Artificial Intelligence

A Top-Down Look

1

Education

BSIT – Information Technology

MAEd – Adult/Online Education

Employment

Retired US Navy Chief Petty Officer

Microsoft Technical Support

Muscular Dystrophy Assn.

Tucson VA Hospital

Volunteer

New Adventures in Learning

Computer Booters of Sun Lakes

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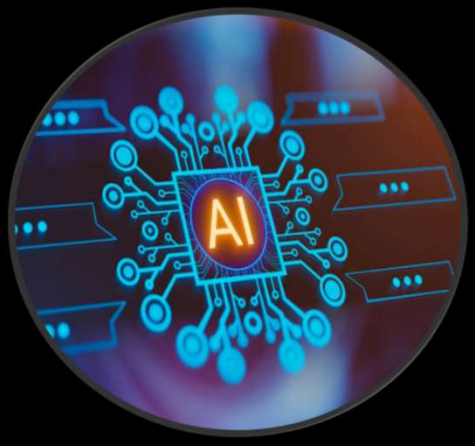
2

Introduction

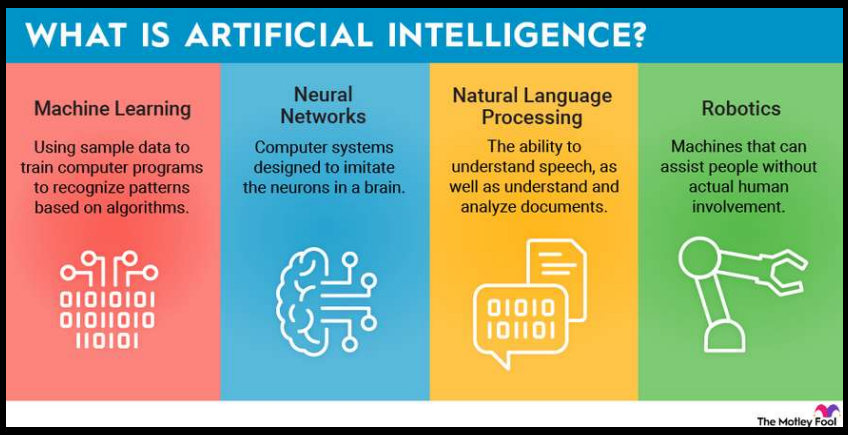
- Artificial Intelligence, or AI for short, is revolutionizing our world in ways we could have never imagined. From self-driving cars to personalized healthcare, it has the potential to transform our lives in a myriad of ways.



3

What Is A.I.

- **Artificial Intelligence (AI)** is the ability of machines or computer programs to learn, reason, and make decisions on their own.
- This means that machines can process information and adapt to new situations, similar to the way that humans do.

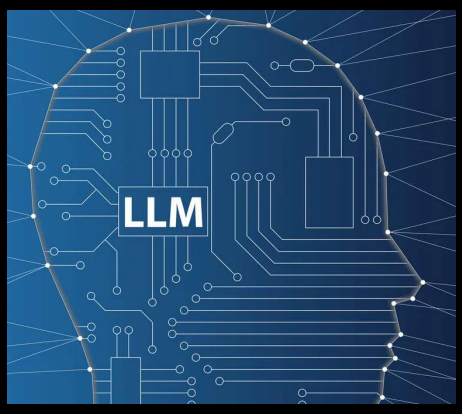


4

ChatBots

5

LLM & ChatBots

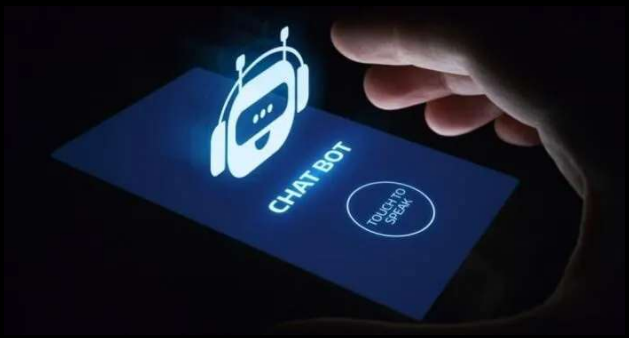


When you ask an AI chatbot like ChatGPT, Claude, Copilot or Gemini to do something, it may seem like you're interacting with a person.

But you're not. These chatbots don't actually understand the meaning of words the way we do.

6

LLM & ChatBots



- They're the interface we use to interact with large language models, or LLMs.
- This underlying technology is trained to recognize how words are used, and which words frequently appear together, so it can predict future words, sentences or paragraphs.

7

ChatGPT

ChatGPT is an artificial intelligence (AI) chatbot that uses natural language processing to create humanlike conversational dialogue.

ChatGPT is a form of generative AI -- a tool that lets users enter prompts to receive humanlike images, text or videos that are created by AI.

The GPT stands for "Generative Pre-trained Transformer," which refers to how ChatGPT processes requests and formulates responses.

8

ChatGPT Uses

1. Quickly Write a Customized Resume and Cover Letter
2. Improve Your Health
3. Explain Complex Topics
4. Solve Tricky Math Problems Step-by-Step
5. Get Relationship Advice
6. Write Music In Almost Any Genre
7. Write, Debug, and Explain Code
8. Create, Edit, and Modify Media Files
9. Write Essays on Almost Any Topic
10. A Chat Companion

9

Text 2 Image AI

A technology that uses artificial intelligence (AI) to create images based on text

How it works

- Users provide a text prompt
- The AI model generates an image that matches the description.
- The quality of the image can vary depending on the complexity of the text, the size and quality of the training dataset, and the AI model's architecture.

10

Text 2 Image AI

Benefits

Text-to-image AI can be used to:

- Generate images quickly: Content creators can generate high-quality images in seconds to keep up with posting schedules.
- Produce images for specific themes or campaigns: Users can create images tailored to specific themes or campaigns.

11

Text 2 Image AI Resources

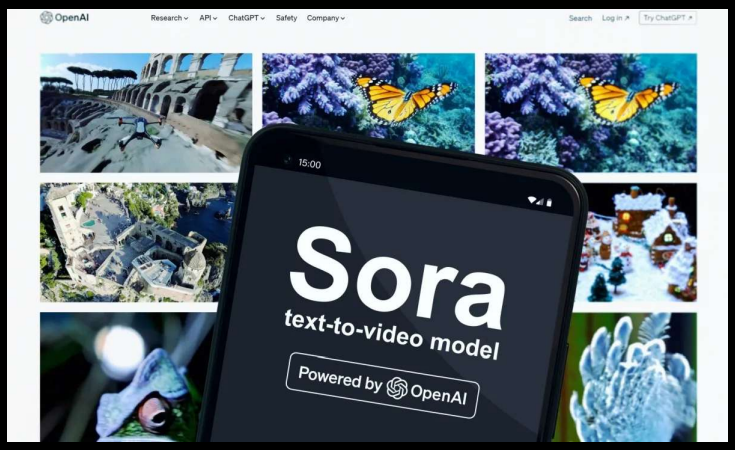
- Adobe Firefly: An AI image generator in Adobe Express that can create images from text
- OpenAI's DALL-E: One of the first text-to-image models to gain widespread public attention
- DALL-E 2: A successor to DALL-E that can generate more complex and realistic images
- Stable Diffusion: A text-to-image model that was publicly released in August 2022
- Canva: An online text-to-image app that offers style options like Watercolor, Filmic, Neon, Color Pencil, and Retrowave
- Imagen: A text-to-image generation feature on Vertex AI in Google Cloud

12

OpenAI Sora – Text 2 Video

Creating Videos from Text

- Sora can create videos of up to 60 seconds featuring highly detailed scenes, complex camera motion, and multiple characters with vibrant emotions.



13

Text 2 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.

14

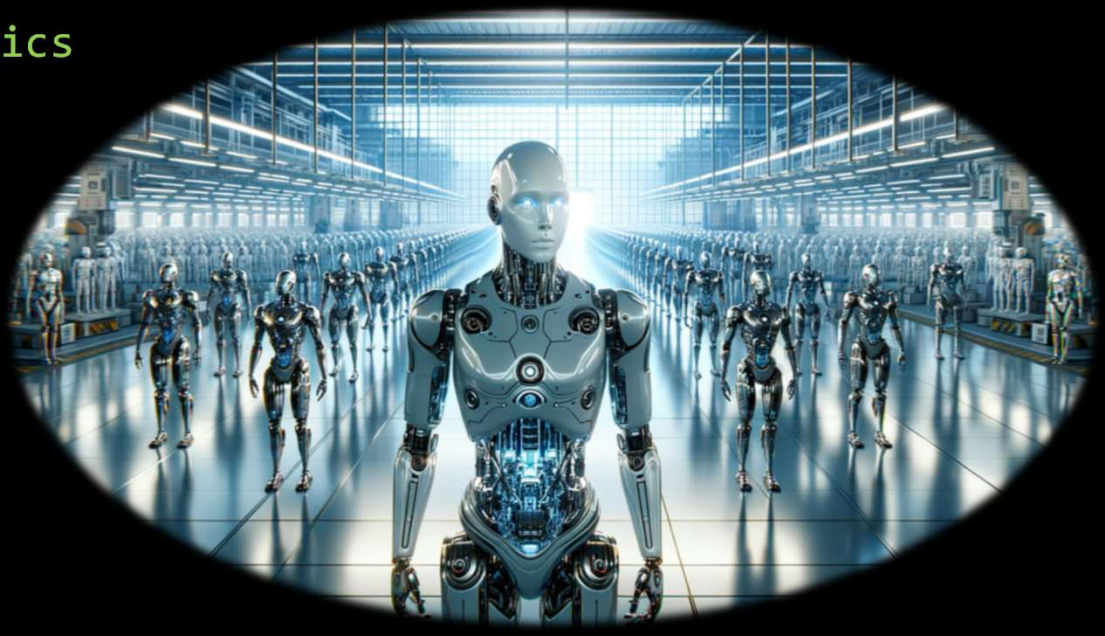
Text 2 Video

Prompt:

Prompt: Historical footage of California during the gold rush.

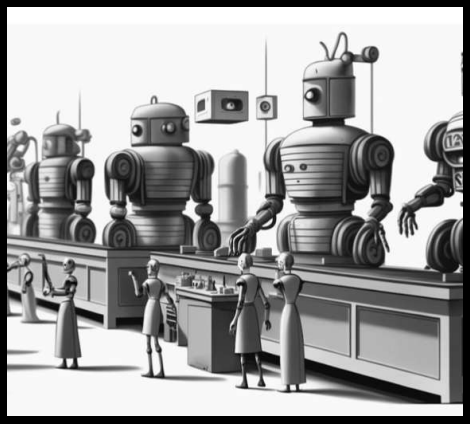
15

Robotics



16

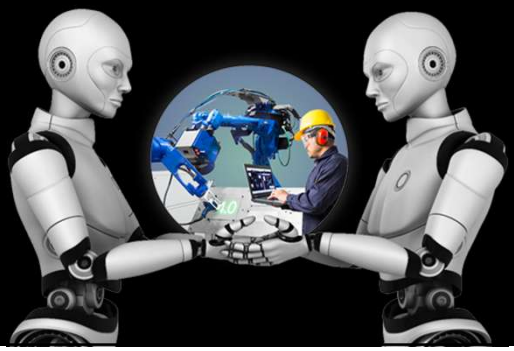
Robotics



- Robotics is a field that focuses on designing, building, and programming robots. Robots can perform tasks automatically, usually through a combination of sensors, "actuators," and computer systems.
- These machines come in many different shapes and sizes–from small ones that fit in your hand, to large ones used in factories.
- They can be controlled remotely, or they can be programmed to operate on their own.

17

Robotics



The way a robot works depends on its design and purpose. However, most of them have some basic components that allow them to "sense, think, and act":

- Robots use sensors to measure their environment and to gather information. Examples include cameras, microphones, and infrared vision.
- They also have processors, or computer systems that process the data collected by their sensors. These systems can be programmed to control the robot's movement.
- Actuators are things like motors, grippers, and wheels that allow robots to move and interact with their environment.

18

Types of Robots

Here are some examples of different types of robots being used in various fields:

- Industrial robots are used in manufacturing and production to perform tasks like welding, painting, and assembly.
- Service robots are designed to help us with tasks like cleaning, cooking, and healthcare. Service robots include vacuum cleaners, robotic pets, and surgical robots.
- Military robots are used by the military for tasks like investigation, bomb disposal, and even combat.
- Exploration robots explore places that are too dangerous or difficult for us to reach. These include rovers used on Mars and deep-sea submersibles.

19

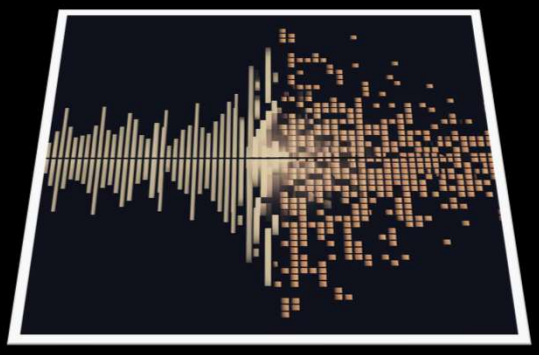
Robots and Elder Care

20

Voice Cloning

21

What is Voice Cloning



- AI algorithms analyze a person's voice recordings to learn their unique speech patterns, pitch, intonation, and other vocal nuances, then use this data to generate new speech that sounds like them.

22

How Voice Cloning Works

- Involves creating a synthetic, yet remarkably realistic, replica of a person's voice using advanced artificial intelligence (AI) and machine learning algorithms.
- This technology has seen rapid advancements in recent years, making it possible to generate voices nearly indistinguishable from human speech.

23

Voice Cloning Applications

Accessibility: Creating synthetic voices for people with speech impairments.

Entertainment: Generating voiceovers with celebrity voices.

Customer service: Personalizing customer interactions with a familiar voice.

Education: Creating audio learning materials with a specific voice.

24

Voice Cloning Ethical Concerns

- **Misinformation**: Creating fake audio recordings to spread misinformation or impersonate someone.
- **Privacy violation**: Using someone's voice without their consent.
- **Fraudulent activity**: Scammers using cloned voices to trick people into divulging sensitive information.

25

Deepfakes

26

DeepFakes

27

Deepfakes History

- In 2017, a user named "deepfakes" posted a series of videos on the community platform Reddit.
- They included the faces of popular actors, but these realistic videos which were generated using machine learning algorithms.
- The videos quickly went viral and sparked growing concerns about the potential misuse of this technology.

28

Deepfakes

- Deepfakes are a type of synthetic media created with AI. They are a relatively new technology, but they have the potential to be used for a variety of purposes.
- What's concerning is that they could be used to create fake political ads, or to damage someone's reputation. However, they could also be used for positive purposes, such as creating educational content or making movies more realistic.

29

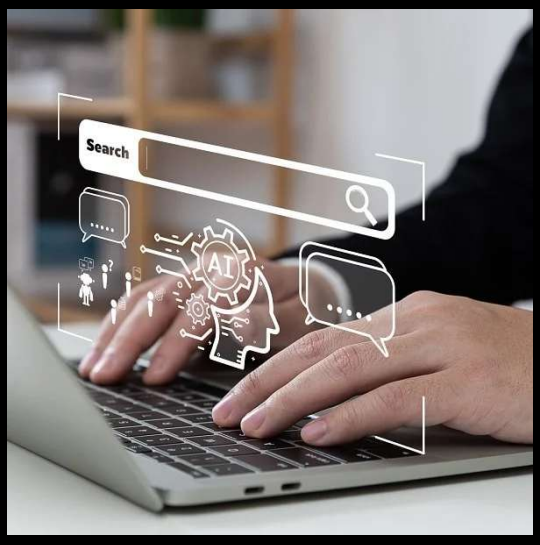
DeepFakes

30

AI Search

31

What is AI Search



- AI search, or AI-powered search, uses artificial intelligence (AI) to improve search experiences.
- AI search can provide a more natural and intelligent way to retrieve information than traditional keyword searches.
- It can understand context and meaning, rather than just matching words, to provide more specific and nuanced information.
- Information vs. Websites

32

Real World Examples

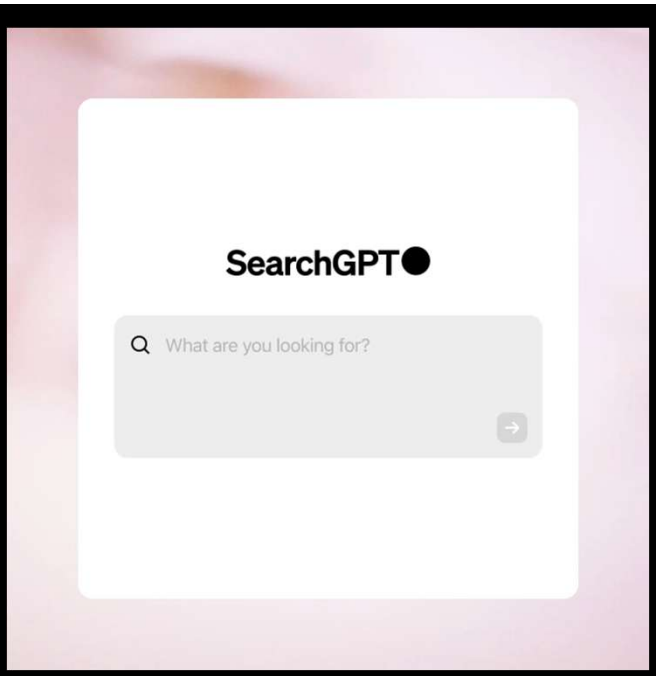
- Types
  - Natural Language Processing
  - Visual Search
  - Voice Search
- Applications
  - Search engines (Google, Bing, etc.)
  - E-commerce (Amazon, eBay)
  - Personalized recommendations (Netflix, Spotify)
  - Virtual assistants (Siri, Alexa)

33

SearchGPT

Difference Between The Google Search Engine And ChatGPT

- Functionality: Google Search is a search engine that provides information by indexing the web, while ChatGPT is an AI language model that generates human-like responses to text inputs.



34

Real World Examples

35

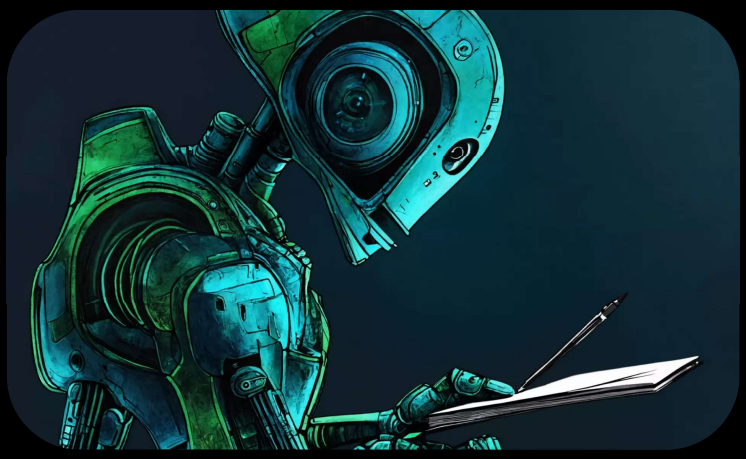
Real World Examples

- Manufacturing robots.
- Self-driving cars.
- Smart assistants.
- Healthcare management.
- Automated financial investing.
- Virtual travel booking agent.
- Social media monitoring.
- Marketing chatbots.

36

Text2Speech

- E-learning tools
- Accessibility applications
- Translation applications
- Voice search applications
- Messaging applications
- Audiobook applications
- Virtual assistants



37

In Closing

38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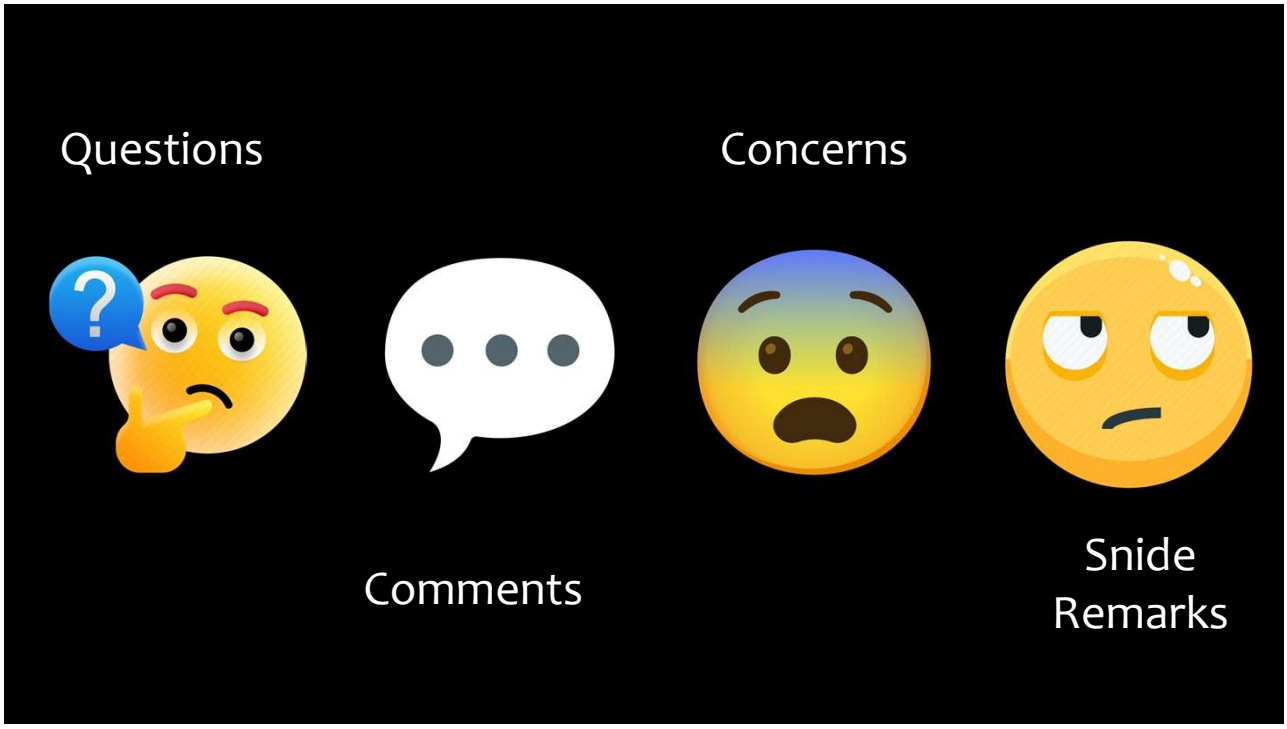
Questions
Concerns
Comments
Snide Remarks

40