

**Artificial intelligence (AI)** refers to the capability of [computational systems](#) to perform tasks typically associated with [human intelligence](#), such as learning, reasoning, problem-solving, perception, and decision-making. It is a [field of research](#) in [computer science](#) that develops and studies methods and [software](#) that enable machines to [perceive their environment](#) and use [learning](#) and [intelligence](#) to take actions that maximize their chances of achieving defined goals.<sup>[1]</sup> Such machines may be called AIs.

High-profile [applications of AI](#) include advanced [web search engines](#) (e.g., [Google Search](#)); [recommendation systems](#) (used by [YouTube](#), [Amazon](#), and [Netflix](#)); [virtual assistants](#) (e.g., [Google Assistant](#), [Siri](#), and [Alexa](#)); [autonomous vehicles](#) (e.g., [Waymo](#)); [generative and creative tools](#) (e.g., [ChatGPT](#) and [AI art](#)); and [superhuman play and analysis in strategy games](#) (e.g., [chess](#) and [Go](#)). However, many AI applications are not perceived as AI: "A lot of cutting edge AI has filtered into general applications, often without being called AI because once something becomes useful enough and common enough it's [not labeled AI anymore](#)."<sup>[2][3]</sup>

Various subfields of AI research are centered around particular goals and the use of particular tools. The traditional goals of AI research include [learning](#), [reasoning](#), [knowledge representation](#), [planning](#), [natural language processing](#), [perception](#), and support for [robotics](#).<sup>[a]</sup> To reach these goals, AI researchers have adapted and integrated a wide range of techniques, including [search](#) and [mathematical optimization](#), [formal logic](#), [artificial neural networks](#), and methods based on [statistics](#), [operations research](#), and [economics](#).<sup>[b]</sup> AI also draws upon [psychology](#), [linguistics](#), [philosophy](#), [neuroscience](#), and other fields.<sup>[4]</sup> Some companies, such as [OpenAI](#), [Google DeepMind](#) and [Meta](#), aim to create [artificial general intelligence](#) (AGI)—AI that can complete virtually any cognitive task at least as well as humans.<sup>[5]</sup>

Artificial intelligence was founded as an academic discipline in 1956,<sup>[6]</sup> and the field went through multiple cycles of optimism throughout its history,<sup>[7][8]</sup> followed by periods of disappointment and loss of funding, known as AI winters.<sup>[9][10]</sup> Funding and interest vastly increased after 2012 when graphics processing units started being used to accelerate neural networks, and deep learning outperformed previous AI techniques.<sup>[11]</sup> This growth accelerated further after 2017 with the transformer architecture.<sup>[12]</sup> In the 2020s, the period of rapid progress marked by advanced generative AI became known as the AI boom. Generative AI and its ability to create and modify content exposed several unintended consequences and harms in the present and raised ethical concerns about AI's long-term effects and potential existential risks, prompting discussions about regulatory policies to ensure the safety and benefits of the technology.