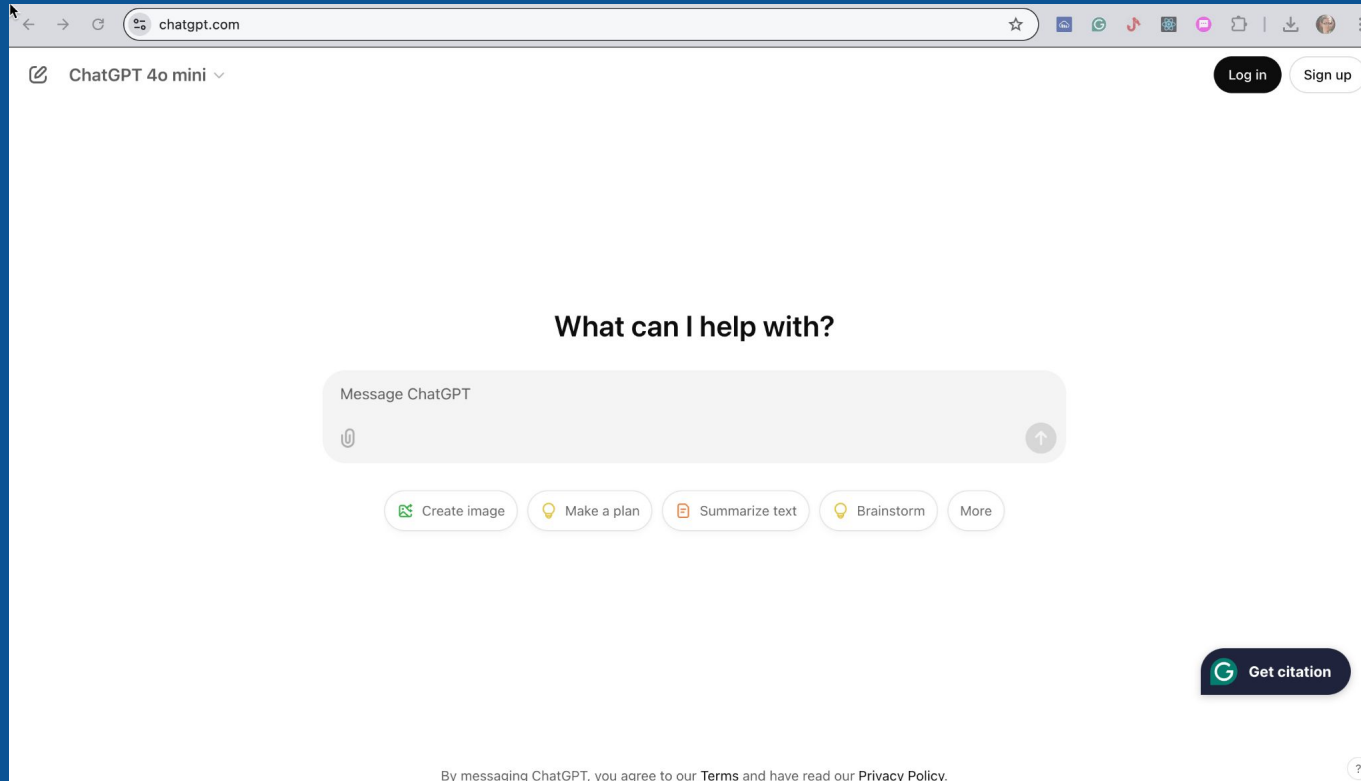
Share some information about yourself:

- Name
- Work/Interests/Hobbies
- What you want to get from the workshop
- Pair up and work as a team (optional)

Tools for Interacting with AI Models

Owner	Model
Open AI*	<u>ChatGPT</u>
Google	<u>Gemini</u>
Anthropic	<u>Claude.ai</u>

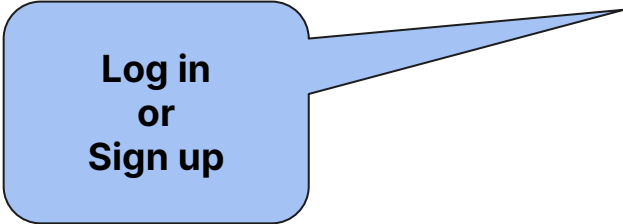
ChatGPT User Interface



ChatGPT 4o mini

Log in

Sign up



What can I help with?

Message ChatGPT

📎

⬆

- Create image
- Make a plan
- Summarize text
- Brainstorm
- More

Get citation



Sign up

Create an account

Email address*


Continue

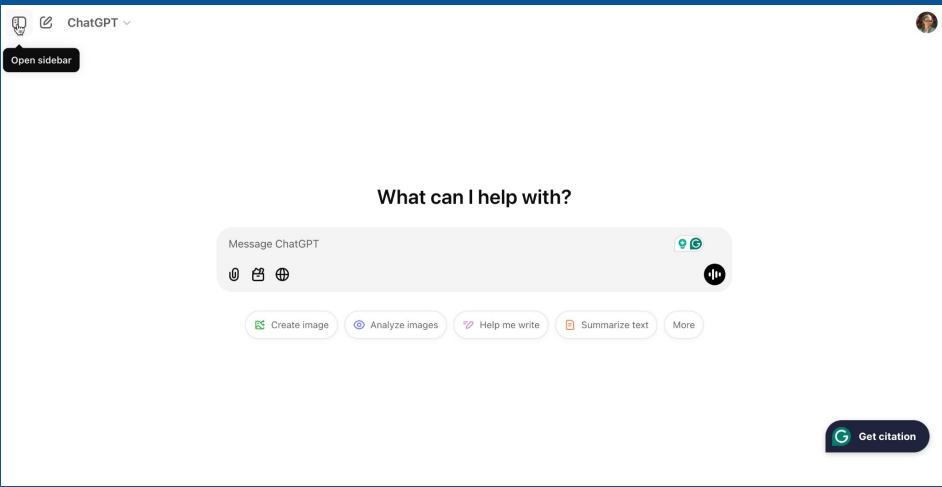
Already have an account? [Login](#)

OR

 Continue with Google

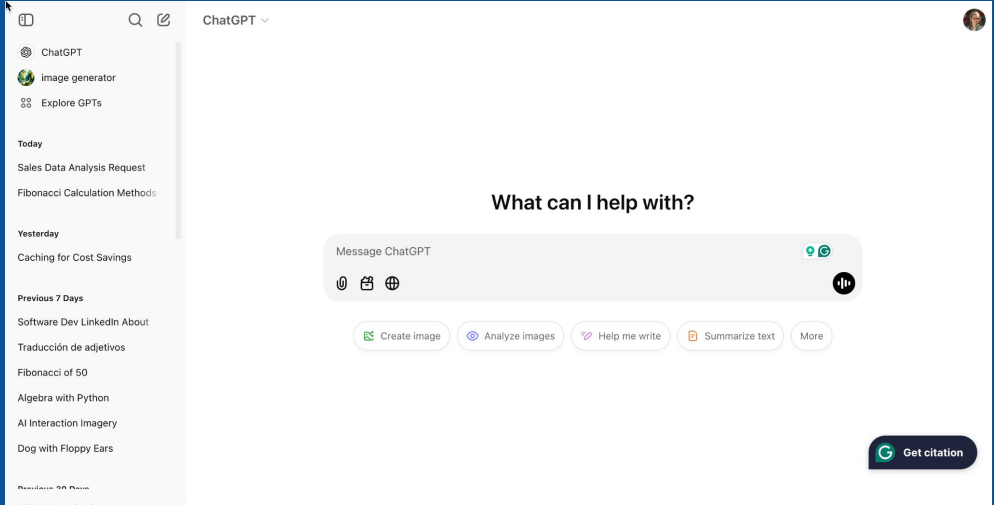
 Continue with Microsoft Account

 Continue with Apple

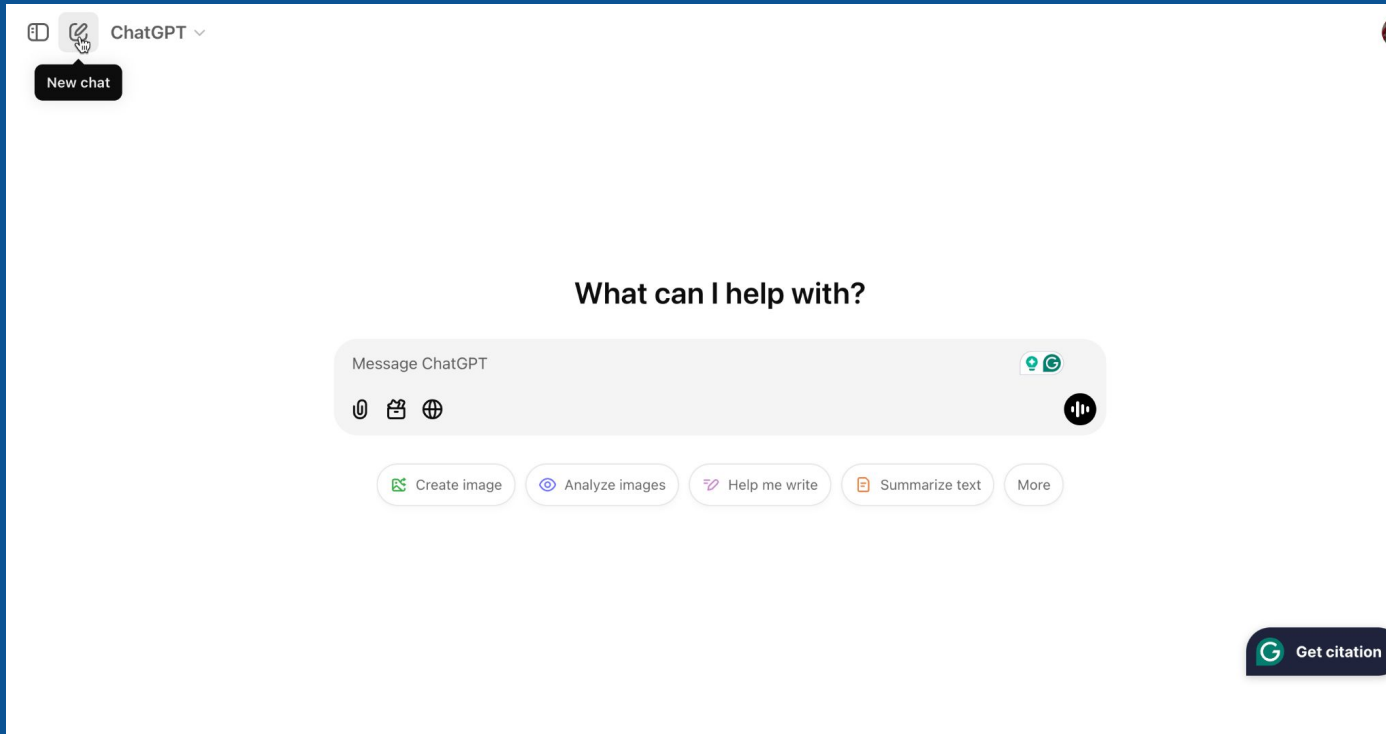


Open Sidebar Toggle

Sidebar lists all your conversation topics with ChatGPT

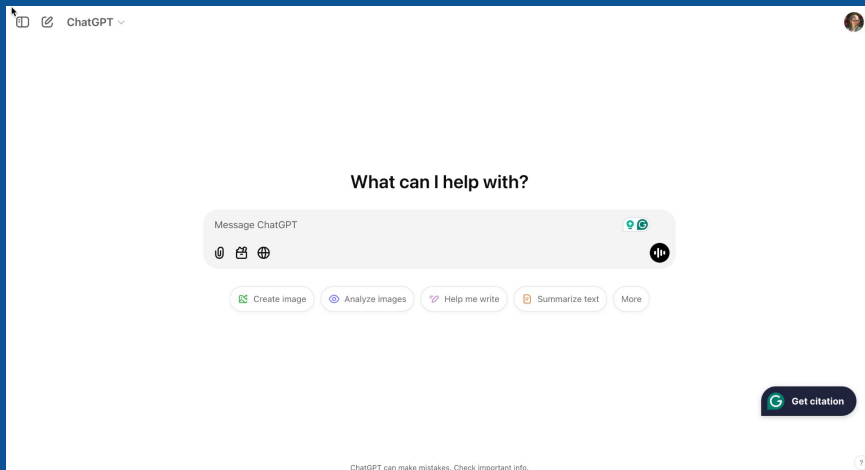


New Chat Button

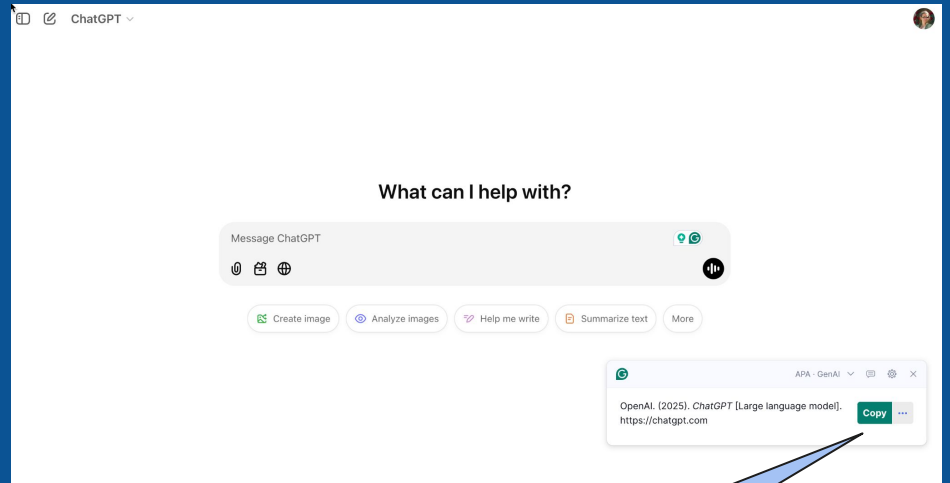


ChatGPT Options

The screenshot displays the ChatGPT interface. At the top left, there are icons for a document and a pencil, followed by a dropdown menu labeled "ChatGPT". Below this, a panel lists three options: "ChatGPT Plus" (described as "Our smartest model & more" with an "Upgrade" button), "ChatGPT" (described as "Great for everyday tasks" with a checkmark), and "Temporary chat" (with a toggle switch). The main area features the heading "What can I help with?". Below the heading is a text input field labeled "Message ChatGPT" with a microphone icon on the right. Underneath the input field are four buttons: "Create image", "Analyze images", "Help me write", and "Summarize text", followed by a "More" button. In the bottom right corner, there is a dark button with the ChatGPT logo and the text "Get citation".



Get Citation



Clicking on Get Citation gives you a citation you can reference

Copy into buffer and paste into a document

Type or paste your prompt in this box

Message ChatGPT

What can I help with?

Message ChatGPT



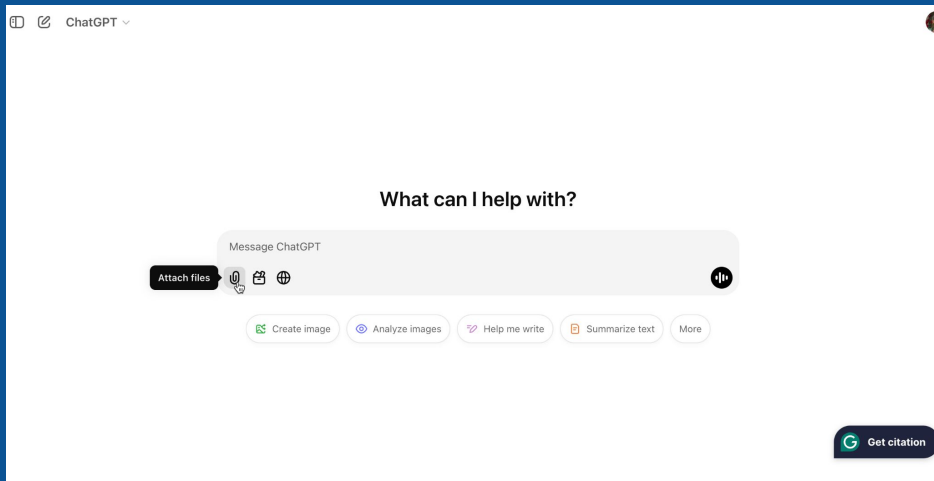
 Create image

 Analyze images

 Help me write

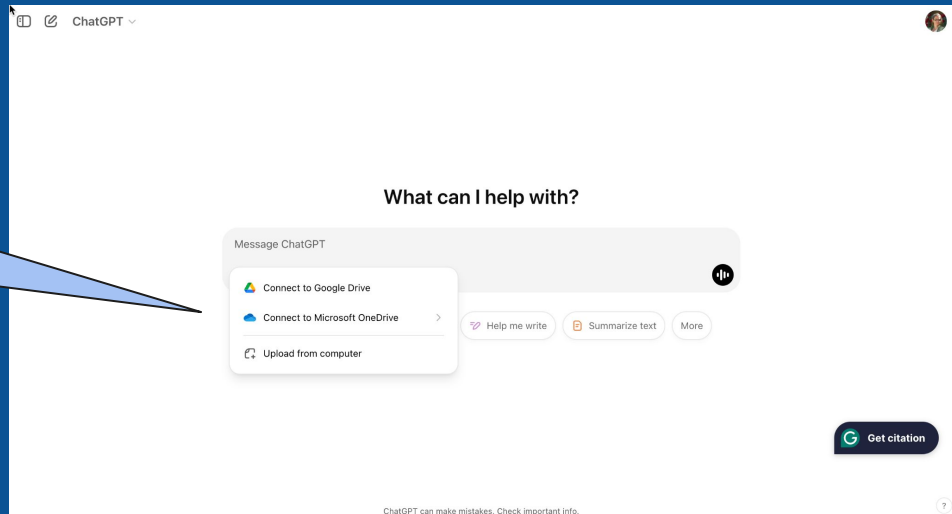
 Summarize text

More



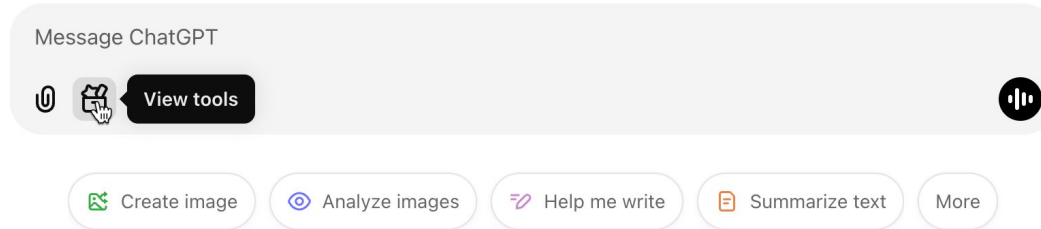
Option: Attach files toggle

You can upload files from your hard drive, Microsoft Online or Google Drive

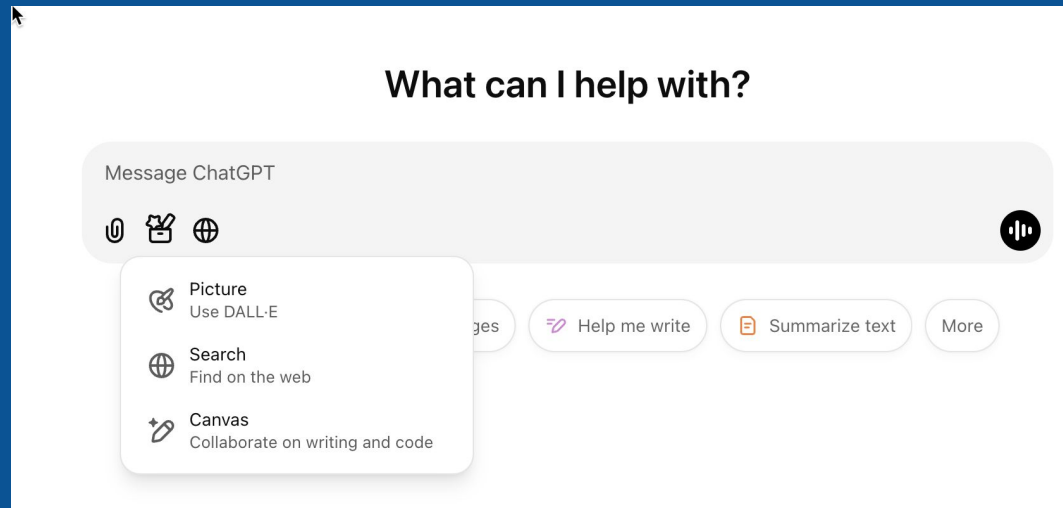


Option: View Tools toggle

What can I help with?



What can I help with?



Option: Search the Web Toggle

What can I help with?

Message ChatGPT



Search



Nfl Playoffs



Tammy Bruce

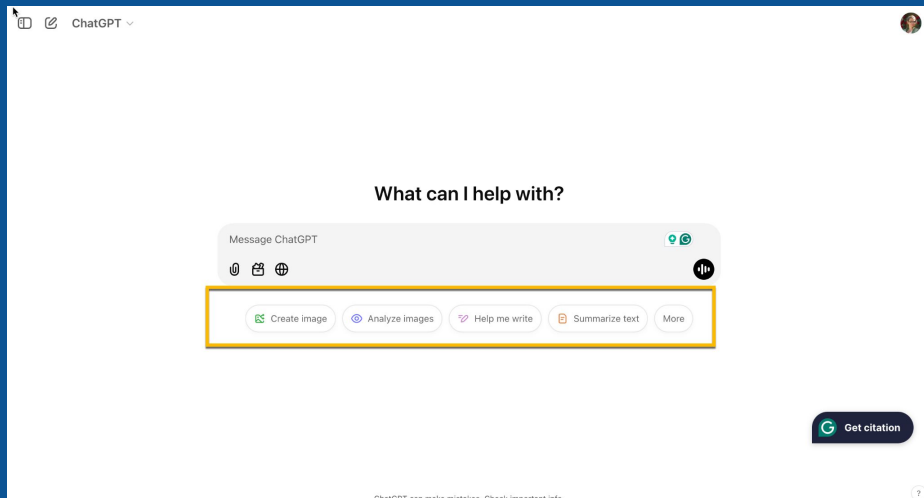


Demi Moore



Connections Hints Today

Click on buttons to start a prompt



Can you create an image for my website? I need something that matches the overall theme and tone.

- Sure! Can you provide some details about your website's theme, tone, and the type of image you'd like? For example:
- The subject or focus of the image (e.g., a specific product, abstract design, natural scene, etc.).
 - Color palette or mood (e.g., vibrant, minimalist, calm, professional, etc.).
 - Any specific elements you want to include (e.g., text, icons, shapes).
 - Image size (e.g., square, landscape, or portrait).

Let me know, and I'll create something tailored to your needs!

I have developed a new typography that combines alphabets from many languages. I want to share it on my website. I'd like an image that shows alphabetic characters from different languages.

ChatGPT creates an image for me and I give it a thumbs up



Here's an image that showcases alphabetic characters from multiple languages in a unified and artistic style. Let me know if you'd like any adjustments or if you'd like help incorporating it into your website!



Sharing a session

The image shows a screenshot of the ChatGPT web interface. On the left is a sidebar with a list of chat sessions. The session titled "Website Image Request" is selected, and a context menu is open over it, showing options: "Share", "Rename", "Archive", and "Delete". A blue callout box with a pointer to the "Share" button contains the text: "I want to share my session so I open the sidebar and select share".

The main chat area displays a conversation. The user asks: "Can you create an image for my website? I need something that matches the overall theme and tone." The assistant responds with a list of questions: "What are the details about your website's theme, tone, and the type of image you want? (e.g., a specific product, abstract design, natural scene, or a person?)" and "What style do you prefer for the image (e.g., vibrant, minimalistic, calm, professional, etc.).". The user provides a list of requirements: "• Any specific elements you want to include (e.g., text, icons, shapes).", "• Image size (e.g., square, landscape, or portrait).", and "Let me know, and I'll create something tailored to your needs!". The assistant then says: "I have developed a new typography that combines alphabets from many languages. I want to share it on my website. I'd like an image that shows alphabetic characters from different languages." Below this, there is a "Message ChatGPT" input field and a "Get citation" button.

Sharing a session

Sure! Can you provide some details about your website's theme, tone, and the type of images you'd like? For example:

Share public link to chat ×

Your name, custom instructions, and any messages you add after sharing stay private. [Learn more](#)

<https://chatgpt.com/share/...> 🔗 Create link

Create a link

Copy link into buffer

Public link created ×

A public link to your chat has been created. Manage previously shared chats at any time via [Settings](#).

Make this chat discoverable
Allows it to be shown in web searches

<https://chatgpt.com/share/677da95d-ac> 📄 Copy link

[LinkedIn](#) [Facebook](#) [Reddit](#) [X](#)

Sharing (Optional)

Sharing in a Google Doc: Use the Link or QR Code (3ZWv3kj)

<https://bit.ly/3ZWv3kj>

Wenatchee Value College
Using AI
Share Prompts and Results

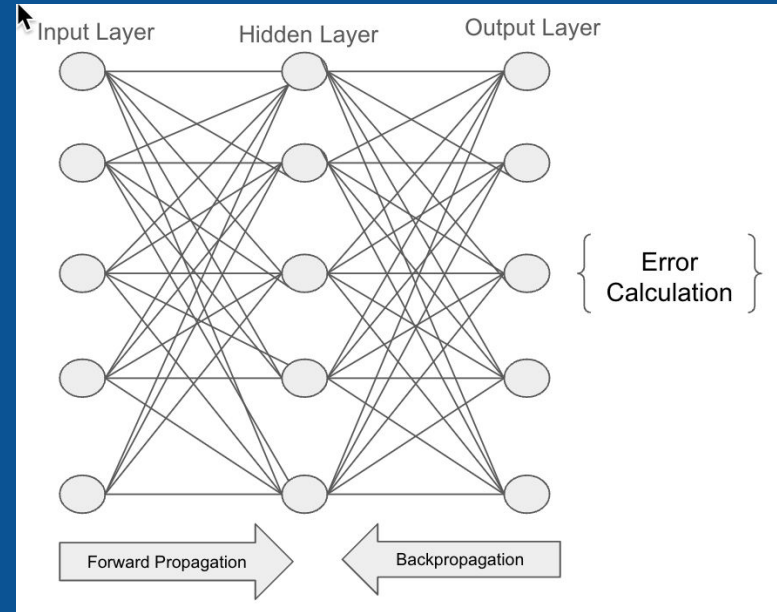
Create an image of a couple of people interacting with AI. (Becky)



Exercise: Question and Answer with ChatGPT

- Go to ChatGPT: <https://chatgpt.com/>
- Register for an account
- Ask it to give you instructions like “Give me instructions for drawing a calico cat”
- Go to the sharing document and share your prompt and a few lines of the results

The Technology



Machine Learning
Neural Networks
Large Language Models

Technology Timeline

1878

Telephone
service city wide
in Deadwood,
South Dakota

1880

Electricity
Established in
Wabash, Indiana

1885

Plumbing
Established in
Chicago, Illinois

1937

75% of US
Households have
a **Radio**

1964

IBM System/360
provides time
sharing on
mainframe
computer

1985

Microsoft
launches first
personal
computer

2000

53% of
Americans using
the **Internet**

2018

First **LLM** (Large
Language Model)
created: **GPT-1**



AI

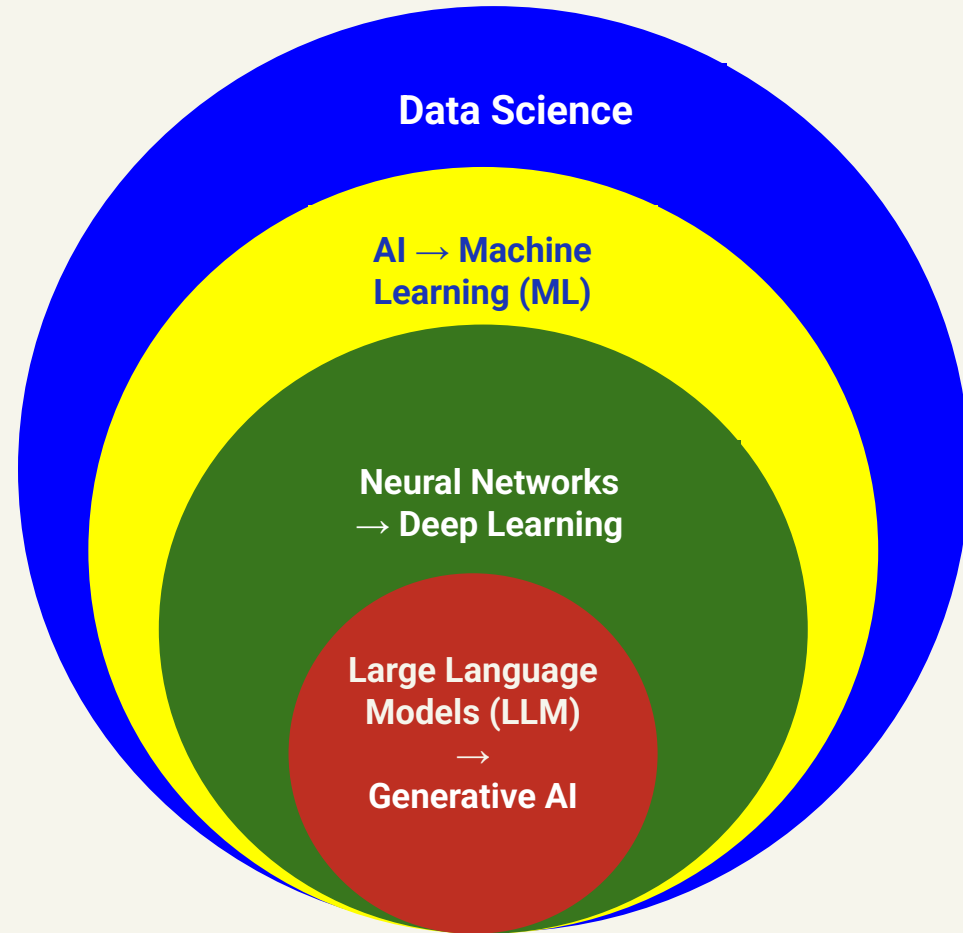
Our Goal: Interact with Generative AI



Generative AI

From Data Science to Generative AI

The relationship between Data Science, Machine Learning, Large Language Models and Gen AI



Data Science Disciplines

Artificial Intelligence

Machines can think, learn and communicate like humans.

Machine Learning

Algorithms and statistical models that allow computers to learn from and make decisions based on data.

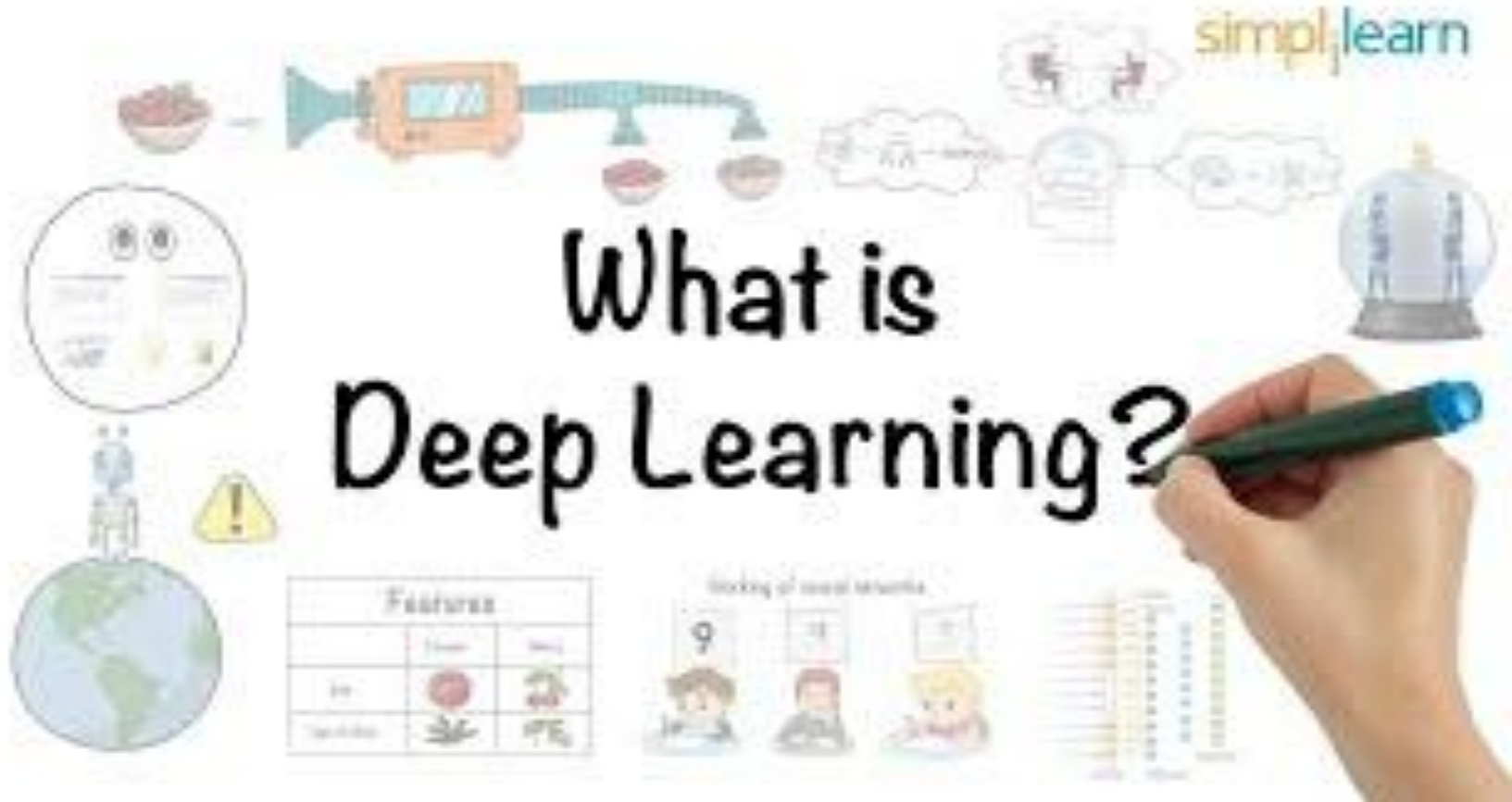
Deep Learning: Neural Networks

Algorithms inspired by structure and function of the human brain using pattern recognition. Used for object detection.

Generative AI

A type of AI that creates content in the form of conversational text, code, images, audio and video. It can be prompted to engage with different sentiments, personality and knowledge.

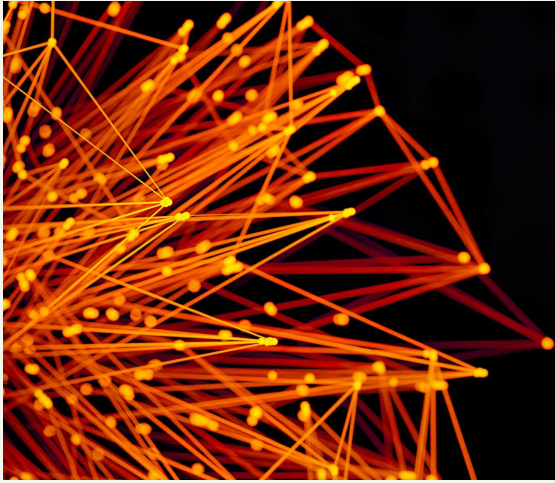
What is Deep Learning?



Features		
Color	Red	Green
Shape	Round	Square
Texture	Smooth	Bumpy



What is a Large Language Model?



Network of Connections

[Photo by U.Lucas Dubé-Cantin](#)

The model is not a physical item, but statistical associations between words.



Fueled by Data

[Photo by panumas nikhomkhai](#)

Large amounts of data from many sources are used to train the model.

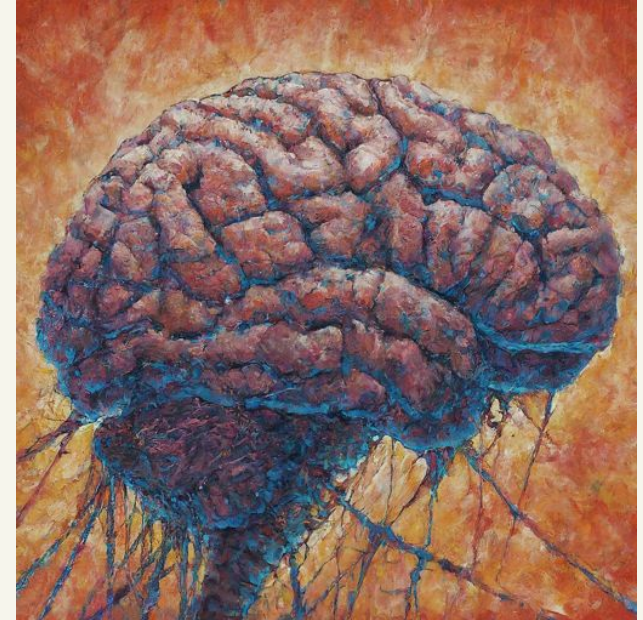
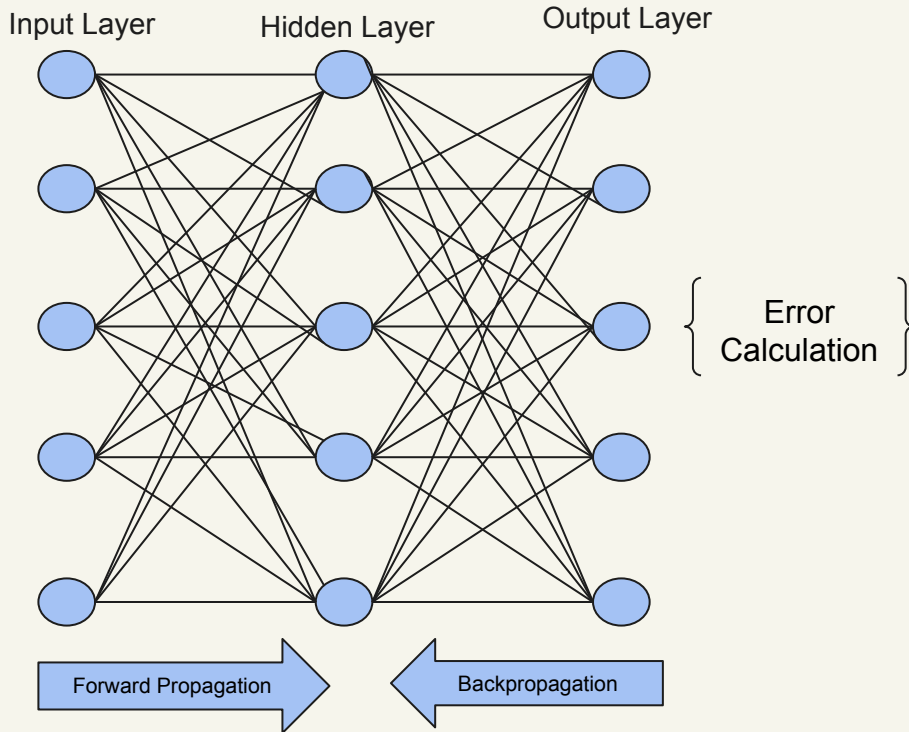


Housed in Large Computers

[Derrick Coetzee from Berkeley, CA, USA, CC0, via Wikimedia Commons](#)

Clusters of machines working together.

Supervised Training with Neural Networks



Model Terminology

Token

Input text broken down in to words, sub words or letters creates tokens.

cat: [0.4, 1.2, 0.7]

Parameters

A vector is a list of tokens converted into numerical values. Numbers that are close in value indicate that they are semantically related. Like cat and dog:

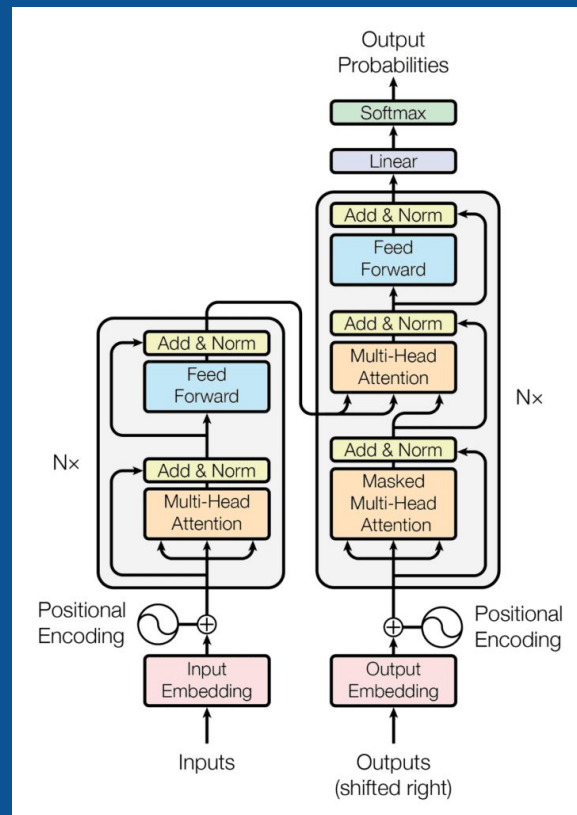
cat: [0.4, 1.2, 0.7]
dog: [0.5, 1.1, 0.8]

Embedding

Embedding are learned during training. Cat and Dog would be in an embedding. Notice that cat and dog are close in 3D space, but car is not.

cat	[0.8, 0.3, 0.5]
dog	[0.9, 0.4, 0.6]
car	[0.1, 0.8, 0.9]

Attention and the Transformer Architecture



"Attention is all you need"
2017 paper

AI Pitfalls

- Hallucinations
- Bias
- Copyright Infringement
- Sustainability

Hallucinations

AI creates generates incorrect information or nonsensical images

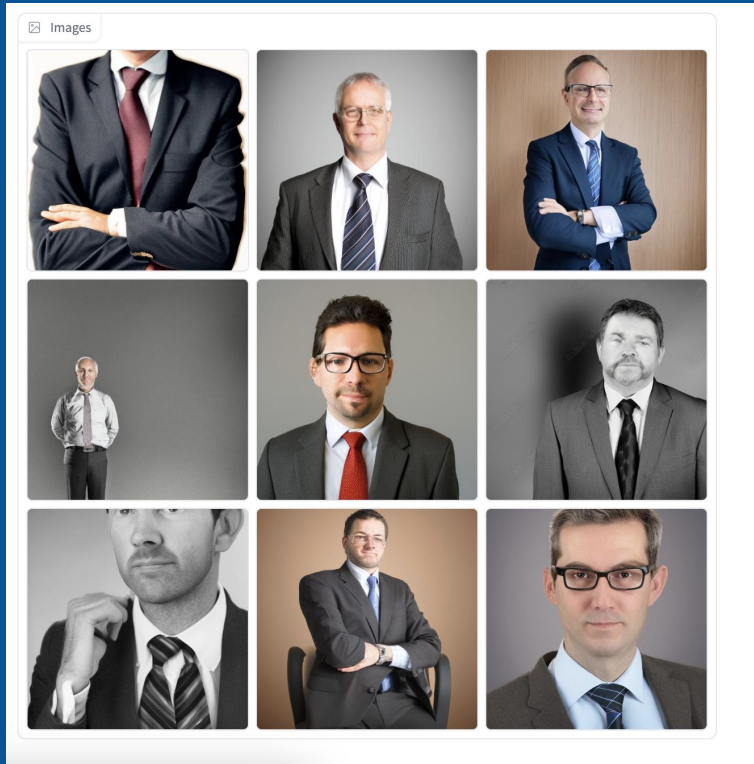


[Google](#)

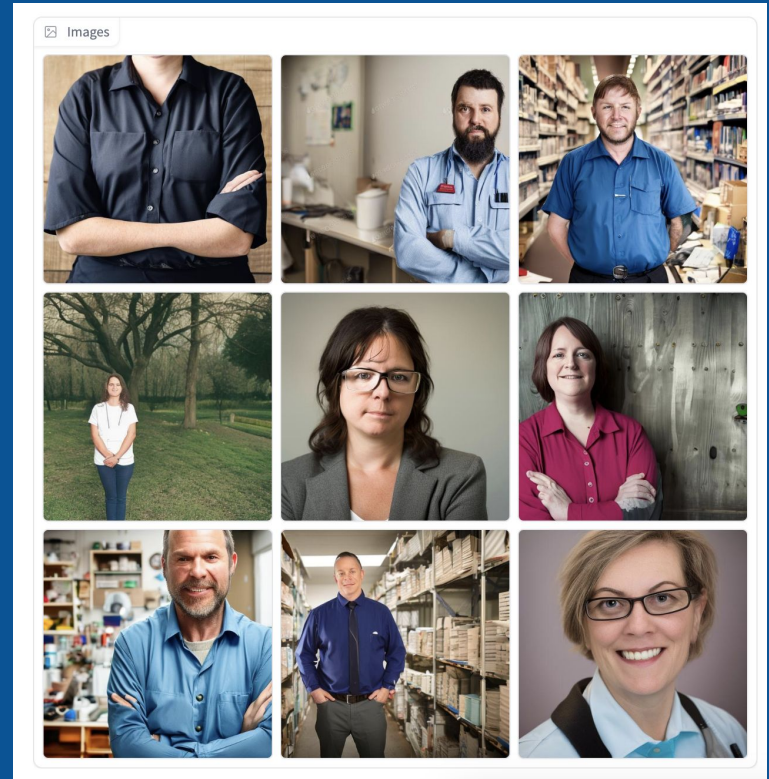
Bias

AI generates content that reflects human biases.

[MIT Technology Review 2023](#)



Manager



Compassionate Manager³⁹

Copyright Infringement

ABOUT US EVENTS NEWS CONTACT US

SEARCH [SUBSCRIBE TODAY](#)

[Explore Issues](#) [Archives](#) [Podcast](#) [Galleries](#) [Future Tense Fiction](#)

ISSUES
IN SCIENCE AND TECHNOLOGY

NATIONAL ACADEMY OF SCIENCES
ARIZONA STATE UNIVERSITY

JANUARY 16, 2024

Generative AI Is a Crisis for Copyright Law

BY KATE CRAWFORD, JASON SCHULTZ

Sustainability

- Energy Consumption
- Water Waste for Cooling Data Centers
- Hardware required rare Earth materials that are hard to mine

Dealing with AI Induced Problems

Solutions and Mitigation Strategies

- **Energy Efficiency:** Optimize algorithms and hardware to reduce energy use.
- **Renewable Energy:** Power data centers with renewable energy sources.
- **E-Waste Management:** Develop better recycling technologies for AI-related hardware.
- **Equitable AI Policies:** Ensure fair access and regulate monopolistic tendencies.
- **Responsible AI Design:** Focus on ethical AI frameworks to prevent biases and misuse.

Prompt Engineering

Learn the Importance of a Good Prompt



What makes a good prompt?



Use These Steps When Creating an AI Prompt

Use specific and explicit input

Indicate level of expertise

Describe context

Outline intent

Break down large requests

Provide output format instructions

Ask follow up questions

Run a fact check with another source

Avoid spelling and grammar errors

Use specific and explicit Input

Do

"Explain the difference between German Shepherds and Poodles in terms of temperament, compatibility with children, and care requirements."

Don't

"Write about dogs"

Indicate level of expertise

Do

Your audience is a group of adults who are learning about AI. Describe how AI Agents are used from a technical standpoint but aimed at a nontechnical audience.

Don't

Write about AI Agents.

Describe context

Do

I'm teaching an 8th grade class how to factor quadratic equations. Provide an explanation with examples on how to do this that is appropriate for this grade level.

Don't

Factor an algebraic equation.

Outline intent

OpenAI. (2025). *ChatGPT*

Do

Explain climate change in simple terms for a 12-year-old audience. Keep it concise (around 100 words) and use examples like melting ice caps or extreme weather to illustrate the concept.

Don't

Explain climate change.

Breakdown Large Requests

Do

First explain the principles behind writing a Haiku poem. Next write two different Haiku poems. Finally explain how the two poems are alike.

Don't

Write a couple of Haiku poems and describe the principles behind Haiku poetry and how the two poems are alike.

Provide Output Format Directions

Do

Create a table with 3 columns and 3 rows. In the first column list the English words kind, grateful, and brave. In the 2nd column translate those words into Spanish. In the third column translate those words into Ukrainian.

Don't

Translate the words kind, grateful and brave into Spanish and Ukrainian.

Formatting: Text

OpenAI. (2025). ChatGPT

Text

Plain Text

Bold

Intalic

Bullet List

- Fact 1
- Fact 2
- Fact 3

Numbered List

1. Item A
2. Item B
3. Item C

Table



Fruit	Color
Apple	Red
Pear	Green
Banana	Yellow

Formatting: Visual Enhancements

OpenAI. (2025). *ChatGPT*

Headings

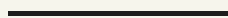
Heading 1

Heading 2

Heading 3

Separators

section 1



section 2

Color Coding

Error

Success

Emojis



Indicate level of expertise

Do

Your audience is a group of adults who are learning about AI. Describe how AI Agents are used from a technical standpoint but aimed at a nontechnical audience.

Don't

Write about AI Agents.

Ask follow up questions

After learning that the Earth's temperature has increased by .74 degrees Fahrenheit since 2000.

Do

When did we start recording the temperature of the earth.

Create a table showing year and temperature for the 20th Century.

How much has the temperature of the oceans increased since the 20th century?

What is causing the temperature to increase?

Don't

Walk away and miss a good conversation and more details.

Ask follow up questions

After learning that the Earth's temperature has increased by .74 degrees Fahrenheit since 2000.

Do

When did we start recording the temperature of the earth.

Create a table showing year and temperature for the 20th Century.

How much has the temperature of the oceans increased since the 20th century?

What is causing the temperature to increase?

Don't

Walk away and miss a good conversation and more details.

Follow up with a fact check

Do

Use a search engine to verify that there were 6 band members and 4 vocalists in Taylor Swift's 2023 Eras tour.

Don't

Use the information from a prompt about the members of the Taylor Swift's Eras tour without verifying it from another source.

Avoid Spelling and Grammar Errors

Tools

- Grammarly is available as a free browser extension ([Chrome](#), [Edge](#)), desktop or [web app](#)
- Microsoft Word and Google Docs offer spell check
- [Hemingway](#) will make your text more succinct
- [LanguageTool](#)

Exercise

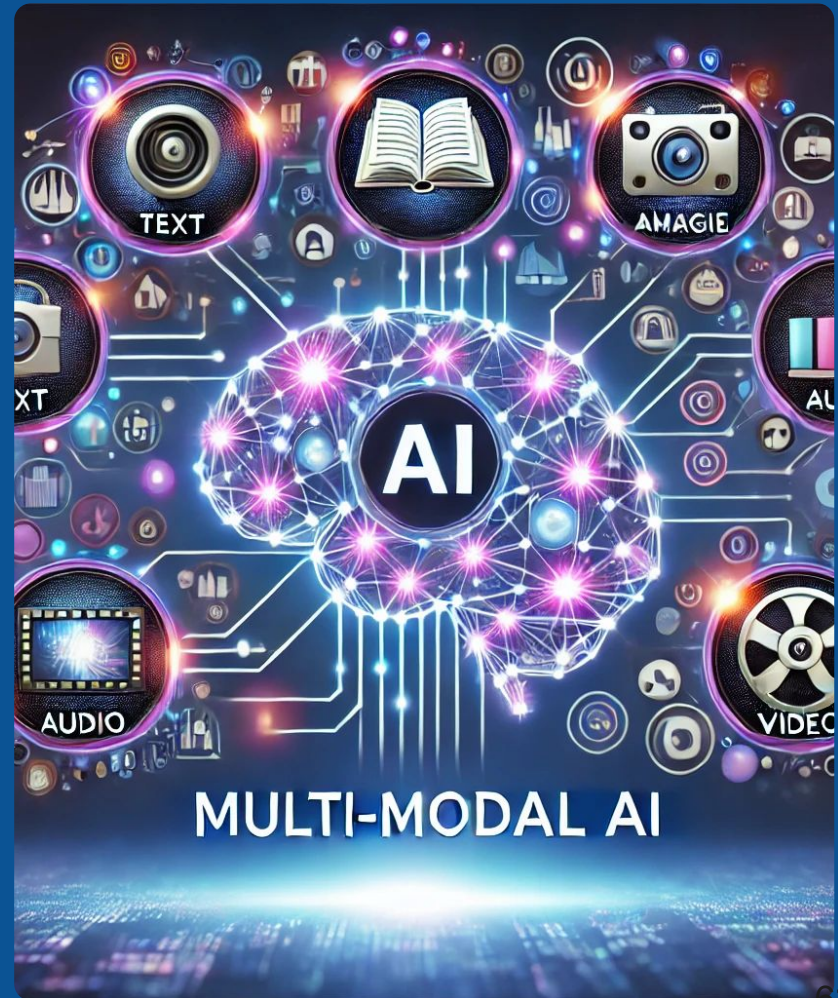
1. Create prompt that will **explain the future of AI to the target audience**.
2. Ask AI to evaluate the prompt before asking it to answer the question.
3. Run the question twice to see the difference in the answer.

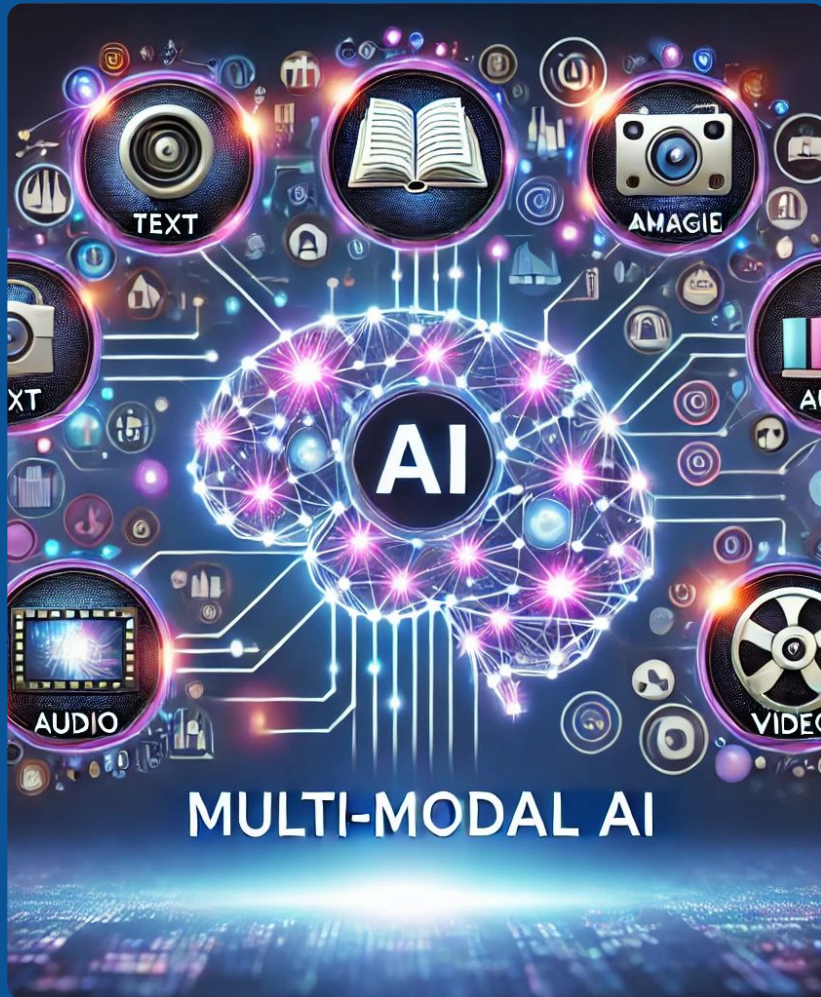
Create your own input to build the prompt:

- age and level of expertise of the audience
- role and expertise of AI in creating the response
- context of the problem (when, where, why)
- intent of the question (provide information what will help the audience to form opinions and conclusions about the subject)

Multi Modal AI

Text, Image, Video, and Audio





This image conveys the concept of **multi-modal AI**, emphasizing the integration of various data modalities—such as text, images, audio, and video—into a unified AI system. The central AI brain with glowing neural connections symbolizes the processing power of artificial intelligence, while the surrounding icons (book, camera, speaker, and film reel) illustrate the different input types AI can handle. The vibrant and futuristic design highlights the advanced and interconnected nature of these technologies, suggesting their versatility and capability in processing complex, multi-dimensional information.

Websites for Multi Modal Creation

Audio

eivanlabs.io

murf.ai

mureka.ai

udio.com

Video

[Invideo](https://invideo.io)

[Amazon Nova](https://amazon.com/nova)

[Canva Video Generator](https://canva.com/video-generator)

[Synesthesia.io](https://synesthesia.io)

Images

aragon.ai

openart.ai

aitubo.ai

nightcafe.studio

AND MANY MORE...

Proofreaders: Correcting Grammar and Spelling

Gammarly

Quillbot

ChatGPT

Use Cases

Hands On Exercises



Prepare to Write Prompts

- Identify Problems at Home and Work
- Classify Home Problems as “Issues”
- Classify Work Problems by “Role”
- Exercise: Create Prompts

Issues at Home

- Meal Planning
- Budgeting
- Chore Scheduling
- Learning a Craft or New Skill
- Fixing a Problem Around the House
- Planning a Vacation

- Finding a Gift
- Diet and Fitness
- Dealing with Stress
- Homework Assistance
- Creating Stories and Games for Children
- Caring for pets

Exercises for Problems at Home



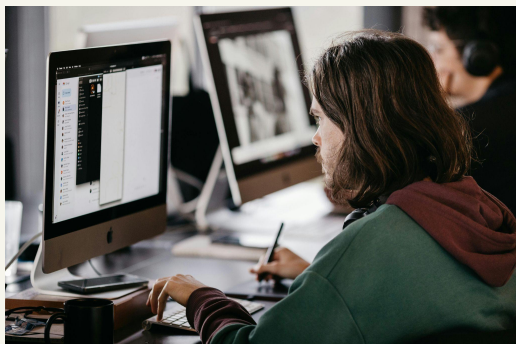
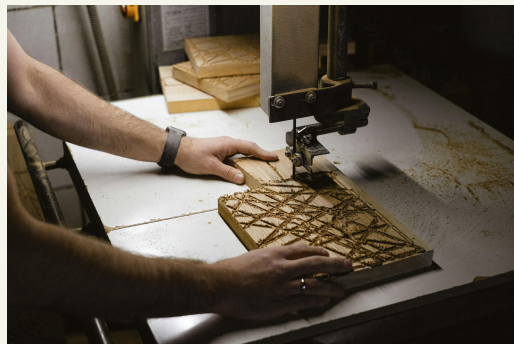
Roles at Work

Issue	Question
Meal Planning	What is a good set of nutritious meals for the week?
Budgeting	Sharing my income and expenses, what can I do to save \$x by the end of the year?
Chore Scheduling	How do I make a schedule for cleaning house?
Learning a Craft or New Skill	How do I make a flag?
Fixing a problem around the house	Why isn't my dishwashing cleaning properly?
Planning a vacation?	How should I travel and where should I stay?

Issues at Home

Issue	Question
Finding a gift	What is a good gift to take to a wedding between older adults?
Diet and Fitness	What are some exercise to relieve neck pain?
Dealing with Stress	What can I do to relieve stress and sleep more?
Homework assistance	How to I help my 8th grade child with Algebra?
Creating stories and Games for children	Can you help me a story about X that uses my children's names?
Caring for Pets	What is the best way to clip your dog's nails?

Exercises for Problems at Work



Roles at Work

- Writers
- Educators
- Lawyers and Policy Makers
- Software and Web Developers
- Language Translation
- Food and Hospitality Service

- Marketers
- Project Managers
- Fitness Instructor
- Athletic Coach
- Health Care Professionals
- Elder Care Professionals

Issues at Home

Issue	Goal
Writers	Create an outline for detective novel
Writers II	Correct my spelling and Grammar
Educators	Create a syllabus for a course about Artificial Intelligence
Lawyers and Policy Makers	Provide background on Law X
Software and Web Developers	Write code that analyzes data in my file
Language Translation	Translate the file I have uploaded to Spanish
Food and Hospitality Service	Share some popular trends in food and hospitality

Issues at Home

Issue	Question
Marketers	Create a brand and logo for a business that does X
Project Managers	Read the problem I am trying to solve in an uploaded file and help me to create tasks
Fitness Instructors	What are the recommended exercises for client problem X
Athletic Coach	Tips for inspiring my team to win
Health Care Professionals	What to look for in problems from post Covid patients?
Elder Care Professionals	Provide a list of activities that would be interesting to a population over 80 years old

Exercise:

Problems from Home and Work

- Recall features of a Good Prompt ([Slide 46](#))
- Choose 2 problems: One from Home and one from Work or Use a Problem You've Encountered
- Start with a Good Text Prompt
- Go beyond just a text question
- Create more prompts if there is time
- Share prompts or links to ChatGPT

More Tools and Inputs

NotebookLM and Transfer Learning



Research Tool: Google NotebookLM

- Summarize Documents
- Answer Questions
- Generate Ideas
- NotebookLM

The screenshot shows the Google NotebookLM interface for a document titled "Prometheus: Fire, Pandora, and Freedom". The interface is divided into three main sections: Sources, Chat, and Studio.

- Sources:** On the left, there is a "Sources" panel with a "+ Add source" button. Below it, a checkbox "Select all sources" is checked. A source titled "The Story of Prometheus.pdf" is listed with a checkmark.
- Chat:** The central "Chat" panel features a flame icon and the title "Prometheus: Fire, Pandora, and Freedom". Below the title, it says "1 source" and provides a summary: "This text recounts the Greek myth of Prometheus, a Titan who stole fire from the gods to give to humanity, improving their lives. Zeus, angered by this act, punishes Prometheus by chaining him to a mountain. The myth also introduces Pandora, whose curiosity unleashes diseases and woes upon the world. Finally, Hercules eventually frees Prometheus, fulfilling a prophecy." Below the summary are buttons for "Save to note", "Add note", "Audio Overview", and "Briefing doc". At the bottom of the chat panel is a text input field with "Start typing..." and a "1 source" indicator, followed by a blue play button. Below the input field are two example prompts: "How does Prometheus's defiance shape humanity's fate?" and "What role does fire...".
- Studio:** On the right, the "Studio" panel includes an "Audio Overview" section with a "Deep Dive conversation" (Two hosts (English only)) and buttons for "Customize" and "Generate". Below this is a "Notes" section with an "Add note" button and buttons for "Study guide", "Briefing doc", "FAQ", and "Timeline". At the bottom of the Studio panel, there is a note icon and text: "Saved notes will appear here. Save a chat message to create a new note, or click Add note above."

At the bottom of the interface, a small disclaimer reads: "NotebookLM can be inaccurate, please double check its responses."

Transfer Learning: Zero Shot and Few Shot

- **Zero Shot:**
no new information
- **Few Shot:**
provide specific information

The screenshot displays the NotebookLM interface for a document titled "Prometheus: Fire, Pandora, and Freedom".

- Sources Panel (Left):** Shows one source, "The Story of Prometheus.pdf", which is selected.
- Chat Panel (Center):** Contains a text snippet: "This text recounts the Greek myth of Prometheus, a Titan who stole fire from the gods to give to humanity, improving their lives. Zeus, angered by this act, punishes Prometheus by chaining him to a mountain. The myth also introduces Pandora, whose curiosity unleashes diseases and woes upon the world. Finally, Hercules eventually frees Prometheus, fulfilling a prophecy." Below the text are buttons for "Save to note", "Add note", "Audio Overview", and "Briefing doc". A text input field at the bottom contains the prompt: "How does Prometheus's defiance shape humanity's fate?" and "What role does fire...".
- Studio Panel (Right):** Includes an "Audio Overview" section with a "Generate" button and a "Notes" section with an "Add note" button and a list of existing notes: "Study guide", "Briefing doc", "FAQ", and "Timeline".

At the bottom of the interface, a disclaimer reads: "NotebookLM can be inaccurate, please double check its responses."

Zero Shot Sentiment Analysis

- Positive
- Neutral
- Negative

Relying on how the model was trained

Text: I'm excited about going to the movie. Sentiment:

The sentiment of the text is **positive**. It conveys excitement and anticipation.

I think my new skis are OK. Sentiment:

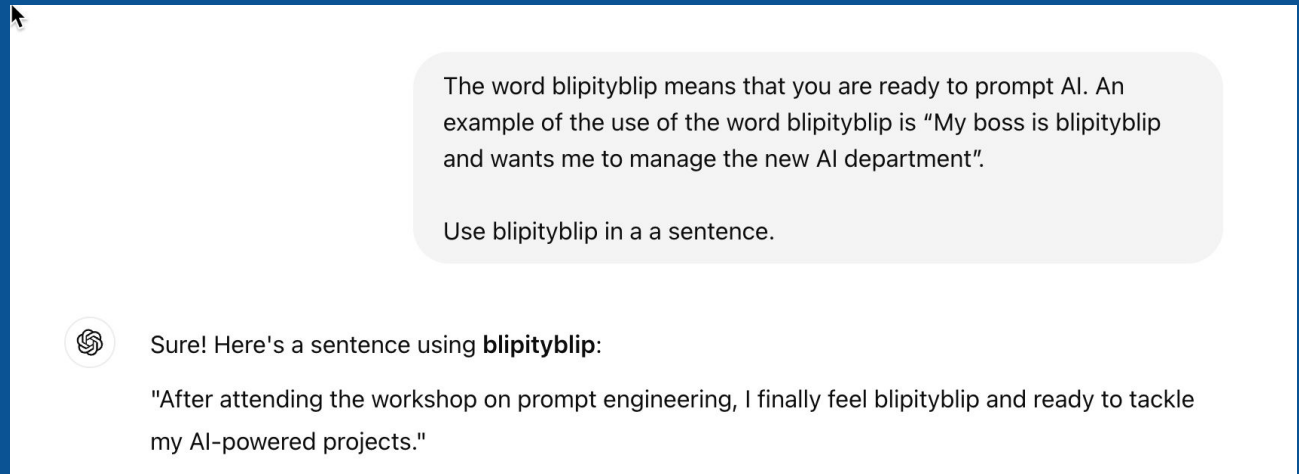
The sentiment of the text is **neutral**, as it expresses a moderate or unenthusiastic opinion about the new skis.

I'm not looking forward to taking the test tomorrow. Sentiment:

The sentiment of the text is **negative**, as it expresses reluctance or unease about the upcoming test.

Few Shot Analysis


Allows you to add new knowledge to the Model.



The screenshot shows a chat window with a system message and a user message. The system message is: "The word blipityblip means that you are ready to prompt AI. An example of the use of the word blipityblip is 'My boss is blipityblip and wants me to manage the new AI department'." Below this is a user message: "Use blipityblip in a sentence." The AI's response is: "Sure! Here's a sentence using **blipityblip**: 'After attending the workshop on prompt engineering, I finally feel blipityblip and ready to tackle my AI-powered projects.'"

The word blipityblip means that you are ready to prompt AI. An example of the use of the word blipityblip is "My boss is blipityblip and wants me to manage the new AI department".

Use blipityblip in a sentence.

 Sure! Here's a sentence using **blipityblip**:

"After attending the workshop on prompt engineering, I finally feel blipityblip and ready to tackle my AI-powered projects."

Try defining your own new word. Use it in a sentence and then ask ChatGTP to use it.

Recap

Prompt:

"create an image that has the word "recap" in it and an image of someone putting their hat on"

Prompt Engineering



What we've learned

Tools

- ChatGPT
- Multi Modal AI Resources
- NoteookLLM.google

Concepts

- AI Technology
- Machine Learning
- Neural Networks
- Deep Learning
- Prompt Engineering
- Zero Shot and Few Shot Prompting

Other Models To Try

- Google Gemini
- Anthropic Claude.AI
- GitHub Copilot

References

<https://www.promptingguide.ai/>

<https://app.datacamp.com/learn/tutorials/few-shot-prompting>