



Tech Topics: Artificial Intelligence

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What Makes Generative Artificial Intelligence Different?

Generative artificial intelligence is 'Technology that creates content — including text, images, video and computer code — by identifying patterns in large quantities of training data, and then creating original material that has similar characteristics. Examples include ChatGPT for text and [DALL-E](#) and [Midjourney](#) for images.'¹

We put in a prompt in without further instructions and the machine executes 'human' outputs like creativity, conversation, and art.

Popular engines for generative artificial intelligence

Text-based tools

- Bing AI (Open AI)
- ChatGPT-4 (OpenAI)
- Google Bard

Image-based tools

- Midjourney
- DALL-E 2 (OpenAI)
- Google Duet

¹ *Artificial Intelligence Glossary: Neural Networks and Other Terms Explained*. New York Times – Online. <https://www.nytimes.com/article/ai-artificial-intelligence-glossary.html>

Definitions

ChatGPT: Chat Generative Pre-trained Transformer

GPT: Generative Pre-trained Transformer

Language Models: Language predictors that take information and assign a probability of what word will come next. We have been using these for years with our phones and in e-mail.

Neural Network: ‘Machines programmed to learn from examples.’²

Transformer: ‘Neural network architecture useful for understanding language that does not have to analyze words one at a time but can look at an entire sentence at once.’³

Examples & Demonstration

What can these tools be used to do for the everyday person?⁴

- Write code
- Compose e-mails
- Generate recipes
- Plan gardens
- Summarize long documents

Drawbacks

While there are many benefits of the technology, there are also some drawbacks.

- 1) The speed in which it has been deployed and put into the hands of many people.
 - a. Geoffrey Hinton, considered a pioneer of artificial neural networks, left Google to call attention to the risks posed by intelligent machines. He does not necessarily believe we should (or can) put a stop to AI completely, but he thinks there should be a pause.⁵
 - b. “We have a perfect storm of corporate irresponsibility, widespread adoption, lack of regulation and a huge number of unknowns.”⁶

² *Ask a Techspert: What is Generative AI:* <https://blog.google/inside-google/googlers/ask-a-techspert/what-is-generative-ai/>

³ *Artificial Intelligence Glossary: Neural Networks and Other Terms Explained.* <https://www.nytimes.com/article/ai-artificial-intelligence-glossary.html>

⁴ *35 Ways Real People Are Using A.I. Right Now:* <https://www.nytimes.com/interactive/2023/04/14/upshot/up-ai-uses.html>

⁵ *What Really Made Geoffrey Hinton Into an AI Doomer.* <https://www.wired.com/story/geoffrey-hinton-ai-chatgpt-dangers/>

⁶ *Elon Musk and Others Call for Pause on A.I. Citing ‘Profound Risks to Society’.* <https://www.nytimes.com/2023/03/29/technology/ai-artificial-intelligence-musk-risks.html>

- c. An open letter to pause the development of AI from the Future of Life Institute. This letter has been signed by influential leaders in the technology space such as Elon Musk, Steve Wozniak, and Tristan Harris.
- 2) Ability to create fake news such as deepfakes. It can create plausible, but false statements and the art generators can produce realistic images to correspond with the mis-information.
- 3) Hallucinations
 - a. '[AI Systems] often get facts wrong and will make up information without warning, a phenomenon that researchers call "hallucination." Because the systems deliver all information with what seems like complete confidence, it is often difficult for people to tell what is right and what is wrong.'
- 4) Experts don't exactly know how it is working.⁸
- 5) In the near future, individuals, not only corporations will be able to replicate this technology and remove any safe-guards in place to ask it to perform extremely harmful acts.⁹

Benefits

- 1) Produce medical efficiencies and break-throughs
 - a. 'Last year, after a test on more than 275,000 breast cancer cases, Kheiron reported that its A.I. software matched the performance of human radiologists when acting as the second reader of mammography scans. It also cut down on radiologists' workloads by at least 30 percent because it reduced the number of X-rays they needed to read.'
 - b. Create new proteins¹⁰
- 2) More effective communication and expression
 - a. Taking an idea and making it real, primarily through coding. People without coding skills can now develop ideas and ask A.I. to execute how it works. Even developers who know how to code are 50% more productive according to Satya Nadella, Microsoft CEO.¹¹
 - b. Accessible gaming using Project Gameface¹²

⁷ *Elon Musk and Others Call for Pause on A.I. Citing 'Profound Risks to Society'.*

<https://www.nytimes.com/2023/03/29/technology/ai-artificial-intelligence-musk-risks.html>

⁸ 60 Minutes: Artificial Intelligence Revolution: <https://youtu.be/TUCnsS72Q9s>

⁹ Your Undivided Attention Podcast: <https://www.humanetech.com/podcast/ai-myths-and-misconceptions>

¹⁰ *A.I. Turns Its Artistry to Creating New Human Proteins:* <https://www.nytimes.com/2023/01/09/science/artificial-intelligence-proteins.html>

¹¹ *Microsoft CEO Satya Nadella on AI:* <https://time.com/6278841/microsoft-ceo-satya-nadella-on-artificial-intelligence/>

¹² *Introducing Project Gameface: A hands-free, AI-powered gaming mouse:* <https://blog.google/technology/ai/google-project-gameface/>

- c. The company Earth Species is using artificial intelligence to decode animal vocalizations and advancing conservation efforts.
- 3) Combat climate challenges¹³
- 4) Provide 1:1 support for workers and students
 - a. One example for work productivity is Microsoft 365 Copilot¹⁴
 - b. Khan Academy, an open online learning academy will use Khanmigo (an A.I. powered tutor) to provide assistance to individuals.¹⁵
- 5) Taking large data sets, summarizing them, and making useful inferences

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¹³ How 4 Startups Are Using AI to Solve Climate Change Challenges: <https://blog.google/outreach-initiatives/entrepreneurs/how-4-startups-are-using-ai-to-solve-climate-change-challenges/>

¹⁴ Introducing Microsoft 365 Copilot – Your Copilot for Work: <https://blogs.microsoft.com/blog/2023/03/16/introducing-microsoft-365-copilot-your-copilot-for-work/>

¹⁵ Khan Labs: <https://www.khanacademy.org/khan-labs>

Stokel-Walker, C. *Generative AI's Dirty Secret*. Wired Magazine. May, 2023. p22.

Additional Resources

60 Minutes - Interview at Google: <https://www.youtube.com/watch?v=W6HpE1rhs7w>

60 Minutes - Full Episode: Artificial Intelligence Revolution: <https://youtu.be/TUCnsS72Q9s>

Bing Chat: [Bing AI - Search](#) (must be used from Microsoft Edge browser currently)

Center for Humane Technology: <https://www.humanetech.com/>

Google's AI Principles: <https://ai.google/responsibility/principles/>

Google Bard: <https://bard.google.com/>

LinkedIn Learning: Generative AI: Go to [balibrary.org/databases#linkedin](https://www.linkedin.com/learning) > Click on LinkedIn > Login with your Barrington Area Library card and search Generative AI. There are currently over 20 videos on the topic.