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From Wikipedia, the free encyclopedia

(Redirected from [Generative AI](#))

Not to be confused with [Artificial general intelligence](#).



[*Théâtre D'opéra Spatial*](#), an image made using generative AI

Part of a series on

[Artificial intelligence \(AI\)](#)



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Generative artificial intelligence (Generative AI, GenAI,^[1] or GAI) is a subset of [artificial intelligence](#) that uses generative models to produce text, images, videos, or other forms of data.^{[2][3][4]} These models [learn](#) the underlying patterns and structures of their [training data](#) and use them to produce new data^{[5][6]} based on the input, which often comes in the form of natural language [prompts](#).^{[7][8]}

Improvements in [transformer](#)-based [deep neural networks](#), particularly [large language models](#) (LLMs), enabled an [AI boom](#) of generative AI systems in the 2020s. These include [chatbots](#) such as [ChatGPT](#), [Copilot](#), [Gemini](#), and [LLaMA](#); [text-to-image artificial intelligence image generation](#) systems such as [Stable Diffusion](#), [Midjourney](#), and [DALL-E](#); and [text-to-video](#) AI generators such as [Sora](#).^{[9][10][11][12]} Companies such as [OpenAI](#), [Anthropic](#), [Microsoft](#), [Google](#), and [Baidu](#) as well as numerous smaller firms have developed generative AI models.^{[7][13][14]}

Generative AI has uses across a wide range of industries, including software development, healthcare, finance, entertainment, customer service,^[15] sales and marketing,^[16] art, writing,^[17] fashion,^[18] and product design.^[19] However, concerns have been raised about the potential misuse of generative AI such as [cybercrime](#), the use of [fake news](#) or [deepfakes](#) to deceive or manipulate people, and [the mass replacement of human jobs](#).^{[20][21]} Intellectual property law concerns also exist around generative models that are trained on and emulate copyrighted works of art.^[22]

Complex Multi-Column Table:

Country	GDP (Billion \$)	Population (Million)	Growth Rate (%)
USA	23,000	331	2.1
China	17,700	1440	5.5
Germany	4,200	83	1.2
India	3,700	1400	6.8

History

[\[edit\]](#)

Main article: [History of artificial intelligence](#)

Early history

[\[edit\]](#)

Since its inception, researchers in the field have raised philosophical and ethical arguments about the nature of the human mind and the consequences of creating artificial beings with human-like intelligence; these issues have previously been explored by [myth](#), [fiction](#) and [philosophy](#) since antiquity.^[23] The concept of automated art dates back at least to the [automata](#) of [ancient Greek civilization](#), where inventors such as [Daedalus](#) and [Hero of Alexandria](#) were described as having designed machines capable of writing text, generating sounds, and playing music.^{[24][25]} The tradition of creative automations has flourished throughout history, exemplified by [Maillardet's automaton](#) created in the early 1800s.^[26] [Markov chains](#) have long been used to model natural languages since their development by Russian mathematician [Andrey Markov](#) in the early 20th century. Markov published his first paper on the topic in 1906,^{[27][28]} and analyzed the pattern of vowels and consonants in the novel [Eugeny Onegin](#) using Markov chains. Once a Markov chain is learned on a [text corpus](#), it can then be used as a probabilistic text generator.^{[29][30]}

Academic artificial intelligence

[\[edit\]](#)

The academic discipline of artificial intelligence was established at a research [workshop](#) held at [Dartmouth College](#) in 1956 and has experienced several waves of advancement and optimism in the decades since.^[31] Artificial Intelligence research began in the 1950s with works like [Computing Machinery and Intelligence](#) (1950) and the 1956 [Dartmouth Summer Research Project on AI](#). Since the 1950s, artists and researchers have used artificial intelligence to create artistic works. By the early 1970s, [Harold Cohen](#) was creating and exhibiting generative AI works created by [AARON](#), the computer program Cohen created to generate paintings.^[32]

The terms generative AI planning or generative planning were used in the 1980s and 1990s to refer to [AI planning](#) systems, especially [computer-aided process planning](#), used to generate sequences of actions to reach a specified goal.^{[33][34]} Generative AI planning systems used [symbolic AI](#) methods such as [state space search](#) and [constraint satisfaction](#) and were a "relatively mature" technology by the early 1990s. They were used to generate crisis action

plans for military use,^[35] process plans for manufacturing^[33] and decision plans such as in prototype autonomous spacecraft.^[36]

Simple Table:

Product	Category	Price	Stock	Rating
Laptop A	Electronics	\$1200	25	4.5
Laptop B	Electronics	\$950	30	4.2
Smartphone X	Mobile Devices	\$699	50	4.7
Headphones Y	Accessories	\$150	80	4.3
