

GENERATIVE AI WITH: CHATGPT

THE SPEAKER



Consultant & Speaker

EC-Council Circle of Excellence Award Winner for the year of 2017 and 2016

33+ years of experience and 42+ industrial certifications

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AGENDA

- Introduction to Artificial Intelligence (**AI**)
- Generative **AI**
- Text Generation
- **ChatGPT** Effective Prompt
- **ChatGPT** Applications and Challenges

INTRODUCTION TO AI

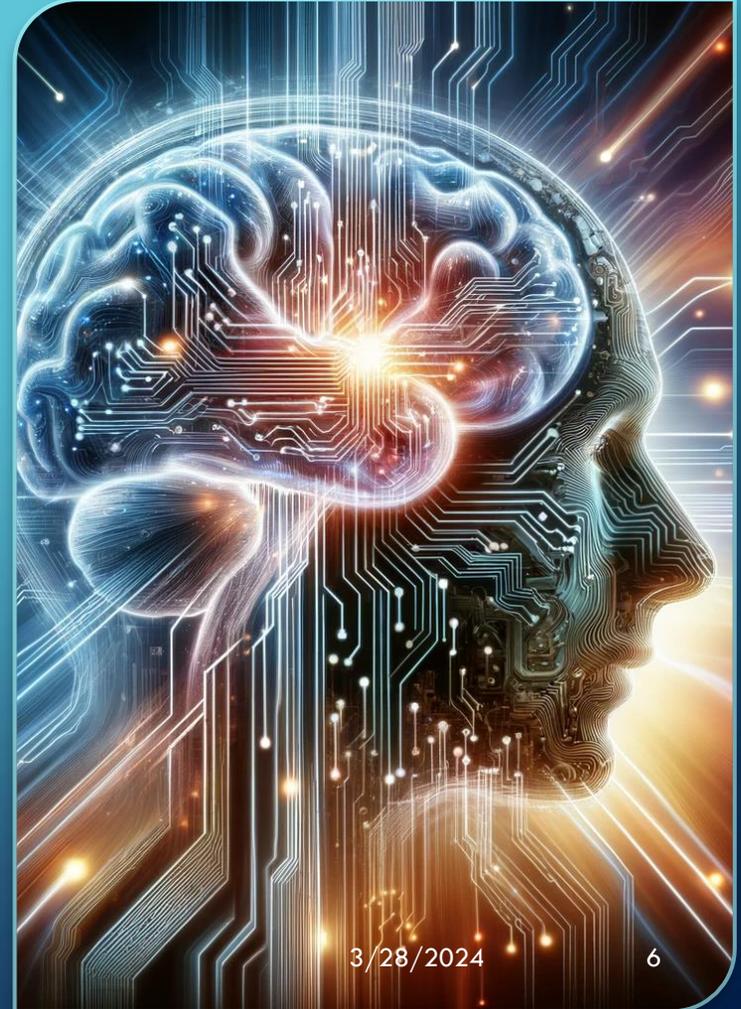
INTELLIGENCE

- Ability to make decisions based on preexisted knowledge



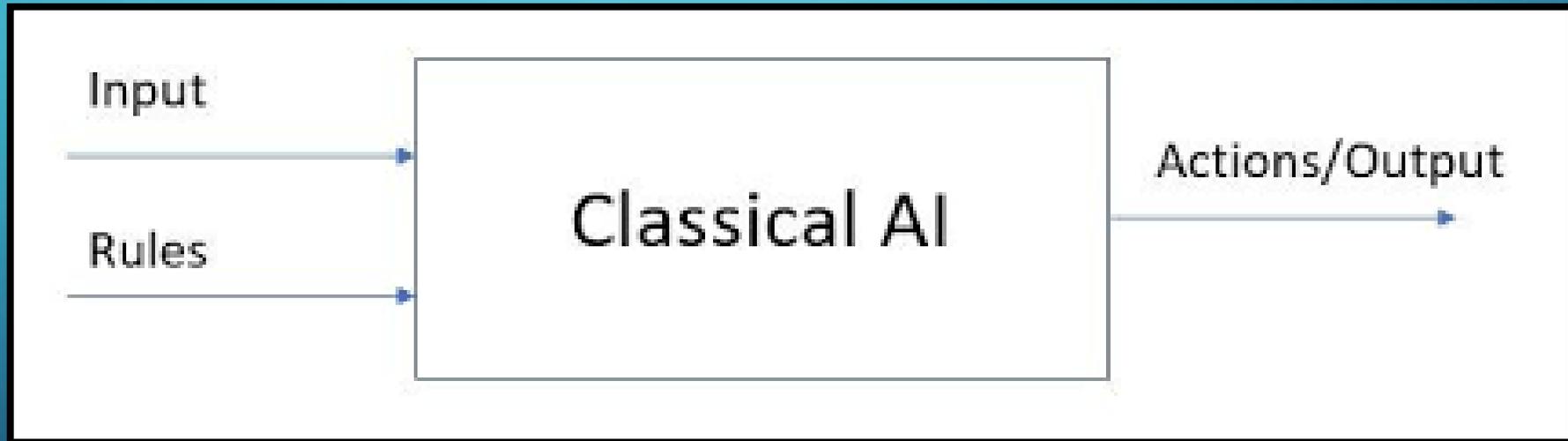
ARTIFICIAL INTELLIGENCE (AI)

- Enabling **Computer Systems** to make decisions/ tasks in a way that mimics human mental capabilities/ intelligence such as:
 - **Speech Recognition**
 - **Decision Making**
 - **Identifying Patterns and many others.**
- Requires the **Computer (Machine)** to Learn and recall knowledge.



LEARNING APPROACHES

- **Symbolic or Classical AI:** human knowledge is represented by Symbols (Knowledge Base), logic and relationships like Drink (Sami, milk)



- **Modern Big AI (Machine Learning)**

ARTIFICIAL INTELLIGENCE (AI)

- Machine Learning **ML**, gives the ability to computers to learn without explicit programming in:
 - Supervised Learning (Tagged/ Labeled)
 - Unsupervised Learning (Untagged/ Unlabeled)

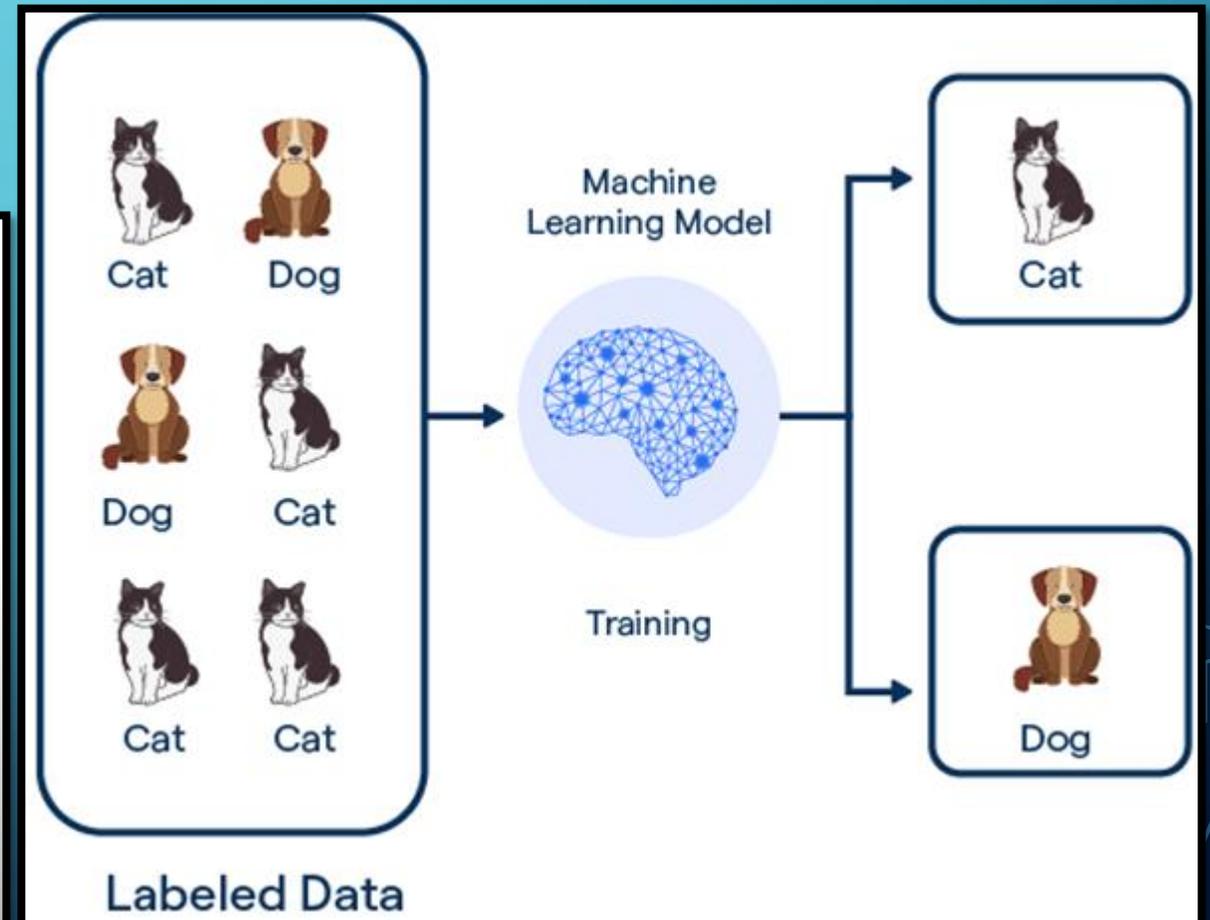
AI: SUPERVISED LEARNING



Features				Label
Size	Room#	Age	Floor	Price
90	3	3	1	50
120	5	15	3	70
150	4	10	2	100
200	6	5	4	150
250	6	2	5	160
170	5	4	3	??

Training Data set

Testing Data set



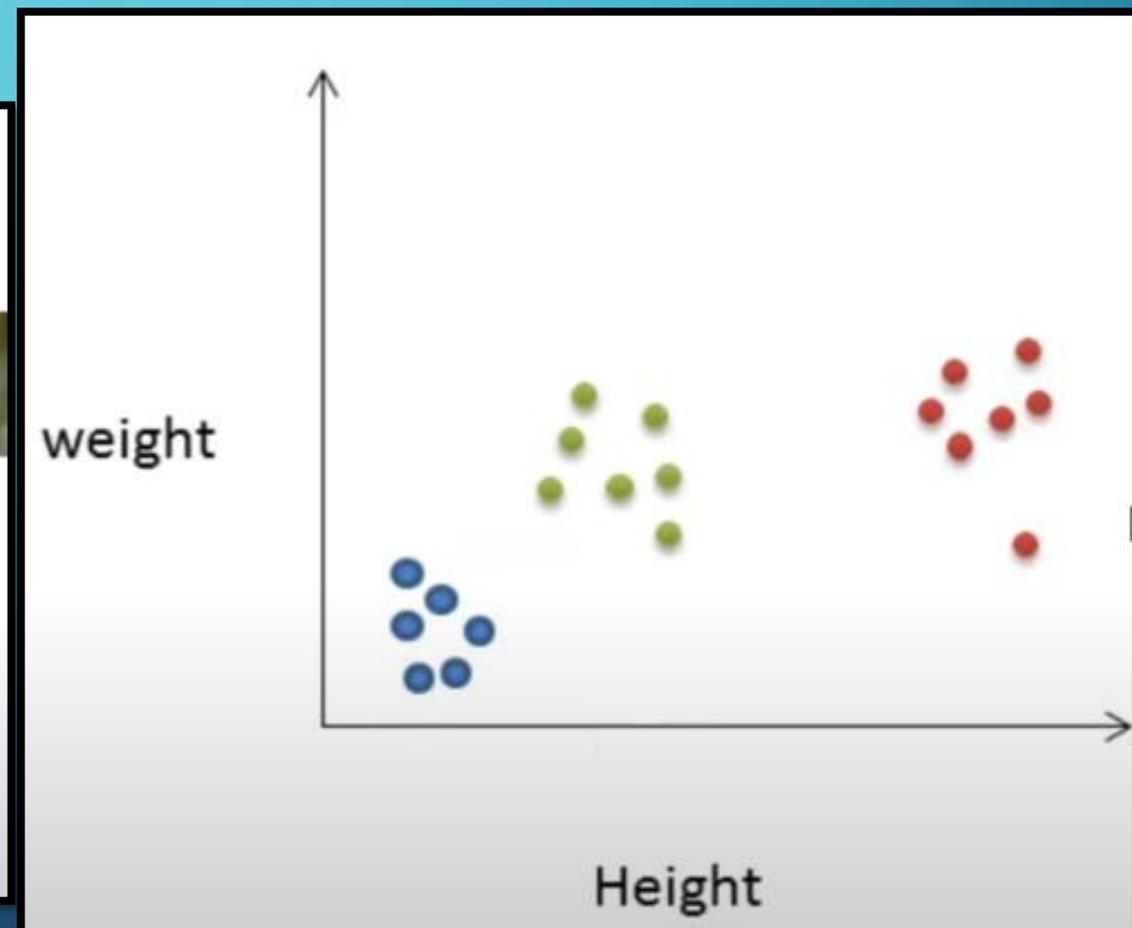
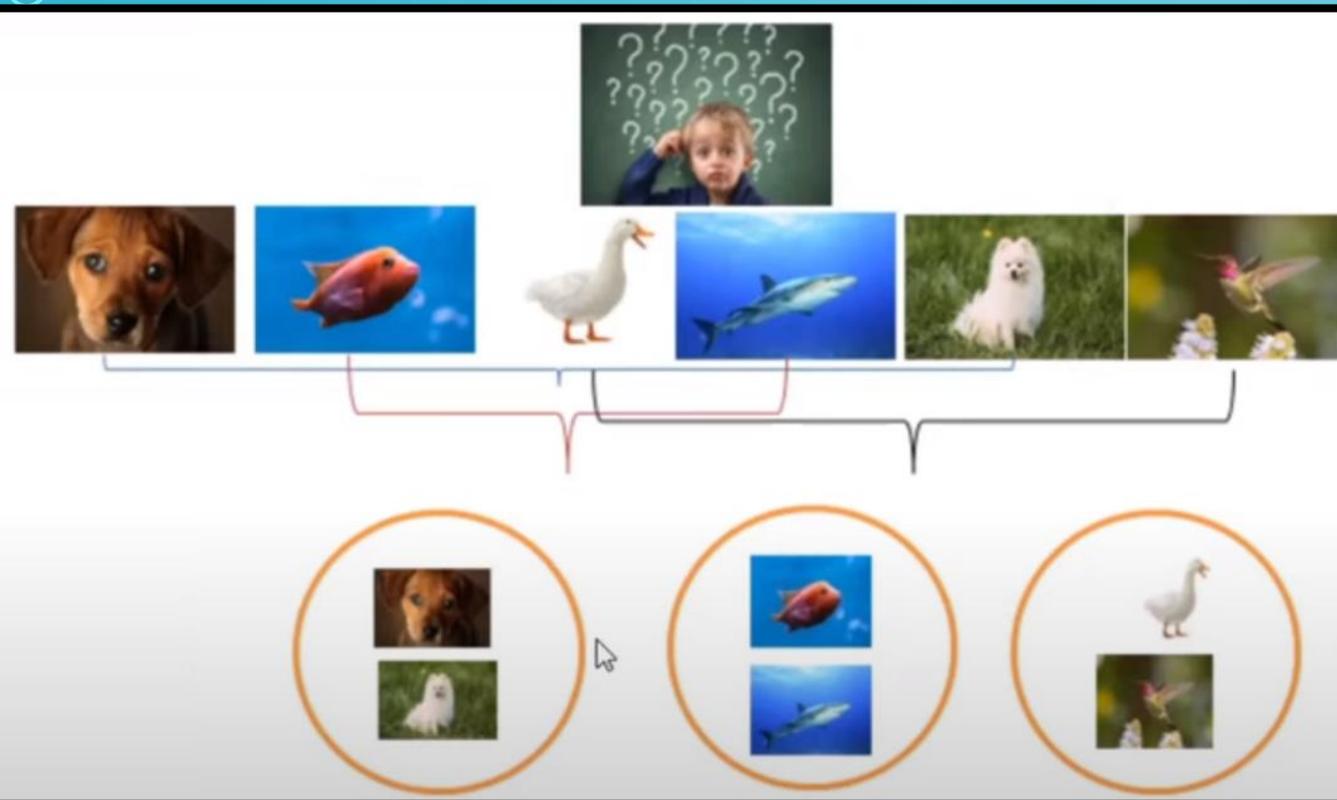
Labeled Data

AI: SUPERVISED LEARNING

- A classical application of AI is **Facial Recognition**.
- Supervised Learning
- Training Data



AI: UNSUPERVISED LEARNING



MACHINE LEARNING

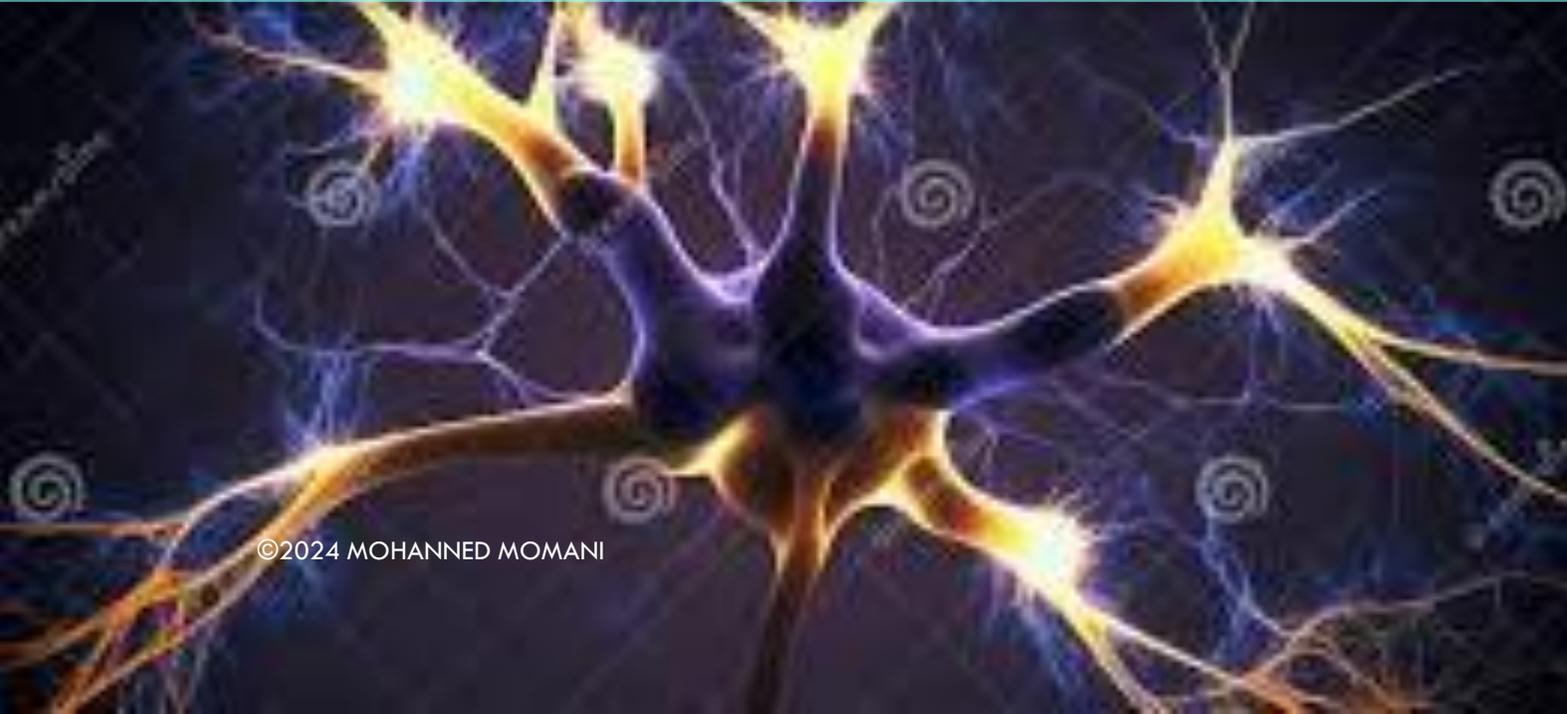
- Algorithms trained on **Data Sets** to create self-learning models that can predict outcomes & classifying information without human intervention.



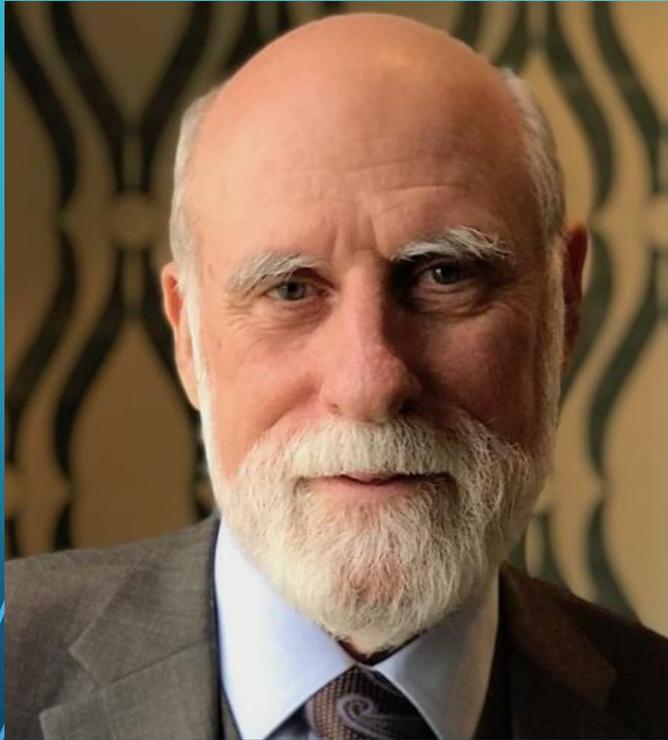
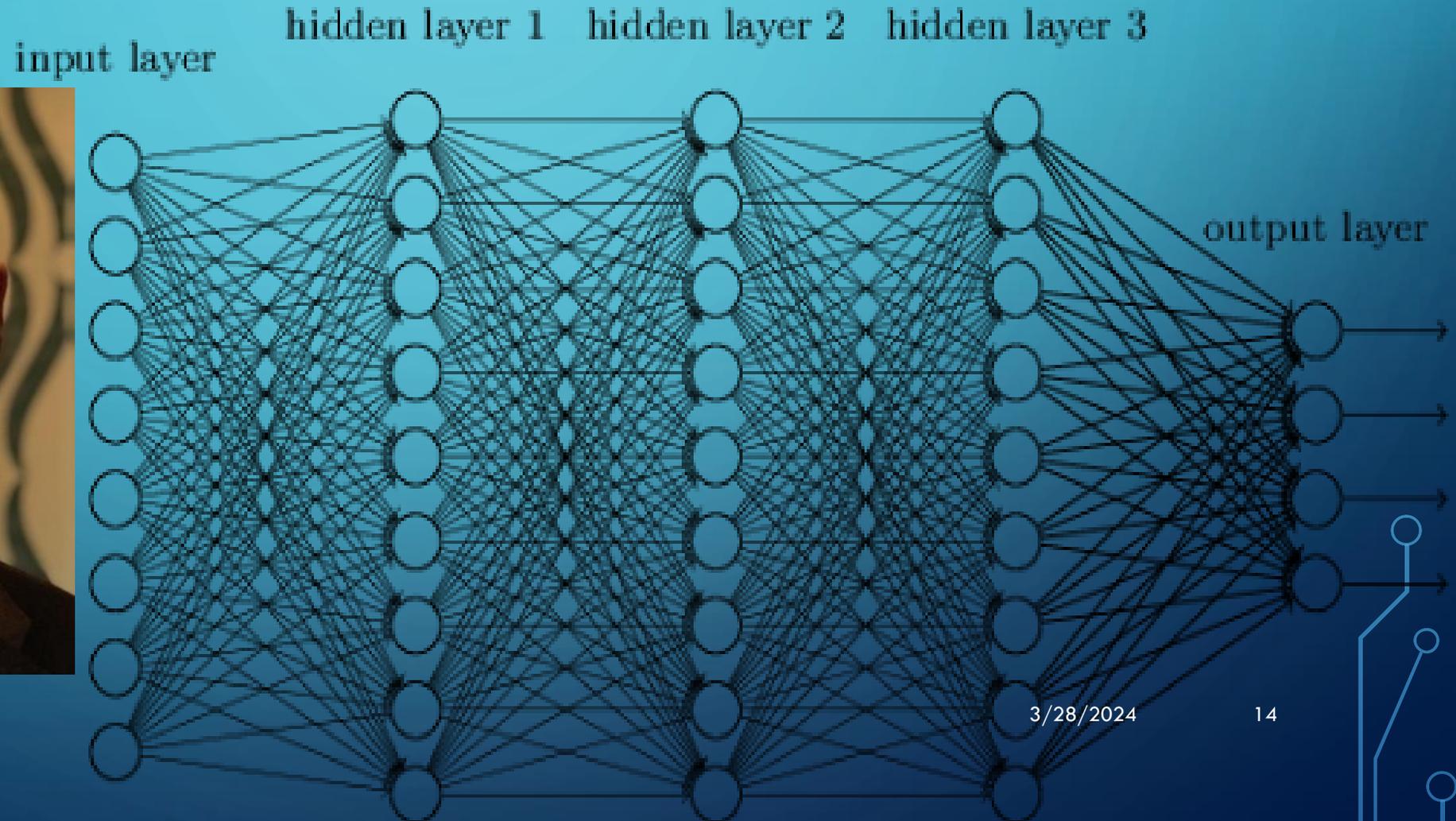


MACHINE LEARNING

- Neurons



ARTIFICIAL NEURAL NETWORKS (ANN)



ANN

- A computational model inspired by the human brain neurons to **recognize patterns** and solve complex problems like humans.
- Enabling Computers/ **Machines** to learn from and interpret data in a human-like manner.

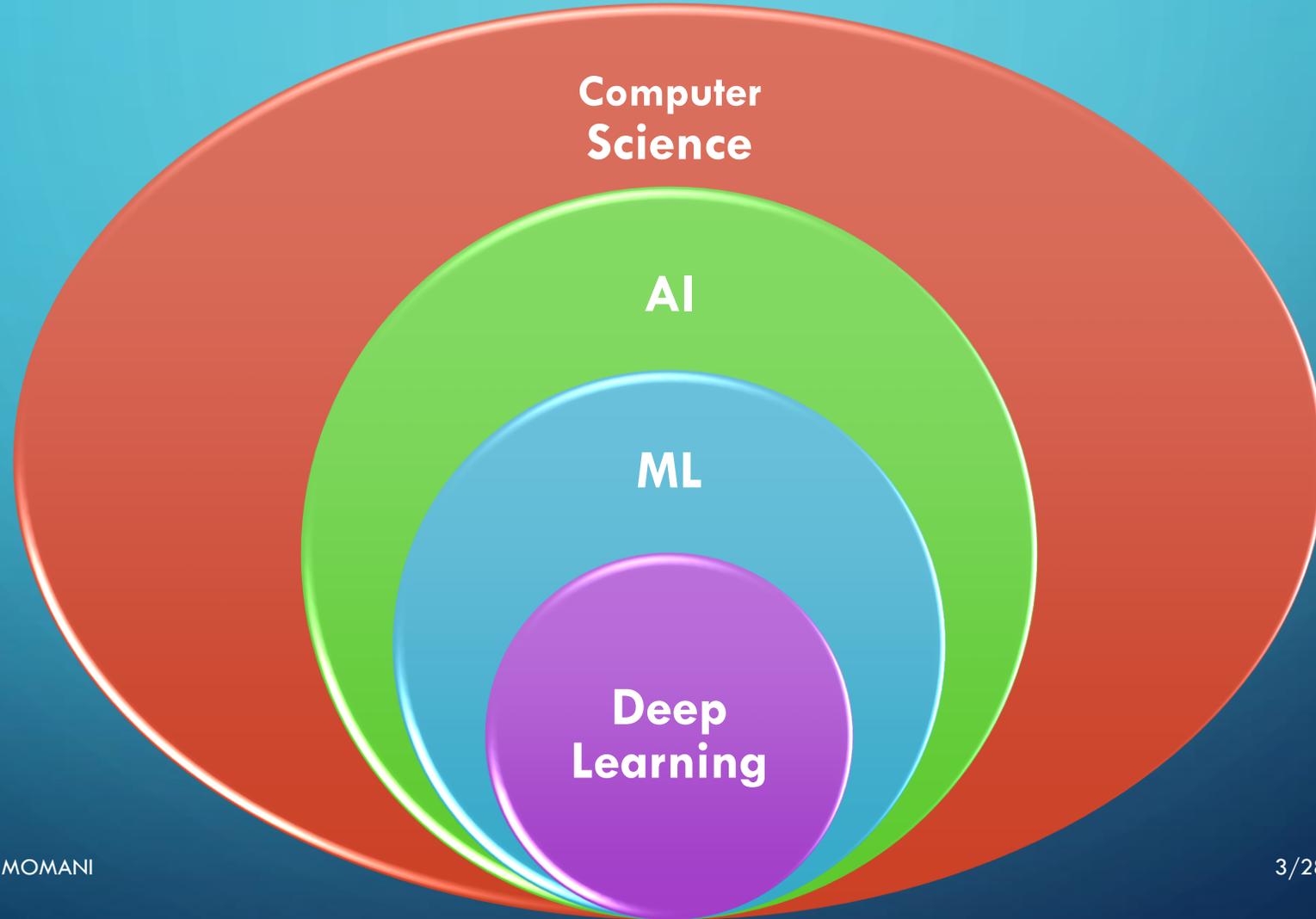
DEEP LEARNING (DL)

- A branch of **ML** that is made up of **ANN** with **MANY** layers
- **ANN** attempt to model human learning by digesting and analyzing massive amounts of information (training data)
- Tasks performed with that data repeatedly, improving in accuracy each **time the same way Humans study and practice to improve skills.**

DEEP LEARNING (DL)

- Learning by layers: Each layer processes information from the previous layer, extracting higher-level features as data goes deeper.
- Semi-supervised: trained on **BOTH** small amount of **Labeled** and large amount of **Unlabeled** data sets
- Process more complex patterns than traditional **ML**

THE RELATIONSHIP



Deep Learning

```
graph TD; A[Deep Learning] --> B[Discriminative]; A --> C[Generative]
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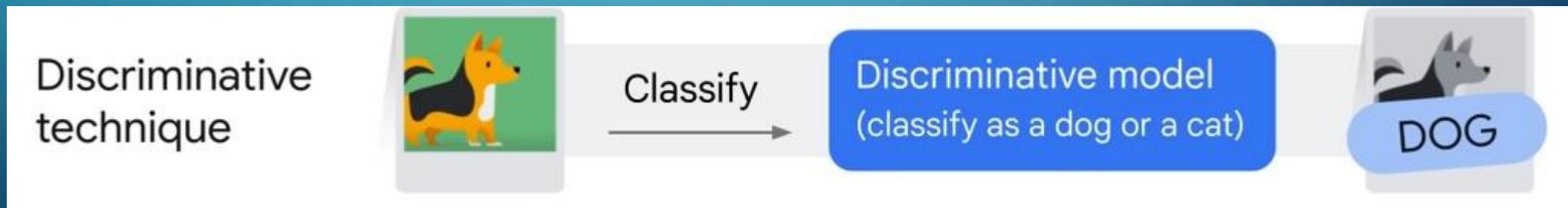
Discriminative

Generative

GENERATIVE AI

DISCRIMINATIVE AI

- **Classify, Predict or output a number**
- **Typically trained on Labeled data**
- **Learns relationship between labels and features**



GENERATIVE AI

- Input a variety of prompts
- Generates new content **not** explicitly programmed or encountered during training.



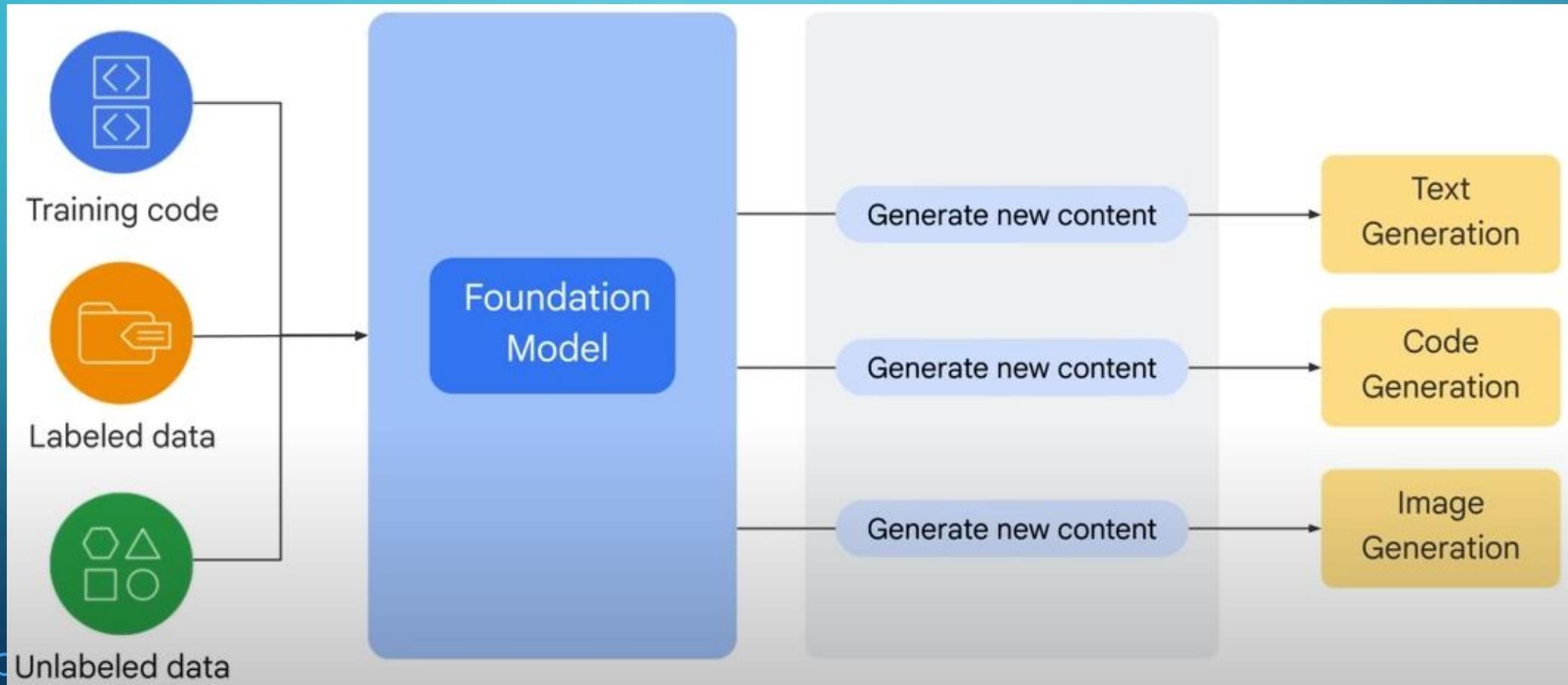
GEN AI

- It evolves as it continues to train on more large unlabeled data.
- Predicts or create outcomes like humans: Image, Text, Video or Audio
- The use cases have multiplied as a companion for writing, research, coding, designing, and much much more.

GEN AI

- Leveraging different learning approaches:
 - Supervised learning
 - Unsupervised
 - Semi-supervised
- Leveraging large amount of unlabeled data to create **Foundation Models** as a base for **AI** systems to perform multiple tasks.

GEN AI



GEN AI MODELS

- **Generative Image Models**
- Input: Image
- Output:
 - Text (Image Search, Captioning)
 - Image (Super resolution, Image editing)
 - Video (Animation)

IMAGE TO TEXT

- Exact match
- Similar

The image shows a reverse image search interface. On the left, a large portrait of Vint Cerf is displayed within a search frame. Above the frame is a button labeled "Find image source". Below the frame are buttons for "Search", "Text", and "Translate". On the right, a grid of search results is shown under the heading "Results for people are limited". The results include various images of Vint Cerf with associated text from different sources. Two results are circled in blue: "Google Blog - A Fair Code for an Open Internet" and "Google Blog - About the Keyword - Official Google Blog". Other results include "Business Insider - Vint Cerf Sees a Big Danger From the...", "The Herald - Breaking news", "Mastercard Center ... Vint Cerf", "Interesting Engine... Vinton Cerf - Interesting Engineering", "BankInfoSecurity - Vint Cerf - BankInfoSecurity", "distantaccess.com - Vinton G. Cerf - Privacy Symposium", "The Economic Times - artificial intelligence: Govts shouldn't take...", and "List of Popular Best Computer Scientist in the World ...".

TEXT GENERATION

TEXT GENERATION

- AI system produces written content, imitating human language patterns and styles.
- Generating coherent and meaningful text that resembles natural human communication.
- Used in NLP, content creation, customer service, and coding assistance.

TEXT GENERATION

- Process input data and generate output text
- It involves training AI models on large datasets of text to learn patterns, grammar, and contextual information.
- These models then use this learned knowledge to generate new text based on given prompts or conditions.

TEXT GENERATION

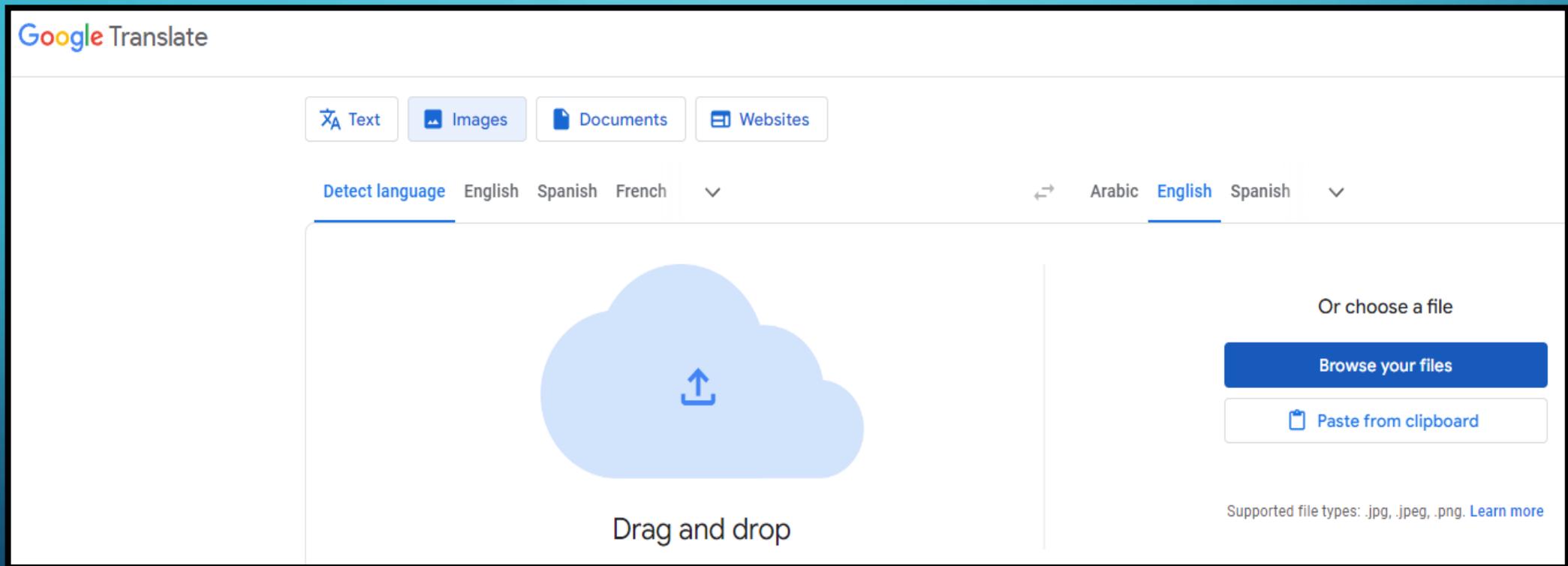
- The AI model takes a seed input, such as a sentence or a keyword, and uses its learned knowledge to predict the most probable next words or phrases.
- The model continues to generate text, incorporating context and coherence, until a desired length or condition is met.

GEN AI MODELS

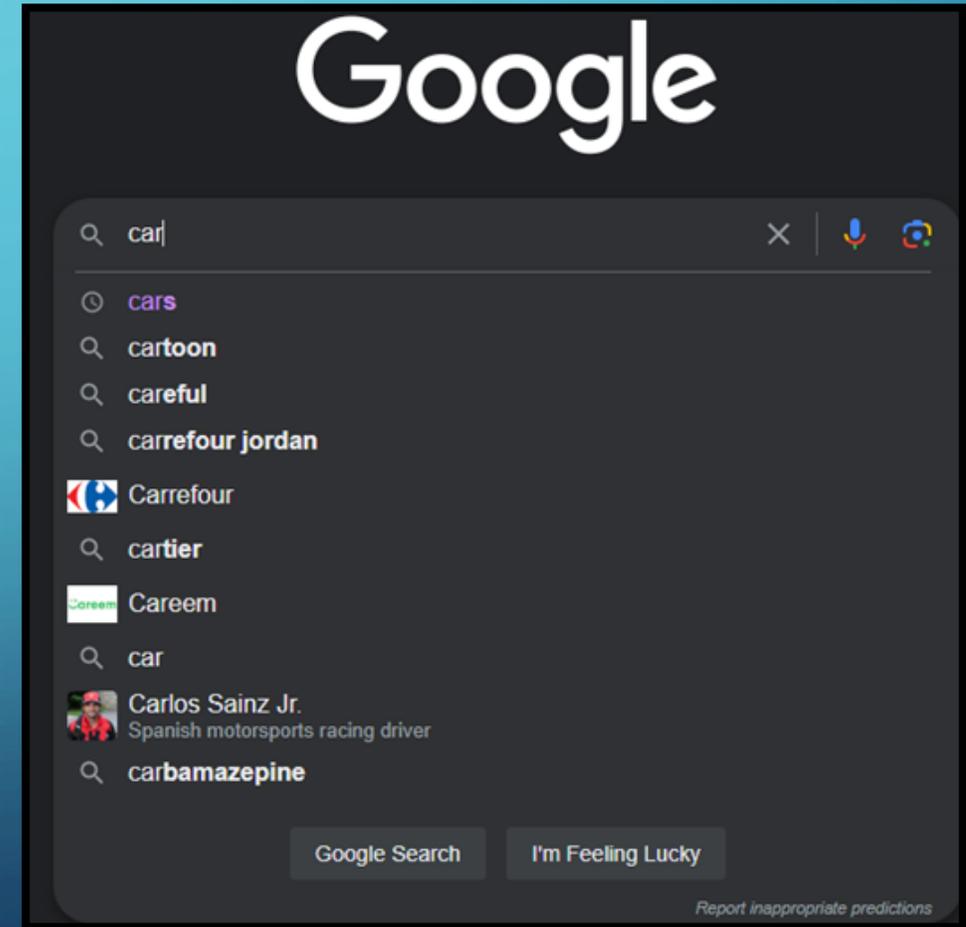
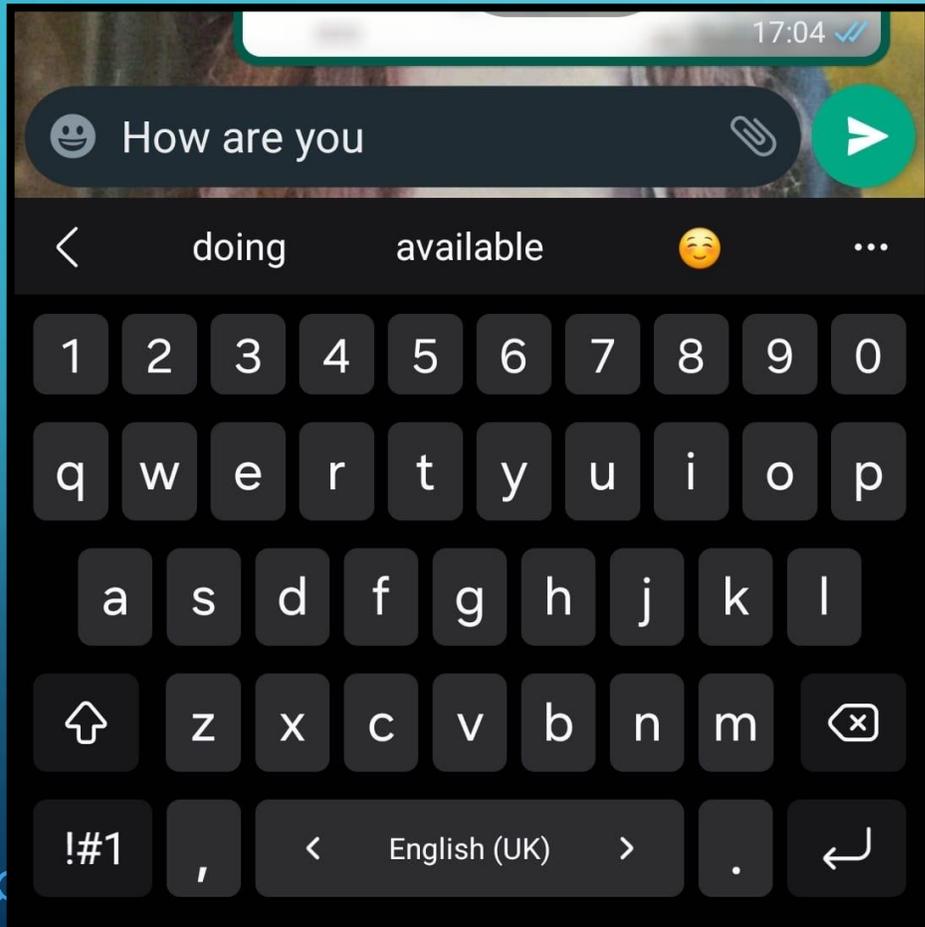
Generative Language Models

Input	Output	Example
Text	Text (Text to Text)	Google Translate Grammarly ChatBots: Gemini, ChatGPT
Text	Image (Text to Image)	https://wepik.com/ai Stable Diffusion
Text	Video (Text to Video)	Sora, https://ai.invideo.io/
Text	Audio (Text to Speech)	Google Translate, MS Narrator
Text	Decision or Task	Personal Assistant

TEXT TO TEXT: GOOGLE TRANSLATE



TEXT TO TEXT: AUTO COMPLETE



TEXT TO IMAGE

Sure, here is an image of a dog with red eyes and another dog with blue eyes standing next to each other:



What do you want to draw?

Draw

TEXT TO IMAGE

- <https://wepik.com/ai>
- DALL-E OpenAI

Free Online AI Image Generator (Text to Image)

Embrace your inner artist. Create art using artificial intelligence and your own words. By describing what you want to see, Wepik's AI image generator will make it happen. **Try It out!**

No style



Generate

No inspiration? Try these: [A photo of a magical forest city from the future with flying cars and robotic life](#)

TEXT TO VIDEO

- **Prompt:** A stylish woman walks down a Tokyo street filled with warm glowing neon and animated city signage.
- She wears a black leather jacket, a long red dress, and black boots, and carries a black purse.
- She wears sunglasses and red lipstick.
- She walks confidently and casually.
- The street is damp and reflective, creating a mirror effect of the colorful lights.
- Many pedestrians walk about.

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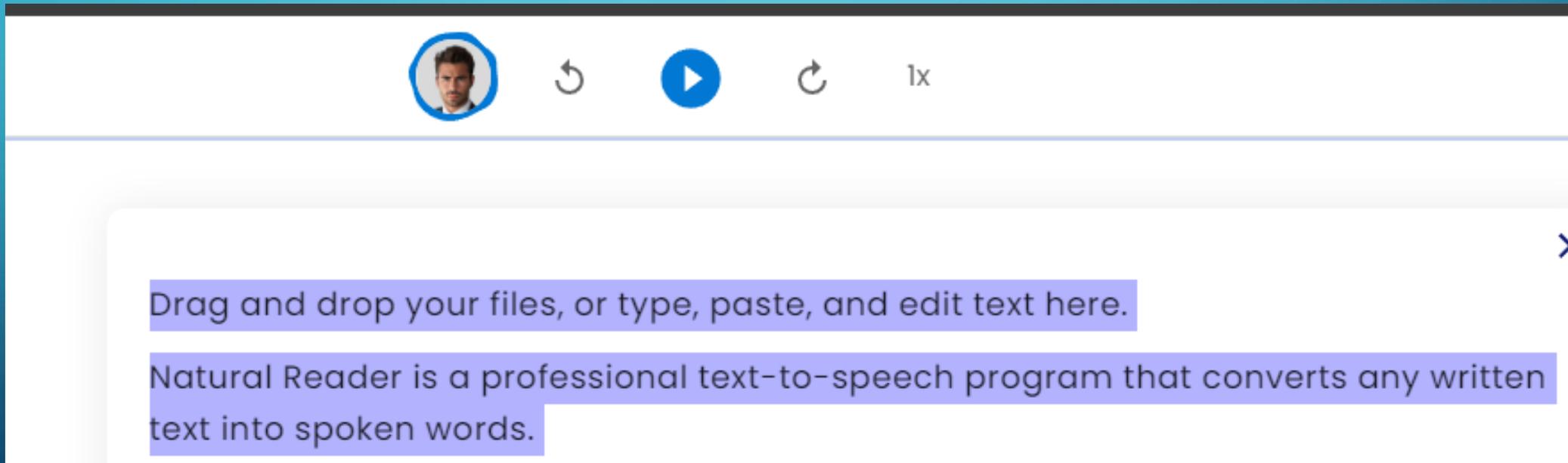


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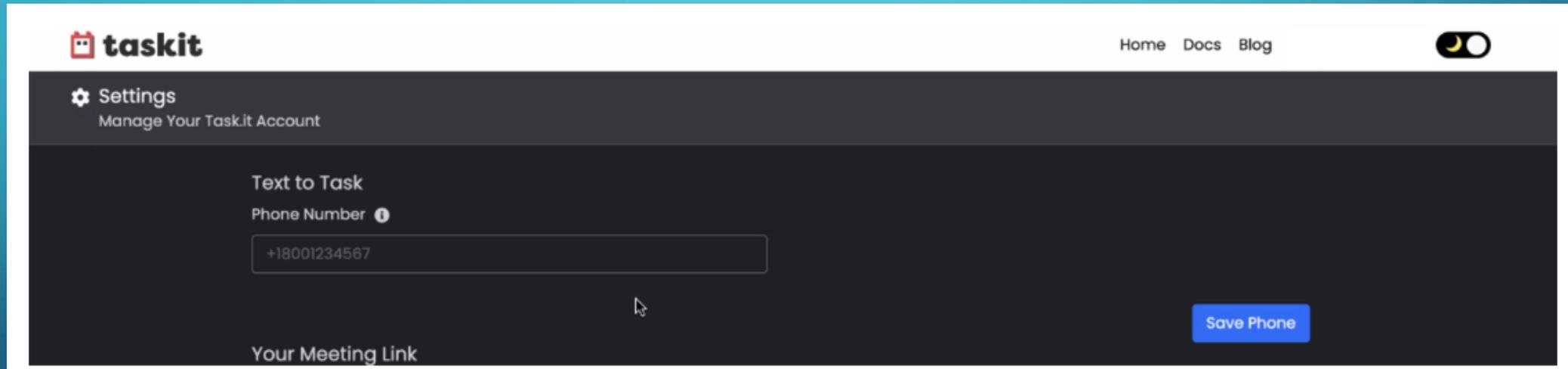
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TEXT TO SPEECH

- <https://www.naturalreaders.com/online/>



TEXT TO TASK



The screenshot shows the Taskit application interface. At the top left is the Taskit logo. On the top right, there are navigation links for 'Home', 'Docs', and 'Blog', along with a dark mode toggle switch. Below the navigation is a 'Settings' section with the subtitle 'Manage Your Task.it Account'. The main content area is titled 'Text to Task' and contains a 'Phone Number' field with an information icon. The input field contains the text '+18001234567'. A blue 'Save Phone' button is located to the right of the input field. At the bottom of the settings area, the text 'Your Meeting Link' is visible.

GOOGLE GEMINI CHATBOT (MARCH 2023)

The screenshot shows the Gemini chatbot interface. At the top, there's a navigation bar with the Gemini logo and a link to the Gemini Apps Privacy Hub. The main area features a large greeting, "Hello, Ned", followed by the question "How can I help you today?". Below this, there are four interactive cards with icons and text: "Explain how something works like an engineer", "Revise my writing and fix my grammar", "Brainstorm team bonding activities for our work retreat", and "Create a splashy watercolor image". A privacy notice is displayed below the cards, stating that conversations are processed by human reviewers. At the bottom, there is a text input field with the placeholder "Enter a prompt here" and icons for image generation and voice input. The left sidebar contains a menu with options like "New chat", "Recent" (with two chat items), "Help", "Activity", "Settings", and "Upgrade to Gemini Advanced". The bottom of the sidebar shows the user's location as "Amman, Jordan".

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GPT-3 (2020)

- 175 Billion parameters
- 500 billion words of training data
- Large Language Model (**LLM**)
 - Text generation



LARGE LANGUAGE MODEL (LLM)

- AI system
- Super-powered language learners that can absorb massive amounts of information communicate and generate human-like text
- Perform language translation, text summarization, question answering

GPT-3 (2020)

- All what they do is: incredible Auto complete
- The difference is the scale



CONVERSATIONAL AGENTS (CHATBOTS)

GOOGLE GEMINI

- No, a dog cannot give birth to a chicken. Here's why:
- * **Different species:** Dogs and chickens are completely different species. Animals can only reproduce with members of their own species.
- * **Biological differences:** Dogs are mammals and give birth to live young that they nurse. Chickens are birds and lay eggs that hatch into chicks. Their reproductive systems are entirely different.
- So, while it might be fun to imagine a dog laying eggs or hatching chicks, science tells us it's not possible.

CONVERSATIONAL AGENTS (CHATBOTS)

CHATGPT

- No, it's not possible for a dog to give birth to a chicken. Dogs and chickens belong to completely different species with distinct reproductive systems. Dogs belong to the species *Canis lupus familiaris*, while chickens belong to the species *Gallus gallus domesticus*. Each species reproduces through its own specific biological mechanisms, so cross-species reproduction like a dog giving birth to a chicken is biologically impossible.

CHATGPT EFFECTIVE PROMPT

CHATGPT PROMPT

- A phrase, question, or instruction that users give to ChatGPT
- It initiates a conversation or get it to perform a specific task
- It is the starting point that guides ChatGPT's response

CHATGPT PROMPT

Effective prompt significantly improve the quality and relevance of the generated responses

- Be Clear and Specific
- Provide Context: Include relevant background information
- Ask Open-ended Questions
- Use Proper Grammar and Syntax:
- Avoid Ambiguity

CHATGPT PROMPT

- Include Keywords
- Break Down Complex Questions
- Provide Feedback to ChatGPT's
- Experiment and Iterate with different prompts
- Ask for Clarification: ask ChatGPT to rephrase

CHATGPT PROMPT

- **Length Matters:** Indicate a desired word count in your prompt to control the response length.
- **Specify Style/Tone:** Want a formal report or a casual email
- **Provide References:** If relevant, offer links to articles or resources to guide ChatGPT's research for factual topics.

CHATGPT PROMPT

- **Start Simple:** Begin with basic prompts and gradually increase complexity as you get comfortable.
- **Experiment and Refine:** Try different prompts and see how they affect the output. Refine them based on the results.
- **Talk to the AI like you would talk to a person**

CHATGPT PROMPT

- Tell the AI to assume an identity or profession
- Use "Why do you think that?"
- Use "What evidence supports your answer?"
- re-ask the question. ChatGPT will often change its answer with each ask
- ChatGPT will retain its awareness of previous conversations if the current page is open

EFFECTIVE PROMPT - EXAMPLE

I am a senior product manager at Apple.

Have unveiled the latest Apple product in collaboration with Tesla and received 200% higher orders.

I want ChatGPT to Write an email to Time Cookie; my boss.

The email should include a header section, project background and business results.

Use clear and concise language and write in a confident friendly tone.

EFFECTIVE PROMPT - EXAMPLE

Task	Write an email to Time Cookie
Context	Unveiled the latest Apple product in collaboration with Tesla and received 200% higher orders
Exemplar	The email should include a header section, project background and business results
Persona	I am a senior product manager at Apple
Format	email
Tone	Use clear and concise language and write in a confident friendly tone

CHATGPT APPLICATIONS AND CHALLENGES

APPLICATIONS OF CHATGPT

- **Customer Service:** ChatGPT can provide instant, 24/7 customer support, answering queries and resolving issues via chat interfaces.
- **Content Creation:** It aids in writing articles, generating creative content, and even composing poetry or stories.
- **Education and Tutoring:** ChatGPT can assist in learning by providing explanations, summaries, and answering student questions.

APPLICATIONS OF CHATGPT

- **Programming Help:** The AI can assist in writing and debugging code, explaining programming concepts, and providing coding examples.
- **Entertainment:** Chatbots for interactive storytelling, gaming, and virtual companionship are other areas where ChatGPT shines.

CHALLENGES OF CHAT GPT

- **Understanding Context:** Chatbots often struggle to understand the context of a conversation, leading to irrelevant or inaccurate responses
- **Generating Coherent Text:** Ensuring that generated text is coherent and maintains a logical flow, especially in longer conversations
- **Avoiding Bias:** Chatbots can inadvertently produce biased or inappropriate responses, reflecting biases present in the training data.

CHALLENGES OF CHAT GPT

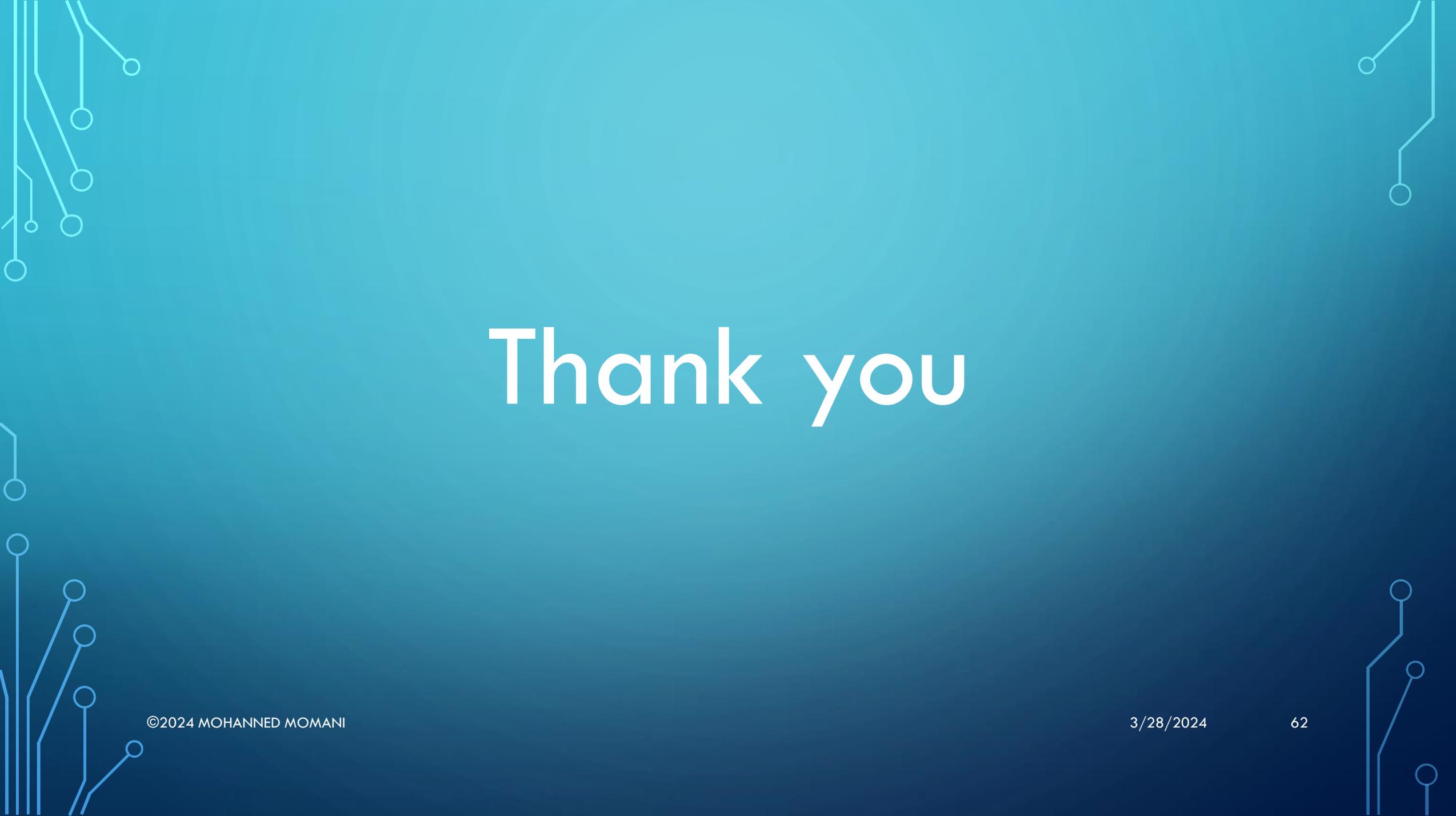
- **Handling Ambiguity:** Ambiguous input or unclear user intent can confuse chatbots, leading to incorrect interpretations and responses.
- **Handling ambiguity** effectively is essential for accuracy
- **Dealing with Scale:** Scaling chatbots to handle large volumes of conversations while maintaining performance and response in real-time applications.

CHALLENGES OF CHAT GPT

- **Misinformation:** Plausible-sounding but incorrect or nonsensical answers, which may spread misinformation if not checked.
- **Data Privacy:** When used in applications like customer service, the handling of sensitive personal data by AI poses privacy concerns.
- **Dependence and Misuse:** Overreliance on AI for tasks like homework assistance can lead to issues with learning

YOUR FEEDBACK IS IMPORTANT TO US



The background is a solid teal color with a subtle gradient. In the four corners, there are decorative white line-art elements resembling circuit traces or neural network connections, with small circles at the end of the lines.

Thank you