



# OpenAI

**OpenAI** is an American artificial intelligence (AI) research organization founded in December 2015 and headquartered in San Francisco, California. Its mission is to develop "safe and beneficial" artificial general intelligence (AGI), which it defines as "highly autonomous systems that outperform humans at most economically valuable work".<sup>[5]</sup> As a leading organization in the ongoing AI boom,<sup>[6]</sup> OpenAI is known for the GPT family of large language models, the DALL-E series of text-to-image models, and a text-to-video model named Sora.<sup>[7][8]</sup> Its release of ChatGPT in November 2022 has been credited with catalyzing widespread interest in generative AI.

The organization consists of the non-profit OpenAI, Inc.,<sup>[9]</sup> registered in Delaware, and its for-profit subsidiary introduced in 2019, OpenAI Global, LLC.<sup>[10]</sup> Microsoft owns roughly 49% of OpenAI's equity, having invested US\$13 billion.<sup>[11]</sup> It also provides computing resources to OpenAI through its Microsoft Azure cloud platform.<sup>[12]</sup>


In 2023 and 2024, OpenAI faced multiple lawsuits for alleged copyright infringement against authors and media companies whose work was used to train some of OpenAI's products. In November 2023, OpenAI's board removed Sam Altman as CEO, citing a lack of confidence in him, and then reinstated him five days later after negotiations resulting in a reconstructed board. Many AGI safety researchers left OpenAI in 2024.<sup>[13]</sup>

## History

### 2015–2018: Non-profit beginnings

In December 2015, OpenAI was founded by Sam Altman, Elon Musk, Ilya Sutskever, Greg Brockman, Trevor Blackwell, Vicki Cheung, Andrej Karpathy, Durk Kingma, John Schulman, Pamela Vagata, and Wojciech Zaremba, with Sam Altman and Elon Musk as the co-chairs. \$1 billion in total was pledged by Sam Altman, Greg Brockman, Elon Musk, Reid Hoffman, Jessica Livingston, Peter Thiel, Amazon Web

### OpenAI, Inc.

	<b>OpenAI</b>
<b>Company type</b>	<u>Private</u>
<b>Industry</b>	<u>Artificial intelligence</u>
<b>Founded</b>	December 11, 2015
<b>Headquarters</b>	<u>San Francisco, California, U.S.</u> <sup>[1]</sup>
<b>Key people</b>	<u>Bret Taylor</u> ( <u>chairman</u> ) <u>Sam Altman</u> ( <u>CEO</u> ) <u>Greg Brockman</u> ( <u>president</u> ) <u>Sarah Friar</u> ( <u>CFO</u> ) <sup>[2]</sup>
<b>Products</b>	<u>OpenAI Five</u> <u>GPT-1</u> · <u>2</u> · <u>3</u> · <u>4</u> · <u>4o</u> <u>DALL-E</u> <u>OpenAI Codex</u> <u>ChatGPT</u> <u>SearchGPT</u> <u>Sora</u> <u>o1</u>
<b>Revenue</b>	▲ <u>US\$28 million</u> <sup>[3]</sup> (2022)
<b>Net income</b>	▼ <u>US\$−540 million</u> <sup>[3]</sup> (2022)
<b>Number of employees</b>	c. 1,700 (2024) <sup>[2][4]</sup>
<b>Website</b>	<u>openai.com</u> ( <u>https://openai.com/</u> )

Services (AWS), Infosys, and YC Research.<sup>[14][15]</sup> The actual collected total amount of contributions was only \$130 million until 2019.<sup>[10]</sup> According to an investigation led by TechCrunch, Musk was its largest donor while YC Research did not contribute anything at all.<sup>[16]</sup> The organization stated it would "freely collaborate" with other institutions and researchers by making its patents and research open to the public.<sup>[17][18]</sup> OpenAI was initially run from Brockman's living room.<sup>[19]</sup> It was later headquartered at the Pioneer Building in the Mission District, San Francisco.<sup>[20][21]</sup>



Former headquarters at the Pioneer Building in San Francisco

According to Wired, Brockman met with Yoshua Bengio, one of the "founding fathers" of deep learning, and drew up a list of the "best researchers in the field".<sup>[22]</sup> Brockman was able to hire nine of them as the first employees in December 2015.<sup>[22]</sup> In 2016, OpenAI paid corporate-level (rather than nonprofit-level) salaries, but did not pay AI researchers salaries comparable to those of Facebook or Google.<sup>[22]</sup>

Microsoft's Peter Lee stated that the cost of a top AI researcher exceeds the cost of a top NFL quarterback prospect.<sup>[22]</sup> OpenAI's potential and mission drew these researchers to the firm; a Google employee said he was willing to leave Google for OpenAI "partly because of the very strong group of people and, to a very large extent, because of its mission."<sup>[22]</sup> Brockman stated that "the best thing that I could imagine doing was moving humanity closer to building real AI in a safe way."<sup>[22]</sup> OpenAI co-founder Wojciech Zaremba stated that he turned down "borderline crazy" offers of two to three times his market value to join OpenAI instead.<sup>[22]</sup>

In April 2016, OpenAI released a public beta of "OpenAI Gym", its platform for reinforcement learning research.<sup>[23]</sup> Nvidia gifted its first DGX-1 supercomputer to OpenAI in August 2016 to help it train larger and more complex AI models with the capability of reducing processing time from six days to two hours.<sup>[24][25]</sup> In December 2016, OpenAI released "Universe", a software platform for measuring and training an AI's general intelligence across the world's supply of games, websites, and other applications.<sup>[26][27][28][29]</sup>

In 2017, OpenAI spent \$7.9 million, or a quarter of its functional expenses, on cloud computing alone.<sup>[30]</sup> In comparison, DeepMind's total expenses in 2017 were \$442 million. In the summer of 2018, simply training OpenAI's *Dota 2* bots required renting 128,000 CPUs and 256 GPUs from Google for multiple weeks.

In 2018, Musk resigned from his Board of Directors seat, citing "a potential future conflict [of interest]" with his role as CEO of Tesla due to Tesla's AI development for self-driving cars.<sup>[31]</sup> Sam Altman claims that Musk believed that OpenAI had fallen behind other players like Google and Musk proposed instead to take over OpenAI himself, which the board rejected. Musk subsequently left OpenAI.

In February 2019, GPT-2 was announced, which gained attention for its ability to generate human-like text.<sup>[32]</sup>

## **2019: Transition from non-profit**

In 2019, OpenAI transitioned from non-profit to "capped" for-profit, with the profit being capped at 100 times any investment.<sup>[33]</sup> According to OpenAI, the capped-profit model allows OpenAI Global, LLC to legally attract investment from venture funds and, in addition, to grant employees stakes in the company.<sup>[34]</sup> Many top researchers work for Google Brain, DeepMind, or Facebook, which offer stock options that a nonprofit would be unable to.<sup>[35]</sup> Before the transition, public disclosure of the compensation of top employees at OpenAI was legally required.<sup>[36]</sup>

The company then distributed equity to its employees and partnered with Microsoft,<sup>[37]</sup> announcing an investment package of \$1 billion into the company. Since then, OpenAI systems have run on an Azure-based supercomputing platform from Microsoft.<sup>[38][39][40]</sup>

OpenAI Global, LLC then announced its intention to commercially license its technologies.<sup>[41]</sup> It planned to spend the \$1 billion "within five years, and possibly much faster."<sup>[42]</sup> Altman has stated that even a billion dollars may turn out to be insufficient, and that the lab may ultimately need "more capital than any non-profit has ever raised" to achieve artificial general intelligence.<sup>[43]</sup>

The transition from a nonprofit to a capped-profit company was viewed with skepticism by Oren Etzioni of the nonprofit Allen Institute for AI, who agreed that wooing top researchers to a nonprofit is difficult, but stated "I disagree with the notion that a nonprofit can't compete" and pointed to successful low-budget projects by OpenAI and others. "If bigger and better funded was always better, then IBM would still be number one."

The nonprofit, OpenAI, Inc., is the sole controlling shareholder of OpenAI Global, LLC, which, despite being a for-profit company, retains a formal fiduciary responsibility to OpenAI, Inc.'s nonprofit charter. A majority of OpenAI, Inc.'s board is barred from having financial stakes in OpenAI Global, LLC.<sup>[34]</sup> In addition, minority members with a stake in OpenAI Global, LLC are barred from certain votes due to conflict of interest.<sup>[35]</sup> Some researchers have argued that OpenAI Global, LLC's switch to for-profit status is inconsistent with OpenAI's claims to be "democratizing" AI.<sup>[44]</sup>

## **2020–2023: ChatGPT, DALL-E, partnership with Microsoft**

In 2020, OpenAI announced GPT-3, a language model trained on large internet datasets. GPT-3 is aimed at natural language answering questions, but it can also translate between languages and coherently generate improvised text. It also announced that an associated API, named simply "the API", would form the heart of its first commercial product.<sup>[45]</sup>

Eleven employees left OpenAI, mostly between December 2020 and January 2021, in order to establish Anthropic.<sup>[46]</sup>

In 2021, OpenAI introduced DALL-E, a specialized deep learning model adept at generating complex digital images from textual descriptions, utilizing a variant of the GPT-3 architecture.<sup>[47]</sup>

In December 2022, OpenAI received widespread media coverage after launching a free preview of ChatGPT, its new AI chatbot based on GPT-3.5. According to OpenAI, the preview received over a million signups within the first five days.<sup>[48]</sup> According to anonymous sources cited by Reuters in December 2022, OpenAI Global, LLC was projecting \$200 million of revenue in 2023 and \$1 billion in revenue in 2024.<sup>[49]</sup>

In January 2023, OpenAI Global, LLC was in talks for funding that would value the company at \$29 billion, double its 2021 value.<sup>[50]</sup> On January 23, 2023, Microsoft announced a new US\$10 billion investment in OpenAI Global, LLC over multiple years, partially needed to use Microsoft's cloud-computing service *Azure*.<sup>[51][52]</sup> Rumors of this deal suggested that Microsoft may receive 75% of OpenAI's profits until it secures its investment return and a 49% stake in the company.<sup>[53]</sup> The investment is believed to be a part of Microsoft's efforts to integrate OpenAI's ChatGPT into the Bing search engine. Google announced a similar AI application (*Bard*), after ChatGPT was launched, fearing that ChatGPT could threaten Google's place as a go-to source for information.<sup>[54][55]</sup>

On February 7, 2023, Microsoft announced that it was building AI technology based on the same foundation as ChatGPT into Microsoft Bing, Edge, Microsoft 365 and other products.<sup>[56]</sup>

On March 3, 2023, Reid Hoffman resigned from his board seat, citing a desire to avoid conflicts of interest with his investments in AI companies via Greylock Partners, and his co-founding of the AI startup Inflection AI. Hoffman remained on the board of Microsoft, a major investor in OpenAI.<sup>[57]</sup>

On March 14, 2023, OpenAI released GPT-4, both as an API (with a waitlist) and as a feature of ChatGPT Plus.<sup>[58]</sup>

On May 22, 2023, Sam Altman, Greg Brockman and Ilya Sutskever posted recommendations for the governance of superintelligence.<sup>[59]</sup> They consider that superintelligence could happen within the next 10 years, allowing a "dramatically more prosperous future" and that "given the possibility of existential risk, we can't just be reactive". They propose creating an international watchdog organization similar to IAEA to oversee AI systems above a certain capability threshold, suggesting that relatively weak AI systems on the other side should not be overly regulated. They also call for more technical safety research for superintelligences, and ask for more coordination, for example through governments launching a joint project which "many current efforts become part of".<sup>[59][60]</sup>

In July 2023, OpenAI launched the superalignment project, aiming to find within 4 years how to align future superintelligences by automating alignment research using AI.<sup>[61]</sup>

In August 2023, it was announced that OpenAI had acquired the New York-based start-up Global Illumination, a company that deploys AI to develop digital infrastructure and creative tools.<sup>[62]</sup>

On September 21, 2023, Microsoft had begun rebranding all variants of its Copilot to Microsoft Copilot, including the former *Bing Chat* and the *Microsoft 365 Copilot*.<sup>[63]</sup> This strategy was followed in December 2023 by adding the MS-Copilot to many installations of Windows 11 and Windows 10 as well as a standalone *Microsoft Copilot app* released for Android<sup>[64]</sup> and one released for iOS thereafter.<sup>[65]</sup>

In September 2024, OpenAI's global affairs chief, Anna Makanju, expressed support for the UK's approach to AI regulation during her testimony to the House of Lords Communications and Digital Committee, stating that the company favors "smart regulation" and sees the UK's AI white paper as a positive step towards responsible AI development.<sup>[66]</sup>

In October 2023, Sam Altman and Peng Xiao, CEO of the Emirati AI firm G42, announced Open AI would let G42 deploy Open AI technology.<sup>[67]</sup>

On November 6, 2023, OpenAI launched GPTs, allowing individuals to create customized versions of ChatGPT for specific purposes, further expanding the possibilities of AI applications across various industries.<sup>[68]</sup> On November 14, 2023, OpenAI announced they temporarily suspended new sign-ups for ChatGPT Plus due to high demand.<sup>[69]</sup> Access for newer subscribers re-opened a month later on December 13.<sup>[70]</sup>

## **2024–present: Public/non-profit efforts, Sora, partnership with Apple**

On January 16, 2024, in response to intense scrutiny from regulators around the world, OpenAI announced the formation of a new Collective Alignment team that would aim to implement ideas from the public for ensuring its models would "align to the values of humanity." The move was from its public program launched in May 2023. The company explained that the program would be separate from its commercial endeavors.<sup>[71]</sup> On January 18, 2024, OpenAI announced a partnership with Arizona State University that would give it complete access to ChatGPT Enterprise. ASU plans to incorporate the technology into various aspects of its operations, including courses, tutoring and research. It is OpenAI's first partnership with an educational institution.<sup>[72]</sup>

In February 2024, the U.S. Securities and Exchange Commission was reportedly investigating OpenAI over whether internal company communications made by Altman were used to mislead investors; and an investigation of Altman's statements, opened by the Southern New York U.S. Attorney's Office the previous November, was ongoing.<sup>[73][74]</sup>

On February 15, 2024, OpenAI announced a text-to-video model named Sora, which it plans to release to the public at an unspecified date.<sup>[75]</sup> It is currently available for red teams for managing critical harms and risks.<sup>[76]</sup>

On February 29, 2024, OpenAI and CEO Sam Altman were sued by Elon Musk, who accused them of prioritizing profits over public good, contrary to OpenAI's original mission<sup>[10]</sup> of developing AI for humanity's benefit.<sup>[77]</sup> The lawsuit cited OpenAI's policy shift after partnering with Microsoft, questioning its open-source commitment and stirring the AI ethics-vs.-profit debate.<sup>[78]</sup> In a blog post, OpenAI stated that "Elon understood the mission did not imply open-sourcing AGI."<sup>[79]</sup> In a staff memo, they also denied being a de facto Microsoft subsidiary.<sup>[80]</sup>

On March 11, 2024, court filing, OpenAI said it was "doing just fine without Elon Musk" after he left the company in 2018. They also responded to Musk's lawsuit, calling the billionaire's claims "incoherent", "frivolous", "extraordinary" and "a fiction".<sup>[81]</sup> On June 11, 2024, Musk unexpectedly withdrew the lawsuit.<sup>[82]</sup> On August 5, 2024, Musk reopened the lawsuit against Altman and others, alleging that Altman claimed that OpenAI was going to be founded as a non-profit organization.<sup>[83][84]</sup>

On May 15, 2024, Ilya Sutskever resigned from OpenAI and was replaced with Jakub Pachocki to be the Chief Scientist.<sup>[85]</sup> Hours later, Jan Leike, the other co-leader of the superalignment team, announced his departure, citing an erosion of safety and trust in OpenAI's leadership.<sup>[86]</sup> Their departures along with several researchers leaving the group, led OpenAI to absorb the team's work into other research areas, and officially shut down the superalignment group.<sup>[87]</sup> According to sources interviewed by *Fortune*, OpenAI's promise of allocating 20% of its computing capabilities to the superalignment project had not been fulfilled.<sup>[88]</sup>

On May 19, 2024, Reddit and OpenAI announced a partnership to integrate Reddit's content into OpenAI products, including ChatGPT. This collaboration allows OpenAI to access Reddit's Data API, providing real-time, structured content to enhance AI tools and user engagement with Reddit communities. Additionally, Reddit plans to develop new AI-powered features for users and moderators using OpenAI's platform. The partnership aligns with Reddit's commitment to privacy, adhering to its Public Content Policy and existing Data API Terms, which restrict commercial use without approval. OpenAI will also serve as a Reddit advertising partner.<sup>[89]</sup>

On May 22, 2024, OpenAI entered into an agreement with News Corp to integrate news content from The Wall Street Journal, the New York Post, The Times, and The Sunday Times into its AI platform. Meanwhile, other publications like The New York Times chose to sue OpenAI and Microsoft for copyright infringement over the use of their content to train AI models.<sup>[90]</sup>

On May 29, 2024, Axios reported that OpenAI had signed deals with Vox Media and The Atlantic to share content to enhance the accuracy of AI models like ChatGPT by incorporating reliable news sources, addressing concerns about AI misinformation.<sup>[91]</sup> Concerns were expressed about the decision by journalists, including those working for the publications, as well as the publications' unions. The Vox Union stated, "As both journalists and workers, we have serious concerns about this partnership, which we believe could adversely impact members of our union, not to mention the well-documented ethical and environmental concerns surrounding the use of generative AI."<sup>[92]</sup>

A group of nine current and former OpenAI employees has accused the company of prioritizing profits over safety, using restrictive agreements to silence concerns, and moving too quickly with inadequate risk management. They call for greater transparency, whistleblower protections, and legislative regulation of AI development.<sup>[93]</sup>

On June 10, 2024, it was announced at WWDC 2024 that OpenAI had partnered with Apple Inc. to bring ChatGPT features to Apple Intelligence and iPhone.<sup>[94]</sup>

On June 13, 2024, OpenAI announced that Paul Nakasone, the former head of the NSA was joining the company's board of directors. Nakasone also joined the company's security subcommittee.<sup>[95]</sup>

On June 24, 2024, OpenAI acquired Multi, a startup running a collaboration platform based on Zoom.<sup>[96]</sup>

In July 2024, Reuters reported that OpenAI was working on a project code-named "Strawberry" (previously known as Q\*) aiming to enhance AI reasoning capabilities. The project reportedly seeks to enable AI to plan ahead, navigate the internet autonomously, and conduct "deep research".<sup>[97][98]</sup> The project was officially released on September 12 and named o1.<sup>[99]</sup>

On August 5, TechCrunch reported that OpenAI's cofounder John Schulman has left the company to join rival AI startup Anthropic. Schulman cited a desire to focus more deeply on AI alignment research as his reason for the move. Additionally, OpenAI's president and co-founder, Greg Brockman, is taking an extended leave until the end of the year.<sup>[100]</sup>

On September 25, OpenAI's Chief Technology Officer (CTO) Mira Murati announced her departure from the company to "create the time and space to do my own exploration".<sup>[101]</sup> It had previously been reported Murati was among those who expressed concerns to the Board about Altman.<sup>[102]</sup>

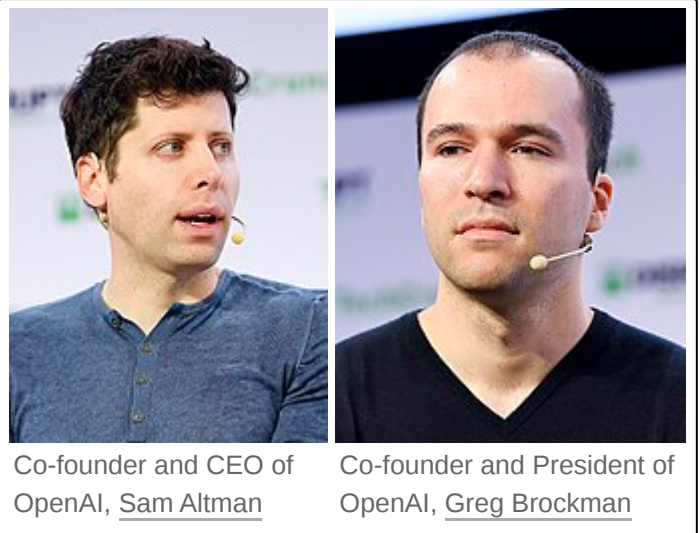
In October 2024, OpenAI raised \$6.6 billion from investors, potentially valuing the company at \$157 billion and solidifying its status as one of the most valuable private firms globally. The funding attracted returning venture capital firms like Thrive Capital and Khosla Ventures, along with major backer Microsoft and new investors Nvidia and Softbank.<sup>[103]</sup> OpenAI's CFO, Sarah Friar, informed employees that a tender offer for share buybacks would follow the funding, although specifics were yet to be determined. Thrive Capital invested around \$1.2 billion, with the option for an additional \$1 billion if revenue goals were met. Apple, despite initial interest, did not participate in this funding round.<sup>[104]</sup>

## Participants

---

### Key employees

- CEO and co-founder: Sam Altman, former president of the startup accelerator Y Combinator
- President and co-founder: Greg Brockman, former CTO, 3rd employee of Stripe<sup>[105]</sup>
- Chief Scientist Officer: Jakub Pachocki, former Director of Research at OpenAI<sup>[85]</sup>
- Chief Operating Officer: Brad Lightcap, previously at Y Combinator and JPMorgan Chase<sup>[106]</sup>
- Chief Financial Officer: Sarah Friar, former Nextdoor CEO and former CFO at Block, Inc.<sup>[107]</sup>
- Chief Product Officer: Kevin Weil, previously at Twitter, Inc. and Meta Platforms<sup>[107]</sup>



### Board of directors of the OpenAI nonprofit

- Bret Taylor (chairman)
- Sam Altman
- Lawrence Summers
- Adam D'Angelo
- Sue Desmond-Hellmann
- Nicole Seligman
- Fidji Simo
- Paul Nakasone,<sup>[108]</sup> Former Director of the National Security Agency (2018-2024)
- Zico Kolter<sup>[109]</sup>

Sources:<sup>[10][110]</sup>

### Principal individual investors<sup>[105]</sup>

- Reid Hoffman, LinkedIn co-founder<sup>[111]</sup>
- Peter Thiel, PayPal co-founder<sup>[111]</sup>

- Jessica Livingston, a founding partner of Y Combinator
- Elon Musk, co-founder

## Corporate investors

- Microsoft<sup>[112]</sup>
- Khosla Ventures<sup>[113]</sup>
- Infosys<sup>[114]</sup>
- Thrive Capital<sup>[115]</sup>
- Y Combinator<sup>[116]</sup>
- Nvidia<sup>[117]</sup>
- Softbank<sup>[117]</sup>
- MGX (United Arab Emirates)<sup>[117]</sup>

## Motives

---

Some scientists, such as Stephen Hawking and Stuart Russell, have articulated concerns that if advanced AI gains the ability to redesign itself at an ever-increasing rate, an unstoppable "intelligence explosion" could lead to human extinction. Co-founder Musk characterizes AI as humanity's "biggest existential threat".<sup>[118]</sup>

Musk and Altman have stated they are partly motivated by concerns about AI safety and the existential risk from artificial general intelligence.<sup>[119][120]</sup> OpenAI states that "it's hard to fathom how much human-level AI could benefit society," and that it is equally difficult to comprehend "how much it could damage society if built or used incorrectly".<sup>[18]</sup> Research on safety cannot safely be postponed: "because of AI's surprising history, it's hard to predict when human-level AI might come within reach."<sup>[121]</sup> OpenAI states that AI "should be an extension of individual human wills and, in the spirit of liberty, as broadly and evenly distributed as possible."<sup>[18]</sup> Co-chair Sam Altman expects the decades-long project to surpass human intelligence.<sup>[122]</sup>

Vishal Sikka, former CEO of Infosys, stated that an "openness", where the endeavor would "produce results generally in the greater interest of humanity", was a fundamental requirement for his support; and that OpenAI "aligns very nicely with our long-held values" and their "endeavor to do purposeful work".<sup>[123]</sup> Cade Metz of *Wired* suggested that corporations such as Amazon might be motivated by a desire to use open-source software and data to level the playing field against corporations such as Google and Facebook, which own enormous supplies of proprietary data. Altman stated that Y Combinator companies would share their data with OpenAI.<sup>[122]</sup>

## Strategy

---

In the early years before his 2018 departure, Musk posed the question: "What is the best thing we can do to ensure the future is good? We could sit on the sidelines or we can encourage regulatory oversight, or we could participate with the right structure with people who care deeply about developing AI in a way that is safe and is beneficial to humanity." He acknowledged that "there is always some risk that in actually trying to advance (friendly) AI we may create the thing we are concerned about"; but



nonetheless, that the best defense was "to empower as many people as possible to have AI. If everyone has AI powers, then there's not any one person or a small set of individuals who can have AI superpower."<sup>[105]</sup>

Musk and Altman's counterintuitive strategy—that of trying to reduce of harm from AI by giving everyone access to it—is controversial among those concerned with existential risk from AI. Philosopher Nick Bostrom said, "If you have a button that could do bad things to the world, you don't want to give it to everyone."<sup>[120]</sup> During a 2016 conversation about technological singularity, Altman said, "We don't plan to release all of our source code" and mentioned a plan to "allow wide swaths of the world to elect representatives to a new governance board". Greg Brockman stated, "Our goal right now... is to do the best thing there is to do. It's a little vague."<sup>[124]</sup>

Conversely, OpenAI's initial decision to withhold GPT-2 around 2019, due to a wish to "err on the side of caution" in the presence of potential misuse, was criticized by advocates of openness. Delip Rao, an expert in text generation, stated, "I don't think [OpenAI] spent enough time proving [GPT-2] was actually dangerous." Other critics argued that open publication was necessary to replicate the research and to create countermeasures.<sup>[125]</sup>

More recently, in 2022, OpenAI published its approach to the alignment problem, anticipating that aligning AGI to human values would likely be harder than aligning current AI systems: "Unaligned AGI could pose substantial risks to humanity[,] and solving the AGI alignment problem could be so difficult that it will require all of humanity to work together". They stated that they intended to explore how to better use human feedback to train AI systems, and how to safely use AI to incrementally automate alignment research.<sup>[126]</sup> Some observers believe the company's November 2023 reorganization—including Altman's return as CEO, and the changes to its board of directors—indicated a probable shift towards a business focus and reduced influence of "cautious people" at OpenAI.<sup>[127]</sup>

## Products and applications

---

### Reinforcement learning

At its beginning, OpenAI's research included many projects focused on reinforcement learning (RL).<sup>[128]</sup> OpenAI has been viewed as an important competitor to DeepMind.<sup>[129]</sup>

### Gym

Announced in 2016, Gym is an open-source Python library designed to facilitate the development of reinforcement learning algorithms. It aimed to standardize how environments are defined in AI research, making published research more easily reproducible<sup>[23][130]</sup> while providing users with a simple interface for interacting with these environments. In 2022, new developments of Gym have been moved to the library Gymnasium.<sup>[131][132]</sup>

### Gym Retro

Released in 2018, Gym Retro is a platform for reinforcement learning (RL) research on video games,<sup>[133]</sup> using RL algorithms and study generalization. Prior RL research focused mainly on optimizing agents to solve single tasks. Gym Retro gives the ability to generalize between games with similar concepts but different appearances.

## RoboSumo

Released in 2017, RoboSumo is a virtual world where humanoid metalearning robot agents initially lack knowledge of how to even walk, but are given the goals of learning to move and to push the opposing agent out of the ring.<sup>[134]</sup> Through this adversarial learning process, the agents learn how to adapt to changing conditions. When an agent is then removed from this virtual environment and placed in a new virtual environment with high winds, the agent braces to remain upright, suggesting it had learned how to balance in a generalized way.<sup>[134][135]</sup> OpenAI's Igor Mordatch argued that competition between agents could create an intelligence "arms race" that could increase an agent's ability to function even outside the context of the competition.<sup>[134]</sup>

## OpenAI Five

OpenAI Five is a team of five OpenAI-curated bots used in the competitive five-on-five video game *Dota 2*, that learn to play against human players at a high skill level entirely through trial-and-error algorithms. Before becoming a team of five, the first public demonstration occurred at The International 2017, the annual premiere championship tournament for the game, where Dendi, a professional Ukrainian player, lost against a bot in a live one-on-one matchup.<sup>[136][137]</sup> After the match, CTO Greg Brockman explained that the bot had learned by playing against itself for two weeks of real time, and that the learning software was a step in the direction of creating software that can handle complex tasks like a surgeon.<sup>[138][139]</sup> The system uses a form of reinforcement learning, as the bots learn over time by playing against themselves hundreds of times a day for months, and are rewarded for actions such as killing an enemy and taking map objectives.<sup>[140][141][142]</sup>

By June 2018, the ability of the bots expanded to play together as a full team of five, and they were able to defeat teams of amateur and semi-professional players.<sup>[143][140][144][145]</sup> At The International 2018, OpenAI Five played in two exhibition matches against professional players, but ended up losing both games.<sup>[146][147][148]</sup> In April 2019, OpenAI Five defeated OG, the reigning world champions of the game at the time, 2:0 in a live exhibition match in San Francisco.<sup>[149][150]</sup> The bots' final public appearance came later that month, where they played in 42,729 total games in a four-day open online competition, winning 99.4% of those games.<sup>[151]</sup>

OpenAI Five's mechanisms in *Dota 2*'s bot player shows the challenges of AI systems in multiplayer online battle arena (MOBA) games and how OpenAI Five has demonstrated the use of deep reinforcement learning (DRL) agents to achieve superhuman competence in *Dota 2* matches.<sup>[152]</sup>

## Dactyl

Developed in 2018, Dactyl uses machine learning to train a Shadow Hand, a human-like robot hand, to manipulate physical objects.<sup>[153]</sup> It learns entirely in simulation using the same RL algorithms and training code as OpenAI Five. OpenAI tackled the object orientation problem by using domain randomization, a simulation approach which exposes the learner to a variety of experiences rather than

trying to fit to reality. The set-up for Dactyl, aside from having motion tracking cameras, also has RGB cameras to allow the robot to manipulate an arbitrary object by seeing it. In 2018, OpenAI showed that the system was able to manipulate a cube and an octagonal prism.<sup>[154]</sup>

In 2019, OpenAI demonstrated that Dactyl could solve a Rubik's Cube. The robot was able to solve the puzzle 60% of the time. Objects like the Rubik's Cube introduce complex physics that is harder to model. OpenAI did this by improving the robustness of Dactyl to perturbations by using Automatic Domain Randomization (ADR), a simulation approach of generating progressively more difficult environments. ADR differs from manual domain randomization by not needing a human to specify randomization ranges.<sup>[155]</sup>

## API

In June 2020, OpenAI announced a multi-purpose API which it said was "for accessing new AI models developed by OpenAI" to let developers call on it for "any English language AI task".<sup>[156][157]</sup>

## Text generation

The company has popularized generative pretrained transformers (GPT).<sup>[158]</sup>

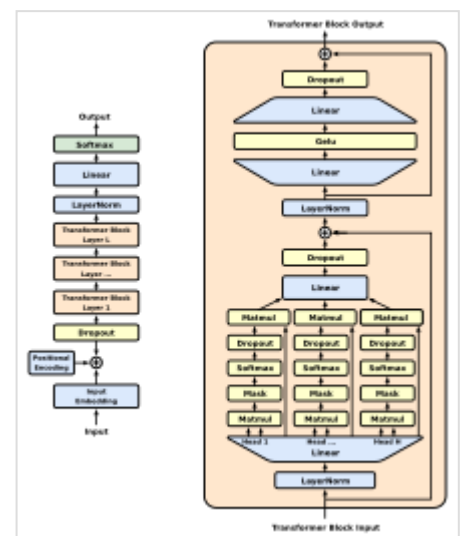
### OpenAI's original GPT model ("GPT-1")

The original paper on generative pre-training of a transformer-based language model was written by Alec Radford and his colleagues, and published in preprint on OpenAI's website on June 11, 2018.<sup>[159]</sup> It showed how a generative model of language could acquire world knowledge and process long-range dependencies by pre-training on a diverse corpus with long stretches of contiguous text.

### GPT-2

Generative Pre-trained Transformer 2 ("GPT-2") is an unsupervised transformer language model and the successor to OpenAI's original GPT model ("GPT-1"). GPT-2 was announced in February 2019, with only limited demonstrative versions initially released to the public. The full version of GPT-2 was not immediately released due to concern about potential misuse, including applications for writing fake news.<sup>[160]</sup> Some experts expressed skepticism that GPT-2 posed a significant threat.

In response to GPT-2, the Allen Institute for Artificial Intelligence responded with a tool to detect "neural fake news".<sup>[161]</sup> Other researchers, such as Jeremy Howard, warned of "the technology to totally fill Twitter, email, and the web up with reasonable-sounding, context-appropriate prose, which would drown out all other speech and be impossible to filter".<sup>[162]</sup> In November 2019,



The original GPT model



An instance of GPT-2 writing a paragraph based on a prompt from its own Wikipedia article in February 2021

OpenAI released the complete version of the GPT-2 language model.<sup>[163]</sup> Several websites host interactive demonstrations of different instances of GPT-2 and other transformer models.<sup>[164][165][166]</sup>

GPT-2's authors argue unsupervised language models to be general-purpose learners, illustrated by GPT-2 achieving state-of-the-art accuracy and perplexity on 7 of 8 zero-shot tasks (i.e. the model was not further trained on any task-specific input-output examples).

The corpus it was trained on, called WebText, contains slightly 40 gigabytes of text from URLs shared in Reddit submissions with at least 3 upvotes. It avoids certain issues encoding vocabulary with word tokens by using byte pair encoding. This permits representing any string of characters by encoding both individual characters and multiple-character tokens.<sup>[167]</sup>

## GPT-3

First described in May 2020, Generative Pre-trained<sup>[a]</sup> Transformer 3 (GPT-3) is an unsupervised transformer language model and the successor to GPT-2.<sup>[168][169][170]</sup> OpenAI stated that the full version of GPT-3 contained 175 billion parameters,<sup>[170]</sup> two orders of magnitude larger than the 1.5 billion<sup>[171]</sup> in the full version of GPT-2 (although GPT-3 models with as few as 125 million parameters were also trained).<sup>[172]</sup>

OpenAI stated that GPT-3 succeeded at certain "meta-learning" tasks and could generalize the purpose of a single input-output pair. The GPT-3 release paper gave examples of translation and cross-linguistic transfer learning between English and Romanian, and between English and German.<sup>[170]</sup>

GPT-3 dramatically improved benchmark results over GPT-2. OpenAI cautioned that such scaling-up of language models could be approaching or encountering the fundamental capability limitations of predictive language models.<sup>[173]</sup> Pre-training GPT-3 required several thousand petaflop/s-days<sup>[b]</sup> of compute, compared to tens of petaflop/s-days for the full GPT-2 model.<sup>[170]</sup> Like its predecessor,<sup>[160]</sup> the GPT-3 trained model was not immediately released to the public for concerns of possible abuse, although OpenAI planned to allow access through a paid cloud API after a two-month free private beta that began in June 2020.<sup>[156][175]</sup>

On September 23, 2020, GPT-3 was licensed exclusively to Microsoft.<sup>[176][177]</sup>

## Codex

Announced in mid-2021, Codex is a descendant of GPT-3 that has additionally been trained on code from 54 million GitHub repositories,<sup>[178][179]</sup> and is the AI powering the code autocompletion tool GitHub Copilot.<sup>[179]</sup> In August 2021, an API was released in private beta.<sup>[180]</sup> According to OpenAI, the model can create working code in over a dozen programming languages, most effectively in Python.<sup>[178]</sup>

Several issues with glitches, design flaws and security vulnerabilities were cited.<sup>[181][182]</sup>

GitHub Copilot has been accused of emitting copyrighted code, with no author attribution or license.<sup>[183]</sup>

OpenAI announced that they would discontinue support for Codex API on March 23, 2023.<sup>[184]</sup>

## GPT-4

On March 14, 2023, OpenAI announced the release of Generative Pre-trained Transformer 4 (GPT-4), capable of accepting text or image inputs.<sup>[185]</sup> They announced that the updated technology passed a simulated law school bar exam with a score around the top 10% of test takers. (By contrast, GPT-3.5 scored around the bottom 10%.) They said that GPT-4 could also read, analyze or generate up to 25,000 words of text, and write code in all major programming languages.<sup>[186]</sup>

Observers reported that the iteration of ChatGPT using GPT-4 was an improvement on the previous GPT-3.5-based iteration, with the caveat that GPT-4 retained some of the problems with earlier revisions.<sup>[187]</sup> GPT-4 is also capable of taking images as input on ChatGPT.<sup>[188]</sup> OpenAI has declined to reveal various technical details and statistics about GPT-4, such as the precise size of the model.<sup>[189]</sup>

## **GPT-4o**

On May 13, 2024, OpenAI announced and released GPT-4o, which can process and generate text, images and audio.<sup>[190]</sup> GPT-4o achieved state-of-the-art results in voice, multilingual, and vision benchmarks, setting new records in audio speech recognition and translation.<sup>[191][192]</sup> It scored 88.7% on the Massive Multitask Language Understanding (MMLU) benchmark compared to 86.5% by GPT-4.<sup>[193]</sup>

On July 18, 2024, OpenAI released GPT-4o mini, a smaller version of GPT-4o replacing GPT-3.5 Turbo on the ChatGPT interface. Its API costs \$0.15 per million input tokens and \$0.60 per million output tokens, compared to \$5 and \$15 respectively for GPT-4o. OpenAI expects it to be particularly useful for enterprises, startups and developers seeking to automate services with AI agents.<sup>[194]</sup>

## **o1**

On September 12, 2024, OpenAI released the o1-preview and o1-mini models, which have been designed to take more time to think about their responses, leading to higher accuracy. These models are particularly effective in science, coding, and reasoning tasks, and were made available to ChatGPT Plus and Team members.<sup>[195][196]</sup>

## **Image classification**

### **CLIP**

Revealed in 2021, CLIP (Contrastive Language–Image Pre-training) is a model that is trained to analyze the semantic similarity between text and images. It can notably be used for image classification.<sup>[197]</sup>

## **Text-to-image**

### **DALL-E**

Revealed in 2021, DALL-E is a Transformer model that creates images from textual descriptions.<sup>[198]</sup> DALL-E uses a 12-billion-parameter version of GPT-3 to interpret natural language inputs (such as "a green leather purse shaped like a pentagon" or "an isometric view of a sad capybara") and generate

corresponding images. It can create images of realistic objects ("a stained-glass window with an image of a blue strawberry") as well as objects that do not exist in reality ("a cube with the texture of a porcupine"). As of March 2021, no API or code is available.

## DALL-E 2

In April 2022, OpenAI announced DALL-E 2, an updated version of the model with more realistic results.<sup>[199]</sup> In December 2022, OpenAI published on GitHub software for Point-E, a new rudimentary system for converting a text description into a 3-dimensional model.<sup>[200]</sup>

## DALL-E 3

In September 2023, OpenAI announced DALL-E 3, a more powerful model better able to generate images from complex descriptions without manual prompt engineering and render complex details like hands and text.<sup>[201]</sup> It was released to the public as a ChatGPT Plus feature in October.<sup>[202]</sup>



Images produced by DALL-E when given the text prompt "a professional high-quality illustration of a giraffe dragon chimera. a giraffe imitating a dragon. a giraffe made of dragon."

## Text-to-video

### Sora

Sora is a text-to-video model that can generate videos based on short descriptive prompts<sup>[203]</sup> as well as extend existing videos forwards or backwards in time.<sup>[204]</sup> It can generate videos with resolution up to 1920x1080 or 1080x1920. The maximal length of generated videos is unknown.

Sora's development team named it after the Japanese word for "sky", to signify its "limitless creative potential".<sup>[203]</sup> Sora's technology is an adaptation of the technology behind the DALL-E 3 text-to-image model.<sup>[205]</sup> OpenAI trained the system using publicly-available videos as well as copyrighted videos licensed for that purpose, but did not reveal the number or the exact sources of the videos.<sup>[203]</sup>

OpenAI demonstrated some Sora-created high-definition videos to the public on February 15, 2024, stating that it could generate videos up to one minute long. It also shared a technical report highlighting the methods used to train the model, and the model's capabilities.<sup>[205]</sup> It acknowledged some of its shortcomings, including struggles simulating complex physics.<sup>[206]</sup> Will Douglas Heaven of the MIT Technology Review called the demonstration videos "impressive", but noted that they must have been cherry-picked and might not represent Sora's typical output.<sup>[205]</sup>

Despite skepticism from some academic leaders following Sora's public demo, notable entertainment-industry figures have shown significant interest in the technology's potential. In an interview, actor/filmmaker Tyler Perry expressed his astonishment at the technology's ability to generate realistic

video from text descriptions, citing its potential to revolutionize storytelling and content creation. He said that his excitement about Sora's possibilities was so strong that he had decided to pause plans for expanding his Atlanta-based movie studio.<sup>[207]</sup>

## Speech-to-text

### Whisper

Released in 2022, Whisper is a general-purpose speech recognition model.<sup>[208]</sup> It is trained on a large dataset of diverse audio and is also a multi-task model that can perform multilingual speech recognition as well as speech translation and language identification.<sup>[209]</sup>

## Music generation

### MuseNet

Released in 2019, MuseNet is a deep neural net trained to predict subsequent musical notes in MIDI music files. It can generate songs with 10 instruments in 15 styles. According to *The Verge*, a song generated by MuseNet tends to start reasonably but then fall into chaos the longer it plays.<sup>[210][211]</sup> In pop culture, initial applications of this tool were used as early as 2020 for the internet psychological thriller Ben Drowned to create music for the titular character.<sup>[212][213]</sup>

### Jukebox

Released in 2020, Jukebox is an open-sourced algorithm to generate music with vocals. After training on 1.2 million samples, the system accepts a genre, artist, and a snippet of lyrics and outputs song samples. OpenAI stated the songs "show local musical coherence [and] follow traditional chord patterns" but acknowledged that the songs lack "familiar larger musical structures such as choruses that repeat" and that "there is a significant gap" between Jukebox and human-generated music. *The Verge* stated "It's technologically impressive, even if the results sound like mushy versions of songs that might feel familiar", while *Business Insider* stated "surprisingly, some of the resulting songs are catchy and sound legitimate".<sup>[214][215][216]</sup>

## User interfaces

### Debate Game

In 2018, OpenAI launched the Debate Game, which teaches machines to debate toy problems in front of a human judge. The purpose is to research whether such an approach may assist in auditing AI decisions and in developing explainable AI.<sup>[217][218]</sup>

### Microscope

Released in 2020, Microscope<sup>[219]</sup> is a collection of visualizations of every significant layer and neuron of eight neural network models which are often studied in interpretability.<sup>[220]</sup> Microscope was created to analyze the features that form inside these neural networks easily. The models included are AlexNet,

VGG-19, different versions of Inception, and different versions of CLIP Resnet.<sup>[221]</sup>

## ChatGPT

Launched in November 2022, ChatGPT is an artificial intelligence tool built on top of GPT-3 that provides a conversational interface that allows users to ask questions in natural language. The system then responds with an answer within seconds. ChatGPT reached 1 million users 5 days after its launch.<sup>[222][223]</sup>

As of 2023, ChatGPT Plus is a GPT-4 backed version of ChatGPT<sup>[224]</sup> available for a US\$20 per month subscription fee<sup>[225]</sup> (the original version is backed by GPT-3.5).<sup>[226]</sup> OpenAI also makes GPT-4 available to a select group of applicants through their GPT-4 API waitlist;<sup>[227]</sup> after being accepted, an additional fee of US\$0.03 per 1000 tokens in the initial text provided to the model ("prompt"), and US\$0.06 per 1000 tokens that the model generates ("completion"), is charged for access to the version of the model with an 8192-token context window; for the 32768-token context window, the prices are doubled.<sup>[228]</sup>

In May 2023, OpenAI launched a user interface for ChatGPT for the App Store on iOS and later in July 2023 for the Play Store on Android.<sup>[229]</sup> The app supports chat history syncing and voice input (using Whisper, OpenAI's speech recognition model).<sup>[230][229][231]</sup> In September 2023, OpenAI announced that ChatGPT "can now see, hear, and speak". ChatGPT Plus users can upload images, while mobile app users can talk to the chatbot.<sup>[232][233]</sup>

In October 2023, OpenAI's latest image generation model, DALL-E 3, was integrated into ChatGPT Plus and ChatGPT Enterprise. The integration uses ChatGPT to write prompts for DALL-E guided by conversation with users.<sup>[234][235]</sup>

OpenAI's GPT Store, initially slated for a 2023 launch, is now deferred to an undisclosed date in early 2024, attributed likely to the leadership changes in November following the initial announcement.<sup>[236]</sup>

Concerns about the energy consumption of generative AI, including ChatGPT, are rising. In September 2024, Microsoft entered a deal with Constellation Energy to reopen the Three Mile Island nuclear plant to supply power to its AI-driven data centers.<sup>[237]</sup>

## SearchGPT

SearchGPT, a prototype search engine developed by OpenAI, was unveiled on July 25, 2024, with an initial limited release to 10,000 test users. It combines traditional search engine features with generative AI capabilities.<sup>[238][239]</sup>

## Stargate and other supercomputers

Stargate is a potential artificial intelligence supercomputer in development by Microsoft and OpenAI.<sup>[240]</sup> Stargate is designed as part of a greater data center project, which could represent an investment of as much as \$100 billion by Microsoft.<sup>[241]</sup>

Stargate is reported to be part of a series of AI-related construction projects planned in the next few years by the companies Microsoft and OpenAI.<sup>[241]</sup> The supercomputers will be constructed in five phases.<sup>[240]</sup> The fourth phase should consist in a smaller OpenAI supercomputer, planned to launch around 2026.<sup>[240]</sup>



Stargate is the fifth and final phase of the program, and will take five and six years to complete and is slated to launch around 2028.<sup>[241]</sup>

The artificial intelligence of Stargate is slated to be contained on millions of special server chips.<sup>[241]</sup> The supercomputer's data center will be built in the US across 700 acres of land.<sup>[241]</sup> It has a planned power consumption of 5 gigawatts, for which it could rely on nuclear energy.<sup>[241]</sup> The name "Stargate" is a homage to the 1994 sci-fi film Stargate.<sup>[241]</sup>

## Controversies

---

### Firing of Altman

On November 17, 2023, Sam Altman was removed as CEO when its board of directors (composed of Helen Toner, Ilya Sutskever, Adam D'Angelo and Tasha McCauley) cited a lack of confidence in him. Chief Technology Officer Mira Murati took over as interim CEO. Greg Brockman, the president of OpenAI, was also removed as chairman of the board<sup>[242][243]</sup> and resigned from the company's presidency shortly thereafter.<sup>[244]</sup> Three senior OpenAI researchers subsequently resigned: director of research and GPT-4 lead Jakub Pachocki, head of AI risk Aleksander Madry, and researcher Szymon Sidor.<sup>[245][246]</sup>

On November 18, 2023, there were reportedly talks of Altman returning as CEO amid pressure placed upon the board by investors such as Microsoft and Thrive Capital, who objected to Altman's departure.<sup>[247]</sup> Although Altman himself spoke in favor of returning to OpenAI, he has since stated that he considered starting a new company and bringing former OpenAI employees with him if talks to reinstate him didn't work out.<sup>[248]</sup> The board members agreed "in principle" to resign if Altman returned.<sup>[249]</sup> On November 19, 2023, negotiations with Altman to return failed and Murati was replaced by Emmett Shear as interim CEO.<sup>[250]</sup> The board initially contacted Anthropic CEO Dario Amodei (a former OpenAI executive) about replacing Altman, and proposed a merger of the two companies, but both offers were declined.<sup>[251]</sup>

On November 20, 2023, Microsoft CEO Satya Nadella announced Altman and Brockman would be joining Microsoft to lead a new advanced AI research team, but added that they were still committed to OpenAI despite recent events.<sup>[252]</sup> Before the partnership with Microsoft was finalized, Altman gave the board another opportunity to negotiate with him.<sup>[253]</sup> About 738 of OpenAI's 770 employees, including Murati and Sutskever, signed an open letter stating they would quit their jobs and join Microsoft if the board did not rehire Altman and then resign.<sup>[254][255]</sup> This prompted OpenAI investors to consider legal action against the board as well.<sup>[256]</sup> In response, OpenAI management sent an internal memo to employees stating that negotiations with Altman and the board had resumed and would take some time.<sup>[257]</sup>

On November 21, 2023, after continued negotiations, Altman and Brockman returned to the company in their prior roles along with a reconstructed board made up of new members Bret Taylor (as chairman) and Lawrence Summers, with D'Angelo remaining.<sup>[258]</sup> On November 22, 2023, emerging reports suggested that Sam Altman's dismissal from OpenAI may have been linked to his alleged mishandling of a significant breakthrough in the organization's secretive project codenamed Q\*. According to sources within OpenAI, Q\* is aimed at developing AI capabilities in logical and mathematical reasoning, and

reportedly involves performing math on the level of grade-school students.<sup>[259][260][261]</sup> Concerns about Altman's response to this development, specifically regarding the discovery's potential safety implications, were reportedly raised with the company's board shortly before Altman's firing.<sup>[262]</sup> On November 29, 2023, OpenAI announced that an anonymous Microsoft employee had joined the board as a non-voting member to observe the company's operations;<sup>[263]</sup> Microsoft resigned from the board in July 2024.<sup>[264]</sup>

## Content moderation contract with Sama

In January 2023, OpenAI has been criticized for outsourcing the annotation of data sets to Sama, a company based in San Francisco that employed workers in Kenya. These annotations were used to train an AI model to detect toxicity, which could then be used to moderate toxic content, notably from ChatGPT's training data and outputs. However, these pieces of text usually contained detailed descriptions of various types of violence, including sexual violence. The investigation uncovered that OpenAI began sending snippets of data to Sama as early as November 2021. The four Sama employees interviewed by Time described themselves as mentally scarred. OpenAI paid Sama \$12.50 per hour of work, and Sama was redistributing the equivalent of between \$1.32 and \$2.00 per hour post-tax to its annotators. Sama's spokesperson said that the \$12.50 was also covering other implicit costs, among which were infrastructure expenses, quality assurance and management.<sup>[265]</sup>

## Lack of technological transparency

In March 2023, the company was also criticized for disclosing particularly few technical details about products like GPT-4, contradicting its initial commitment to openness and making it harder for independent researchers to replicate its work and develop safeguards. OpenAI cited competitiveness and safety concerns to justify this strategic turn. OpenAI's former chief scientist Ilya Sutskever argued in 2023 that open-sourcing increasingly capable models was increasingly risky, and that the safety reasons for not open-sourcing the most potent AI models would become "obvious" in a few years.<sup>[266]</sup>

## Non-disparagement agreement

On May 17, 2024, a Vox article reported that OpenAI was asking departing employees to sign a lifelong non-disparagement agreement forbidding them from criticizing OpenAI or acknowledging the existence of the agreement. Daniel Kokotajlo, a former employee, publicly stated that he forfeited his vested equity in OpenAI in order to leave without signing the agreement.<sup>[267][268]</sup> Sam Altman stated that he was unaware of the equity cancellation provision, and that OpenAI never enforced it to cancel any employee's vested equity.<sup>[269]</sup> Vox published leaked documents and emails challenging this claim.<sup>[270]</sup> On May 23, 2024, OpenAI sent a memo releasing former employees from the agreement.<sup>[271]</sup>

## Copyright infringement in training data

OpenAI was sued for copyright infringement by authors Sarah Silverman, Matthew Butterick, Paul Tremblay and Mona Awad in July 2023.<sup>[272][273][274]</sup> In September 2023, 17 authors, including George R. R. Martin, John Grisham, Jodi Picoult and Jonathan Franzen, joined the Authors Guild in filing a class action lawsuit against OpenAI, alleging that the company's technology was illegally using their copyrighted work.<sup>[275][276]</sup> The New York Times also sued the company in late December 2023.<sup>[273][277]</sup>

In May 2024 it was revealed that OpenAI had destroyed its Books1 and Books2 training datasets, which were used in the training of GPT-3, and which the Authors Guild believed to have contained over 100,000 copyrighted books.<sup>[278]</sup>

In 2021, OpenAI developed a speech recognition tool called Whisper. OpenAI used it to transcribe more than one million hours of YouTube videos into text for training GPT-4. The automated transcription of YouTube videos raised concerns within OpenAI employees regarding potential violations of YouTube's terms of service, which prohibit the use of videos for applications independent of the platform, as well as any type of automated access to its videos. Despite these concerns, the project proceeded with notable involvement from OpenAI's president, Greg Brockman. The resulting dataset proved instrumental in training GPT-4.<sup>[279]</sup>

In February 2024, *The Intercept* as well as *Raw Story* and Alternate Media Inc. filed lawsuit against OpenAI on copyright litigation ground.<sup>[280][281]</sup> The lawsuit is said to have charted a new legal strategy for digital-only publishers to sue OpenAI.<sup>[282]</sup>

On April 30, 2024, eight newspapers filed a lawsuit in the Southern District of New York against OpenAI and Microsoft, claiming illegal harvesting of their copyrighted articles. The suing publications included *The Mercury News*, *The Denver Post*, *The Orange County Register*, *St. Paul Pioneer Press*, *Chicago Tribune*, *Orlando Sentinel*, *Sun Sentinel*, and *New York Daily News*.<sup>[283]</sup>

## GDPR compliance

In April 2023, the EU's European Data Protection Board (EDPB) formed a dedicated task force on ChatGPT "to foster cooperation and to exchange information on possible enforcement actions conducted by data protection authorities" based on the "enforcement action undertaken by the Italian data protection authority against Open AI about the Chat GPT service".<sup>[284]</sup>

In late April 2024 NOYB filed a complaint with the Austrian Datenschutzbehörde against OpenAI for violating the European General Data Protection Regulation. A text created with ChatGPT gave a false date of birth for a living person without giving the individual the option to see the personal data used in the process. A request to correct the mistake was denied. Additionally, neither the recipients of ChatGPT's work nor the sources used, could be made available, OpenAI claimed.<sup>[285]</sup>

## Removal of military and warfare clause

OpenAI quietly deleted its ban on using ChatGPT for "military and warfare". Up until January 10, 2024, its "usage policies" included a ban on "activity that has high risk of physical harm, including," specifically, "weapons development" and "military and warfare." Its new policies prohibit "[using] our service to harm yourself or others" and to "develop or use weapons".<sup>[286][287]</sup> As one of the industry collaborators, OpenAI provides LLM to the Artificial Intelligence Cyber Challenge (AIXCC) sponsored by Defense Advanced Research Projects Agency (DARPA) and Advanced Research Projects Agency for Health to protect software critical to Americans.<sup>[288]</sup>

## Use in state-backed influence operations

In May 2024, OpenAI removed accounts used by state-backed influence operations such as China's Spamouflage and Russia's Doppelganger.<sup>[289][290]</sup> OpenAI banned access to its services from China in July 2024.<sup>[291]</sup>

## Data scraping

In June 2023, a lawsuit claimed that OpenAI scraped 300 billion words online without consent and without registering as a data broker. It was filed in San Francisco, California, by sixteen anonymous plaintiffs. They also claimed that OpenAI and its partner as well as customer Microsoft continued to unlawfully collect and use personal data from millions of consumers worldwide to train artificial intelligence models.<sup>[292]</sup>

## See also

---

- Anthropic – Artificial intelligence research company
- Center for AI Safety – US-based AI safety research center
- Future of Humanity Institute – Defunct Oxford interdisciplinary research centre
- Future of Life Institute – International nonprofit research institute
- Google DeepMind – Artificial intelligence research laboratory
- Machine Intelligence Research Institute – Nonprofit researching AI safety

## Notes

---

- a. The term "pre-training" refers to general language training as distinct from fine-tuning for specific tasks.
- b. One petaflop/s-day is approximately equal to  $10^{20}$  neural net operations.<sup>[174]</sup>

## References

---

1. "I Tried To Visit OpenAI's Office. Hilarity Ensued" (<https://sfstandard.com/technology/i-tried-to-visit-openais-office-hilarity-ensued/>). *The San Francisco Standard*. December 20, 2022. Archived (<https://web.archive.org/web/20230603194312/https://sfstandard.com/technology/i-tried-to-visit-openais-office-hilarity-ensued/>) from the original on June 3, 2023. Retrieved June 3, 2023.
2. Metz, Cade; Isaak, Mike (September 3, 2024). "OpenAI, Still Haunted by Its Chaotic Past, Is Trying to Grow Up" (<https://www.nytimes.com/2024/09/03/technology/openai-chatgpt-revenue.html>). *New York Times*. Archived (<https://web.archive.org/web/20240907201621/https://www.nytimes.com/2024/09/03/technology/openai-chatgpt-revenue.html>) from the original on September 7, 2024. Retrieved September 3, 2024.
3. Woo, Erin; Efrati, Amir (May 4, 2023). "OpenAI's Losses Doubled to \$540 Million as It Developed ChatGPT" (<https://www.theinformation.com/articles/openais-losses-doubled-to-540-million-as-it-developed-chatgpt>). *The Information*. Archived (<https://web.archive.org/web/20230619191257/https://www.theinformation.com/articles/openais-losses-doubled-to-540-million-as-it-developed-chatgpt>) from the original on June 19, 2023. Retrieved June 19, 2023. "In 2022, by comparison, revenue was just \$28 million, mainly from selling access to its AI software... OpenAI's losses roughly doubled to around \$540 million last year as it developed ChatGPT..."

4. Efrati, Amir; Holmes, Aaron (July 24, 2024). "Why OpenAI Could Lose \$5 Billion This Year" (<https://www.theinformation.com/articles/why-openai-could-lose-5-billion-this-year>). *The Information*. Archived (<https://archive.today/20240801185619/https://www.theinformation.com/articles/why-openai-could-lose-5-billion-this-year>) from the original on August 1, 2024.
5. "OpenAI Charter" (<https://openai.com/charter>). *openai.com*. April 9, 2018. Archived (<https://web.archive.org/web/20230714043611/https://openai.com/charter>) from the original on July 14, 2023. Retrieved July 11, 2023.
6. "Artificial: The OpenAI Story" (<https://www.wsj.com/tech/ai/artificial-the-openai-story-21587cbd>). *WSJ*. December 10, 2023. Archived (<https://web.archive.org/web/20231212151657/https://www.wsj.com/tech/ai/artificial-the-openai-story-21587cbd>) from the original on December 12, 2023. Retrieved December 12, 2023.
7. "Models - OpenAI API" (<https://platform.openai.com/docs/models/overview>). *OpenAI*. Archived (<https://archive.today/20231119121512/https://platform.openai.com/docs/models>) from the original on November 19, 2023. Retrieved November 19, 2023.
8. Jindal, Siddharth (February 16, 2024). "OpenAI Steals the Spotlight with Sora" (<https://analyticsindiamag.com/openai-steals-the-spotlight-with-sora-%E2%9C%A8/>). *Analytics India Magazine*. Archived (<https://web.archive.org/web/20240420120154/https://analyticsindiamag.com/openai-steals-the-spotlight-with-sora-%E2%9C%A8/>) from the original on April 20, 2024. Retrieved July 10, 2024.
9. "OPENAI, INC" ([https://opencorporates.com/companies/us\\_de/5902936](https://opencorporates.com/companies/us_de/5902936)). *OpenCorporates*. December 8, 2015. Archived ([https://web.archive.org/web/20230828053254/https://opencorporates.com/companies/us\\_de/5902936](https://web.archive.org/web/20230828053254/https://opencorporates.com/companies/us_de/5902936)) from the original on August 28, 2023. Retrieved August 2, 2023.
10. "Our structure" (<https://openai.com/our-structure>). *OpenAI*. June 28, 2023. Archived (<https://web.archive.org/web/20230729203855/https://openai.com/our-structure>) from the original on July 29, 2023.
11. "Sam Altman Joins Microsoft After OpenAI Ousting" (<https://time.com/6337503/sam-altman-joins-microsoft-ai/>). *Time*. November 20, 2023. Archived (<https://web.archive.org/web/20240625064602/https://time.com/6337503/sam-altman-joins-microsoft-ai/>) from the original on June 25, 2024. Retrieved June 25, 2024.
12. Roth, Emma (March 13, 2023). "Microsoft spent hundreds of millions of dollars on a ChatGPT supercomputer" (<https://www.theverge.com/2023/3/13/23637675/microsoft-chatgpt-bing-millions-dollars-supercomputer-openai>). *The Verge*. Archived (<https://web.archive.org/web/20230330071711/https://www.theverge.com/2023/3/13/23637675/microsoft-chatgpt-bing-millions-dollars-supercomputer-openai>) from the original on March 30, 2023. Retrieved June 25, 2024.
13. Goldman, Sharon. "OpenAI's AGI safety team has been gutted, says ex-researcher" (<https://fortune.com/2024/08/26/openai-agi-safety-researchers-exodus/>). *Fortune*. Retrieved August 29, 2024.
14. "Introducing OpenAI" (<https://openai.com/blog/introducing-openai/>). *OpenAI*. December 12, 2015. Archived (<https://web.archive.org/web/20170808104802/https://openai.com/blog/introducing-openai/>) from the original on August 8, 2017. Retrieved December 23, 2022.
15. "Sam Altman on His Plan to Keep A.I. Out of the Hands of the 'Bad Guys'" (<https://www.vanityfair.com/news/2015/12/sam-altman-elon-musk-openai>). *Vanity Fair*. 2015. Archived (<https://web.archive.org/web/20230203201103/https://www.vanityfair.com/news/2015/12/sam-altman-elon-musk-openai>) from the original on February 3, 2023. Retrieved January 23, 2023.
16. Harris, Mark (May 17, 2023). "Elon Musk used to say he put \$100M in OpenAI, but now it's \$50M: Here are the receipts" (<https://archive.today/20230518211335/https://techcrunch.com/2023/05/17/elon-musk-used-to-say-he-put-100m-in-openai-but-now-its-50m-here-are-the-receipts/>). *TechCrunch*. Archived from the original (<https://techcrunch.com/2023/05/17/elon-musk-used-to-say-he-put-100m-in-openai-but-now-its-50m-here-are-the-receipts/>) on May 18, 2023.

17. "Introducing OpenAI" (<https://blog.openai.com/introducing-openai/>). *OpenAI Blog*. December 12, 2015. Archived (<https://web.archive.org/web/20190224031626/https://blog.openai.com/introducing-openai/>) from the original on February 24, 2019. Retrieved September 29, 2018.
18. "Tech giants pledge \$1bn for 'altruistic AI' venture, OpenAI" (<https://www.bbc.com/news/technology-35082344>). *BBC News*. December 12, 2015. Archived (<https://web.archive.org/web/20180314021831/http://www.bbc.com/news/technology-35082344>) from the original on March 14, 2018. Retrieved December 19, 2015.
19. Seetharaman, Deepa (September 27, 2024). "Turning OpenAI Into a Real Business Is Tearing It Apart" (<https://www.wsj.com/tech/ai/open-ai-division-for-profit-da26c24b>). *The Wall Street Journal*. Archived (<https://archive.today/20240928001622/https://www.wsj.com/tech/ai/open-ai-division-for-profit-da26c24b>) from the original on September 28, 2024. Retrieved September 28, 2024.
20. Conger, Kate. "Elon Musk's Neuralink Sought to Open an Animal Testing Facility in San Francisco" (<https://gizmodo.com/elon-musks-neuralink-sought-to-open-an-animal-testing-f-1823167674>). *Gizmodo*. Archived (<https://web.archive.org/web/20180924145028/https://gizmodo.com/elon-musks-neuralink-sought-to-open-an-animal-testing-f-1823167674>) from the original on September 24, 2018. Retrieved October 11, 2018.
21. Hao, Karen (February 17, 2020). "The messy, secretive reality behind OpenAI's bid to save the world" (<https://www.technologyreview.com/s/615181/ai-openai-moonshot-elon-musk-sam-altman-greg-brockman-messy-secretive-reality/>). *MIT Technology Review*. Archived (<https://web.archive.org/web/20200403023123/https://www.technologyreview.com/s/615181/ai-openai-moonshot-elon-musk-sam-altman-greg-brockman-messy-secretive-reality/>) from the original on April 3, 2020. Retrieved March 9, 2020.
22. Cade Metz (April 27, 2016). "Inside OpenAI, Elon Musk's Wild Plan to Set Artificial Intelligence Free" (<https://www.wired.com/2016/04/openai-elon-musk-sam-altman-plan-to-set-artificial-intelligence-free/>). *Wired*. Archived (<https://web.archive.org/web/20160427162700/http://www.wired.com/2016/04/openai-elon-musk-sam-altman-plan-to-set-artificial-intelligence-free/>) from the original on April 27, 2016. Retrieved April 28, 2016.
23. Dave Gershgorn (April 27, 2016). "Elon Musk's Artificial Intelligence Group Opens A 'Gym' To Train A.I." (<http://www.popsoci.com/elon-musks-artificial-intelligence-group-opens-gym-to-train-ai>) *Popular Science*. Archived (<https://web.archive.org/web/20160430045139/http://www.popsoci.com/elon-musks-artificial-intelligence-group-opens-gym-to-train-ai>) from the original on April 30, 2016. Retrieved April 29, 2016.
24. Carr, Austin; King, Ian (June 15, 2023). "How Nvidia Became ChatGPT's Brain and Joined the \$1 Trillion Club" (<https://www.bloomberg.com/news/features/2023-06-15/nvidia-s-ai-chips-power-chatgpt-and-multibillion-dollar-surge>). *Bloomberg News*. Archived (<https://archive.today/20230618072913/https://www.bloomberg.com/news/features/2023-06-15/nvidia-s-ai-chips-power-chatgpt-and-multibillion-dollar-surge>) from the original on June 18, 2023.
25. Vanian, Jonathan (August 15, 2016). "Elon Musk's Artificial Intelligence Project Just Got a Free Supercomputer" (<https://fortune.com/2016/08/15/elon-musk-artificial-intelligence-openai-nvidia-supercomputer/>). *Fortune*. Archived (<https://archive.today/20230607233501/https://fortune.com/2016/08/15/elon-musk-artificial-intelligence-openai-nvidia-supercomputer/>) from the original on June 7, 2023.
26. Metz, Cade. "Elon Musk's Lab Wants to Teach Computers to Use Apps Just Like Humans Do" (<https://www.wired.com/2016/12/openais-universe-computers-learn-use-apps-like-humans/>). *WIRED*. Archived (<https://web.archive.org/web/20190113173007/https://www.wired.com/2016/12/openais-universe-computers-learn-use-apps-like-humans/>) from the original on January 13, 2019. Retrieved December 31, 2016.
27. Mannes, John. "OpenAI's Universe is the fun parent every artificial intelligence deserves" (<https://techcrunch.com/2016/12/05/openais-universe-is-the-fun-parent-every-artificial-intelligence-deserves/>). *TechCrunch*. Archived (<https://web.archive.org/web/20190219080426/https://techcrunch.com/2016/12/05/openais-universe-is-the-fun-parent-every-artificial-intelligence-deserves/>) from the original on February 19, 2019. Retrieved December 31, 2016.

28. "OpenAI – Universe" (<https://web.archive.org/web/20170101001551/https://universe.openai.com/>). Archived from the original (<https://universe.openai.com/>) on January 1, 2017. Retrieved December 31, 2016.
29. Claburn, Thomas. "Elon Musk-backed OpenAI reveals Universe – a universal training ground for computers" ([https://www.theregister.co.uk/2016/12/05/openai\\_universe\\_reinforcement\\_learning/](https://www.theregister.co.uk/2016/12/05/openai_universe_reinforcement_learning/)). *The Register*. Archived ([https://web.archive.org/web/20170101002022/http://www.theregister.co.uk/2016/12/05/openai\\_universe\\_reinforcement\\_learning/](https://web.archive.org/web/20170101002022/http://www.theregister.co.uk/2016/12/05/openai_universe_reinforcement_learning/)) from the original on January 1, 2017. Retrieved December 31, 2016.
30. "Microsoft to invest \$1 billion in OpenAI" (<https://www.reuters.com/article/us-microsoft-openai/microsoft-to-invest-1-billion-in-openai-idUSKCN1UH1H9>). *Reuters*. July 22, 2019. Archived (<https://web.archive.org/web/20200525132055/https://www.reuters.com/article/us-microsoft-openai/microsoft-to-invest-1-billion-in-openai-idUSKCN1UH1H9>) from the original on May 25, 2020. Retrieved March 6, 2020.
31. Vincent, James (February 21, 2018). "Elon Musk leaves board of AI safety group to avoid conflict of interest with Tesla" (<https://www.theverge.com/2018/2/21/17036214/elon-musk-openai-ai-safety-leaves-board>). *The Verge*. Archived (<https://web.archive.org/web/20201109015711/https://www.theverge.com/2018/2/21/17036214/elon-musk-openai-ai-safety-leaves-board>) from the original on November 9, 2020. Retrieved February 22, 2018.
32. Hern, Alex (February 14, 2019). "New AI fake text generator may be too dangerous to release, say creators" (<https://www.theguardian.com/technology/2019/feb/14/elon-musk-backed-ai-writes-convincing-news-fiction>). *The Guardian*. Archived (<https://web.archive.org/web/20190214173112/https://www.theguardian.com/technology/2019/feb/14/elon-musk-backed-ai-writes-convincing-news-fiction>) from the original on February 14, 2019. Retrieved December 19, 2020.
33. "OpenAI shifts from nonprofit to 'capped-profit' to attract capital" (<https://techcrunch.com/2019/03/11/openai-shifts-from-nonprofit-to-capped-profit-to-attract-capital/>). March 11, 2019. Archived (<https://web.archive.org/web/20230104154138/https://techcrunch.com/2019/03/11/openai-shifts-from-nonprofit-to-capped-profit-to-attract-capital/>) from the original on January 4, 2023. Retrieved January 4, 2023.
34. "To Compete With Google, OpenAI Seeks Investors—and Profits" (<https://www.wired.com/story/compete-google-openai-seeks-investorsand-profits/>). *Wired*. December 3, 2019. Archived (<https://web.archive.org/web/20200314180028/https://www.wired.com/story/compete-google-openai-seeks-investorsand-profits/>) from the original on March 14, 2020. Retrieved March 6, 2020.
35. Kahn, Jeremy (March 11, 2019). "AI Research Group Co-Founded by Elon Musk Starts For-Profit Arm" (<https://www.bloomberg.com/news/articles/2019-03-11/ai-research-group-co-founded-by-musk-starts-for-profit-arm>). *Bloomberg News*. Archived (<https://web.archive.org/web/20191207080100/https://www.bloomberg.com/news/articles/2019-03-11/ai-research-group-co-founded-by-musk-starts-for-profit-arm>) from the original on December 7, 2019. Retrieved March 6, 2020.
36. Metz, Cade (April 19, 2018). "A.I. Researchers Are Making More Than \$1 Million, Even at a Nonprofit" (<https://www.nytimes.com/2018/04/19/technology/artificial-intelligence-salaries-openai.html>). *The New York Times*. ISSN 0362-4331 (<https://search.worldcat.org/issn/0362-4331>). Archived (<https://web.archive.org/web/20180808200610/https://www.nytimes.com/2018/04/19/technology/artificial-intelligence-salaries-openai.html>) from the original on August 8, 2018. Retrieved January 28, 2023.
37. "Microsoft invests in and partners with OpenAI" (<https://openai.com/blog/microsoft-invests-in-and-partners-with-openai>). July 22, 2019. Archived (<https://web.archive.org/web/20230228125554/https://openai.com/blog/microsoft-invests-in-and-partners-with-openai>) from the original on February 28, 2023. Retrieved March 17, 2023.

38. Langston, Jennifer (January 11, 2023). "Microsoft announces new supercomputer, lays out vision for future AI work" (<https://news.microsoft.com/source/features/ai/openai-azure-super-computer/>). *Source*. Archived (<https://web.archive.org/web/20230210180449/https://news.microsoft.com/source/features/ai/openai-azure-super-computer/>) from the original on February 10, 2023. Retrieved February 10, 2023. "Built in collaboration with and exclusively for OpenAI"
39. Foley, Mary Jo (May 19, 2020). "Microsoft builds a supercomputer for OpenAI for training massive AI models" (<https://www.zdnet.com/article/microsoft-builds-a-supercomputer-for-openai-for-training-massive-ai-models/>). *ZDNET*. Archived (<https://web.archive.org/web/20230210180846/https://www.zdnet.com/article/microsoft-builds-a-supercomputer-for-openai-for-training-massive-ai-models/>) from the original on February 10, 2023. Retrieved February 10, 2023.
40. "Microsoft's OpenAI supercomputer has 285,000 CPU cores, 10,000 GPUs" (<https://www.engadget.com/microsoft-openai-supercomputer-azure-150001119.html>). *Engadget*. May 19, 2020. Archived (<https://web.archive.org/web/20230210180859/https://www.engadget.com/microsoft-openai-supercomputer-azure-150001119.html>) from the original on February 10, 2023. Retrieved February 10, 2023. "Microsoft's OpenAI supercomputer has 285,000 CPU cores, 10,000 GPUs. It's one of the five fastest systems in the world."
41. "Microsoft Invests in and Partners with OpenAI to Support Us Building Beneficial AGI" (<https://openai.com/blog/microsoft/>). *OpenAI*. July 22, 2019. Archived (<https://web.archive.org/web/20201107230518/https://openai.com/blog/microsoft/>) from the original on November 7, 2020. Retrieved February 21, 2020.
42. Murgia, Madhumita (August 7, 2019). "DeepMind runs up higher losses and debts in race for AI" (<https://www.ft.com/content/d4280856-b92d-11e9-8a88-aa6628ac896c>). *Financial Times*. Archived (<https://web.archive.org/web/20191226185727/https://www.ft.com/content/d4280856-b92d-11e9-8a88-aa6628ac896c>) from the original on December 26, 2019. Retrieved March 6, 2020.
43. "OpenAI Will Need More Capital Than Any Non-Profit Has Ever Raised" (<https://fortune.com/2019/10/03/openai-will-need-more-capital-than-any-non-profit-has-ever-raised/>). *Fortune*. Archived (<https://web.archive.org/web/20191208040513/https://fortune.com/2019/10/03/openai-will-need-more-capital-than-any-non-profit-has-ever-raised/>) from the original on December 8, 2019. Retrieved March 6, 2020.
44. Vincent, James (July 22, 2019). "Microsoft invests \$1 billion in OpenAI to pursue holy grail of artificial intelligence" (<https://www.theverge.com/2019/7/22/20703578/microsoft-openai-investment-partnership-1-billion-azure-artificial-general-intelligence-agi>). *The Verge*. Archived (<https://web.archive.org/web/20190723011910/https://www.theverge.com/2019/7/22/20703578/microsoft-openai-investment-partnership-1-billion-azure-artificial-general-intelligence-agi>) from the original on July 23, 2019. Retrieved March 6, 2020.
45. Vance, Ashlee (June 11, 2020). "Trillions of Words Analyzed, OpenAI Sets Loose AI Language Colossus" (<https://www.bloomberg.com/news/articles/2020-06-11/trillions-of-words-analyzed-openai-sets-loose-ai-language-colossus>). *Bloomberg News*. Archived (<https://web.archive.org/web/20201013163856/https://www.bloomberg.com/news/articles/2020-06-11/trillions-of-words-analyzed-openai-sets-loose-ai-language-colossus>) from the original on October 13, 2020. Retrieved June 12, 2020.
46. Moss, Sebastian (June 2, 2021). "Eleven OpenAI Employees Break Off to Establish Anthropic, Raise \$124 Million" (<https://aibusiness.com/verticals/eleven-openai-employees-break-off-to-establish-anthropic-raise-124m>). *AI Business*. Archived (<https://web.archive.org/web/20240606002642/https://aibusiness.com/verticals/eleven-openai-employees-break-off-to-establish-anthropic-raise-124m>) from the original on June 6, 2024. Retrieved June 24, 2024.



47. "OpenAI debuts DALL-E for generating images from text" (<https://web.archive.org/web/20210105221534/https://venturebeat.com/2021/01/05/openai-debuts-dall-e-for-generating-images-from-text/>). VentureBeat. January 5, 2021. Archived from the original (<https://venturebeat.com/2021/01/05/openai-debuts-dall-e-for-generating-images-from-text/>) on January 5, 2021. Retrieved January 5, 2021.
48. Roose, Kevin (December 5, 2022). "The Brilliance and Weirdness of ChatGPT" (<https://www.nytimes.com/2022/12/05/technology/chatgpt-ai-twitter.html>). *The New York Times*. Archived (<https://web.archive.org/web/20230118134332/https://www.nytimes.com/2022/12/05/technology/chatgpt-ai-twitter.html>) from the original on January 18, 2023. Retrieved January 5, 2023.
49. Dastin, Jeffrey; Hu, Krystal; Dave, Paresh; Dave, Paresh (December 15, 2022). "Exclusive: ChatGPT owner OpenAI projects \$1 billion in revenue by 2024" (<https://www.reuters.com/business/chatgpt-owner-openai-projects-1-billion-revenue-by-2024-sources-2022-12-15/>). *Reuters*. Archived (<https://web.archive.org/web/20230203201121/https://www.reuters.com/business/chatgpt-owner-openai-projects-1-billion-revenue-by-2024-sources-2022-12-15/>) from the original on February 3, 2023. Retrieved January 5, 2023.
50. Kruppa, Berber Jin and Miles (January 5, 2023). "WSJ News Exclusive | ChatGPT Creator in Investor Talks at \$29 Billion Valuation" (<https://www.wsj.com/articles/chatgpt-creator-openai-is-in-talks-for-tender-offer-that-would-value-it-at-29-billion-11672949279>). *Wall Street Journal*. Archived (<https://web.archive.org/web/20230203201104/https://www.wsj.com/articles/chatgpt-creator-openai-is-in-talks-for-tender-offer-that-would-value-it-at-29-billion-11672949279>) from the original on February 3, 2023. Retrieved January 6, 2023.
51. "Microsoft Adds \$10 Billion to Investment in ChatGPT Maker OpenAI" (<https://www.bloomberg.com/news/articles/2023-01-23/microsoft-makes-multibillion-dollar-investment-in-openai>). *Bloomberg.com*. January 23, 2023. Archived (<https://web.archive.org/web/20230123180447/https://www.bloomberg.com/news/articles/2023-01-23/microsoft-makes-multibillion-dollar-investment-in-openai>) from the original on January 23, 2023. Retrieved January 23, 2023.
52. Capoot, Ashley (January 23, 2023). "Microsoft announces multibillion-dollar investment in ChatGPT-maker OpenAI" (<https://www.cnbc.com/2023/01/23/microsoft-announces-multibillion-dollar-investment-in-chatgpt-maker-openai.html>). *CNBC*. Archived (<https://web.archive.org/web/20230123154020/https://www.cnbc.com/2023/01/23/microsoft-announces-multibillion-dollar-investment-in-chatgpt-maker-openai.html>) from the original on January 23, 2023. Retrieved January 23, 2023.
53. Warren, Tom (January 23, 2023). "Microsoft extends OpenAI partnership in a "multibillion dollar investment" " (<https://www.theverge.com/2023/1/23/23567448/microsoft-openai-partnership-extension-ai>). *The Verge*. Archived (<https://web.archive.org/web/20230429020214/https://www.theverge.com/2023/1/23/23567448/microsoft-openai-partnership-extension-ai>) from the original on April 29, 2023. Retrieved April 29, 2023.
54. "Bard: Google launches ChatGPT rival" (<https://www.bbc.com/news/technology-64546299>). *BBC News*. February 6, 2023. Archived (<https://web.archive.org/web/20230207111531/https://www.bbc.com/news/technology-64546299>) from the original on February 7, 2023. Retrieved February 7, 2023.
55. Vincent, James (February 8, 2023). "Google's AI chatbot Bard makes factual error in first demo" (<https://www.theverge.com/2023/2/8/23590864/google-ai-chatbot-bard-mistake-error-exoplanet-demo>). *The Verge*. Archived (<https://web.archive.org/web/20230212094317/https://www.theverge.com/2023/2/8/23590864/google-ai-chatbot-bard-mistake-error-exoplanet-demo>) from the original on February 12, 2023. Retrieved February 12, 2023.
56. Dotan, Tom (February 7, 2023). "Microsoft Adds ChatGPT AI Technology to Bing Search Engine" (<https://www.wsj.com/articles/microsoft-adds-chatgpt-ai-technology-to-bing-search-engine-11675793525>). *Wall Street Journal*. Archived (<https://web.archive.org/web/20230207185720/https://www.wsj.com/articles/microsoft-adds-chatgpt-ai-technology-to-bing-search-engine-11675793525>) from the original on February 7, 2023. Retrieved February 7, 2023.

57. Dastin, Jeffrey (March 3, 2023). "OpenAI's long-time backer Reid Hoffman leaves board" (<https://www.reuters.com/technology/openais-long-time-backer-reid-hoffman-leaves-board-2023-03-03/>). *Reuters*. Archived (<https://web.archive.org/web/20230513191651/https://www.reuters.com/technology/openais-long-time-backer-reid-hoffman-leaves-board-2023-03-03/>) from the original on May 13, 2023. Retrieved March 17, 2023.
58. "GPT-4" (<https://openai.com/product/gpt-4>). *openai.com*. Archived (<https://web.archive.org/web/20230314165712/https://openai.com/product/gpt-4>) from the original on March 14, 2023. Retrieved March 16, 2023.
59. "Governance of superintelligence" (<https://openai.com/blog/governance-of-superintelligence>). *openai.com*. Archived (<https://web.archive.org/web/20230527061619/https://openai.com/blog/governance-of-superintelligence>) from the original on May 27, 2023. Retrieved May 30, 2023.
60. Wodecki, Ben; Yao, Deborah (May 23, 2023). "OpenAI Founders Warn AI 'Superintelligence' is Like Nuclear Power" (<https://aibusiness.com/responsible-ai/openai-leaders-want-the-public-to-decide-ai-rules>). Archived (<https://web.archive.org/web/20230530042308/https://aibusiness.com/responsible-ai/openai-leaders-want-the-public-to-decide-ai-rules>) from the original on May 30, 2023. Retrieved May 30, 2023.
61. "Introducing Superalignment" (<https://openai.com/index/introducing-superalignment/>). *OpenAI*. July 5, 2023. Archived (<https://web.archive.org/web/20240525041645/https://openai.com/index/introducing-superalignment/>) from the original on May 25, 2024. Retrieved May 25, 2024.
62. "OpenAI acquires start-up Global Illumination to work on core products, ChatGPT" (<https://www.reuters.com/markets/deals/openai-acquires-start-up-global-illumination-work-core-products-chatgpt-2023-08-16/>). *Reuters*. August 16, 2023. Archived (<https://web.archive.org/web/20230817111738/https://www.reuters.com/markets/deals/openai-acquires-start-up-global-illumination-work-core-products-chatgpt-2023-08-16/>) from the original on August 17, 2023. Retrieved August 17, 2023.
63. Edwards, Nathan (September 21, 2023). "Microsoft's unified Copilot is coming to Windows, Edge, and everywhere else" (<https://www.theverge.com/2023/9/21/23883798/microsoft-copilot-unified-windows-11-apps-launch-date>). *The Verge*. Archived (<https://web.archive.org/web/20231207200142/https://www.theverge.com/2023/9/21/23883798/microsoft-copilot-unified-windows-11-apps-launch-date>) from the original on December 7, 2023. Retrieved February 2, 2024.
64. Warren, Tom (December 26, 2023). "Microsoft Copilot is now available as a ChatGPT-like app on Android" (<https://www.theverge.com/2023/12/26/24015198/microsoft-copilot-mobile-app-android-launch>). *The Verge*. Archived (<https://web.archive.org/web/20240131115238/https://www.theverge.com/2023/12/26/24015198/microsoft-copilot-mobile-app-android-launch>) from the original on January 31, 2024. Retrieved February 2, 2024.
65. "Microsoft's Copilot app is now available on iOS" (<https://www.theverge.com/2023/12/29/24019288/microsoft-copilot-app-available-iphone-ipad-ai>). *The Verge*. Vox Media. December 29, 2023. Archived (<https://web.archive.org/web/20240130064608/https://www.theverge.com/2023/12/29/24019288/microsoft-copilot-app-available-iphone-ipad-ai>) from the original on January 30, 2024. Retrieved February 2, 2024.
66. "OpenAI 'in favour' of UK AI legislation, policy chief says" (<https://www.uktech.news/ai/openai-in-favour-of-uk-ai-legislation-policy-chief-says-20240923>). *UKTN*. September 23, 2024. Retrieved September 24, 2024.
67. Northrop, Katrina (December 4, 2023). "G42's Ties To China Run Deep" (<https://www.thewirechina.com/2023/12/03/g42s-ties-to-china-run-deep-g42-peng-xiao/>). *The Wire China*. Archived (<https://web.archive.org/web/20240125203013/https://www.thewirechina.com/2023/12/03/g42s-ties-to-china-run-deep-g42-peng-xiao/>) from the original on January 25, 2024. Retrieved February 17, 2024.

68. "OpenAI Launches Custom ChatGPT Versions" (<https://www.nytimes.com/2023/11/06/technology/openai-custom-chatgpt.html>). *The New York Times*. November 6, 2023. Archived (<https://web.archive.org/web/20231112122229/https://www.nytimes.com/2023/11/06/technology/openai-custom-chatgpt.html>) from the original on November 12, 2023. Retrieved November 12, 2023.
69. Elstrom, Peter (November 15, 2023). "OpenAI Pauses New Signups to Manage Overwhelming Demand" (<https://www.bloomberg.com/news/articles/2023-11-15/openai-pauses-new-signups-to-manage-overwhelming-demand>). *Bloomberg*. Archived (<https://web.archive.org/web/20231115130109/https://www.bloomberg.com/news/articles/2023-11-15/openai-pauses-new-signups-to-manage-overwhelming-demand>) from the original on November 15, 2023. Retrieved November 15, 2023.
70. Idris, Abubakar (December 13, 2023). "OpenAI Reopens ChatGPT Plus Subscriptions" (<https://web.archive.org/web/20231214020417/https://themessenger.com/tech/openai-re-opens-chatgpt-plus-subscriptions>). *The Messenger*. Archived from the original (<https://themessenger.com/tech/openai-re-opens-chatgpt-plus-subscriptions>) on December 14, 2023. Retrieved December 14, 2023.
71. Wiggers, Kyle (January 16, 2024). "OpenAI announces team to build 'crowdsourced' governance ideas into its models" (<https://techcrunch.com/2024/01/16/openai-announces-team-to-build-crowdsourced-governance-ideas-into-its-models/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240116164619/https://techcrunch.com/2024/01/16/openai-announces-team-to-build-crowdsourced-governance-ideas-into-its-models/>) from the original on January 16, 2024. Retrieved January 16, 2024.
72. Field, Hayden (January 18, 2024). "OpenAI announces first partnership with a university" (<https://www.cnbc.com/2024/01/18/openai-announces-first-partnership-with-a-university.html>). *CNBC*. Archived (<https://web.archive.org/web/20240124135634/https://www.cnbc.com/2024/01/18/openai-announces-first-partnership-with-a-university.html>) from the original on January 24, 2024. Retrieved January 18, 2024.
73. Seetharaman, Deepa (February 28, 2024). "SEC Investigating Whether OpenAI Investors Were Misled" (<https://www.wsj.com/tech/sec-investigating-whether-openai-investors-were-misled-9d90b411>). *The Wall Street Journal*. News Corp. Archived (<https://web.archive.org/web/20240229044238/https://www.wsj.com/tech/sec-investigating-whether-openai-investors-were-misled-9d90b411>) from the original on February 29, 2024. Retrieved February 29, 2024.
74. Hagey, Keach; Seetharaman, Deepa; Jin, Berber (November 22, 2023). "Behind the Scenes of Sam Altman's Showdown at OpenAI" (<https://www.wsj.com/tech/ai/altman-firing-openai-520a3a8c>). *The Wall Street Journal*. News Corp. Archived (<https://web.archive.org/web/20231122002607/https://www.wsj.com/tech/ai/altman-firing-openai-520a3a8c>) from the original on November 22, 2023. Retrieved February 29, 2024.
75. Metz, Cade (February 15, 2024). "OpenAI Unveils A.I. That Instantly Generates Eye-Popping Videos" (<https://www.nytimes.com/2024/02/15/technology/openai-sora-videos.html>). *The New York Times*. Archived (<https://web.archive.org/web/20240215220626/https://www.nytimes.com/2024/02/15/technology/openai-sora-videos.html>) from the original on February 15, 2024. Retrieved February 16, 2024.
76. "Sora: Creating video from text" (<https://openai.com/sora>). *openai.com*. Archived (<https://web.archive.org/web/20240217015001/https://openai.com/sora>) from the original on February 17, 2024. Retrieved February 17, 2024.
77. Satariano, Adam; Metz, Cade; Mickle, Tripp (March 1, 2024). "Elon Musk Sues OpenAI and Sam Altman for Violating the Company's Principles" (<https://www.nytimes.com/2024/03/01/technology/elon-musk-openai-sam-altman-lawsuit.html>). *The New York Times*. ISSN 0362-4331 (<https://search.worldcat.org/issn/0362-4331>). Archived (<https://web.archive.org/web/20240306201120/https://www.nytimes.com/2024/03/01/technology/elon-musk-openai-sam-altman-lawsuit.html>) from the original on March 6, 2024. Retrieved March 2, 2024.

78. "Elon Musk v. Samuel Altman et al :: Superior Court of California, County of San Francisco :: State Civil Lawsuit No. CGC 24 612746" (<https://www.plainsite.org/dockets/5ctu7zkg5/superior-court-of-california-county-of-san-francisco/elon-musk-v-samuel-altman-et-al/>). *www.plainsite.org*. Archived (<https://web.archive.org/web/20240309022633/https://www.plainsite.org/dockets/5ctu7zkg5/superior-court-of-california-county-of-san-francisco/elon-musk-v-samuel-altman-et-al/>) from the original on March 9, 2024. Retrieved March 2, 2024.
79. Lopatto, Elizabeth (March 6, 2024). "OpenAI says Elon Musk wanted 'absolute control' of the company" (<https://www.theverge.com/2024/3/5/24091773/openai-response-elon-musk-breach-of-contract-lawsuit>). *The Verge*. Archived (<https://web.archive.org/web/20240310050448/https://www.theverge.com/2024/3/5/24091773/openai-response-elon-musk-breach-of-contract-lawsuit>) from the original on March 10, 2024. Retrieved March 6, 2024.
80. Fried, Ina (March 1, 2024). "Memos: OpenAI execs reject Elon Musk's claims" (<https://www.axios.com/2024/03/01/openai-rejects-elon-musk-lawsuit-claims>). *AXIOS*. Archived (<https://web.archive.org/web/20240304175454/https://www.axios.com/2024/03/01/openai-rejects-elon-musk-lawsuit-claims>) from the original on March 4, 2024. Retrieved March 5, 2024.
81. "OpenAI ridicules Elon Musk's 'incoherent' lawsuit" (<https://edition.cnn.com/2024/03/11/tech/openai-elon-musk-lawsuit-response/index.html>). *CNN*. March 11, 2024. Archived (<https://web.archive.org/web/20240312022927/https://edition.cnn.com/2024/03/11/tech/openai-elon-musk-lawsuit-response/index.html>) from the original on March 12, 2024. Retrieved March 12, 2024.
82. Field, Hayden (June 11, 2024). "Elon Musk drops suit against OpenAI and Sam Altman" (<https://www.cnbc.com/2024/06/11/elon-musk-drops-suit-against-openai-and-sam-altman.html>). *CNBC*. Retrieved June 12, 2024.
83. Kharpal, Arjun (August 5, 2024). "Elon Musk revives lawsuit against OpenAI, Sam Altman in federal court" (<https://www.cnbc.com/2024/08/05/elon-musk-revives-lawsuit-against-openai-sam-altman-in-federal-court.html>). *CNBC*. Archived (<https://web.archive.org/web/20240805125804/https://www.cnbc.com/2024/08/05/elon-musk-revives-lawsuit-against-openai-sam-altman-in-federal-court.html>) from the original on August 5, 2024. Retrieved August 5, 2024.
84. De Avila, Joseph (August 5, 2024). "Elon Musk Revives Lawsuit Against OpenAI and Sam Altman" (<https://www.wsj.com/tech/ai/elon-musk-revives-lawsuit-against-openai-and-sam-altman-d7e5a87c>). *The Wall Street Journal*. News Corp. Archived (<https://web.archive.org/web/20240805154833/https://www.wsj.com/tech/ai/elon-musk-revives-lawsuit-against-openai-and-sam-altman-d7e5a87c>) from the original on August 5, 2024. Retrieved August 5, 2024.
85. Hollister, Sean (May 14, 2024). "OpenAI chief scientist Ilya Sutskever is officially leaving" (<https://www.theverge.com/2024/5/14/24156920/openai-chief-scientist-ilya-sutskever-leaves>). *The Verge*. Archived (<https://web.archive.org/web/20240514234107/https://www.theverge.com/2024/5/14/24156920/openai-chief-scientist-ilya-sutskever-leaves>) from the original on May 14, 2024. Retrieved May 14, 2024.
86. Samuel, Sigal (May 17, 2024). "'I lost trust': Why the OpenAI team in charge of safeguarding humanity imploded" (<https://www.vox.com/future-perfect/2024/5/17/24158403/openai-resignations-ai-safety-ilya-sutskever-jan-leike-artificial-intelligence>). *Vox*. Archived (<https://web.archive.org/web/20240518205458/https://www.vox.com/future-perfect/2024/5/17/24158403/openai-resignations-ai-safety-ilya-sutskever-jan-leike-artificial-intelligence>) from the original on May 18, 2024. Retrieved May 18, 2024.
87. Knight, Will (May 17, 2024). "OpenAI's Long-Term AI Risk Team Has Disbanded" (<https://www.wired.com/story/openai-superalignment-team-disbanded/>). *Wired*. Archived (<https://web.archive.org/web/20240519042239/https://www.wired.com/story/openai-superalignment-team-disbanded/>) from the original on May 19, 2024. Retrieved May 19, 2024.

88. "OpenAI promised 20% of its computing power to combat the most dangerous kind of AI—but never delivered, sources say" (<https://fortune.com/2024/05/21/openai-superalignment-20-compute-commitment-never-fulfilled-sutskever-leike-altman-brockman-murati/>). *Fortune*. Archived (<https://web.archive.org/web/20240523232014/https://fortune.com/2024/05/21/openai-superalignment-20-compute-commitment-never-fulfilled-sutskever-leike-altman-brockman-murati/>) from the original on May 23, 2024. Retrieved May 25, 2024.
89. "Reddit and OpenAI Build Partnership - Upvoted" (<https://www.redditinc.com/blog/reddit-and-oai-partner>). *www.redditinc.com*. May 16, 2024. Archived (<https://web.archive.org/web/20240519012615/https://www.redditinc.com/blog/reddit-and-oai-partner>) from the original on May 19, 2024. Retrieved May 19, 2024.
90. "OpenAI and Wall Street Journal owner News Corp sign content deal" (<https://web.archive.org/web/20240523030813/https://www.theguardian.com/technology/article/2024/may/22/openai-chatgpt-news-corp-deal>). May 22, 2024. Archived from the original (<https://www.theguardian.com/technology/article/2024/may/22/openai-chatgpt-news-corp-deal>) on May 23, 2024. Retrieved May 23, 2024.
91. Fischer, Sara (May 29, 2024). "Exclusive: The Atlantic, Vox Media ink licensing, product deals with OpenAI" (<https://www.axios.com/2024/05/29/atlantic-vox-media-openai-licensing-deal>). *Axios*. Archived (<https://web.archive.org/web/20240531134558/https://www.axios.com/2024/05/29/atlantic-vox-media-openai-licensing-deal>) from the original on May 31, 2024. Retrieved June 3, 2024.
92. Edwards, Benj; Belanger, Ashley (June 1, 2024). "Journalists 'deeply troubled' by OpenAI's content deals with Vox, The Atlantic" (<https://arstechnica.com/information-technology/2024/05/openai-content-deals-with-vox-and-the-atlantic-spark-criticism-from-journalists/>). *Ars Technica*. Archived (<https://web.archive.org/web/20240531224456/https://arstechnica.com/information-technology/2024/05/openai-content-deals-with-vox-and-the-atlantic-spark-criticism-from-journalists/>) from the original on May 31, 2024. Retrieved June 3, 2024.
93. Roose, Kevin (June 4, 2024). "OpenAI Insiders Warn of a 'Reckless' Race for Dominance" (<https://web.archive.org/web/20240605151211/https://www.nytimes.com/2024/06/04/technology/openai-culture-whistleblowers.html>). *The New York Times*. Archived from the original (<https://www.nytimes.com/2024/06/04/technology/openai-culture-whistleblowers.html>) on June 5, 2024. Retrieved June 6, 2024.
94. Wiggers, Kyle (June 10, 2024). "Apple brings ChatGPT to its apps, including Siri" (<https://techcrunch.com/2024/06/10/apple-brings-chatgpt-to-its-apps-including-siri/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240610190918/https://techcrunch.com/2024/06/10/apple-brings-chatgpt-to-its-apps-including-siri/>) from the original on June 10, 2024. Retrieved June 10, 2024.
95. Coldewey, Devin (June 13, 2024). "Former NSA head joins OpenAI board and safety committee" (<https://techcrunch.com/2024/06/13/former-nsa-head-joins-openai-board-and-safety-committee/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240614000140/https://techcrunch.com/2024/06/13/former-nsa-head-joins-openai-board-and-safety-committee/>) from the original on June 14, 2024. Retrieved June 15, 2024.
96. Wiggers, Kyle (June 24, 2024). "OpenAI buys a remote collaboration platform" (<https://techcrunch.com/2024/06/24/openai-buys-a-remote-collaboration-platform/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240629064556/https://techcrunch.com/2024/06/24/openai-buys-a-remote-collaboration-platform/>) from the original on June 29, 2024. Retrieved July 5, 2024.
97. Tong, Anna; Paul, Katie (July 15, 2024). "Exclusive: OpenAI working on new reasoning technology under code name 'Strawberry'" (<https://www.reuters.com/technology/artificial-intelligence/openai-working-new-reasoning-technology-under-code-name-strawberry-2024-07-12/>). *Reuters*. Archived (<https://web.archive.org/web/20240713080951/https://www.reuters.com/technology/artificial-intelligence/openai-working-new-reasoning-technology-under-code-name-strawberry-2024-07-12/>) from the original on July 13, 2024. Retrieved July 22, 2024.

98. Sager, Monica (July 16, 2024). "What we know about OpenAI's secretive 'Project Strawberry' " (<https://www.newsweek.com/openai-strawberry-chat-gpt-ai-sam-altman-1925960>). *Newsweek*. Archived (<https://web.archive.org/web/20240722214700/https://www.newsweek.com/openai-strawberry-chat-gpt-ai-sam-altman-1925960>) from the original on July 22, 2024. Retrieved July 22, 2024.
99. Robison, Kylie (September 12, 2024). "OpenAI releases o1, its first model with 'reasoning' abilities" (<https://www.theverge.com/2024/9/12/24242439/openai-o1-model-reasoning-strawberry-chatgpt>). *The Verge*. Archived (<https://web.archive.org/web/20240913134303/https://www.theverge.com/2024/9/12/24242439/openai-o1-model-reasoning-strawberry-chatgpt>) from the original on September 13, 2024. Retrieved September 13, 2024.
100. Wiggers, Kyle (August 6, 2024). "OpenAI co-founder Schulman leaves for Anthropic, Brockman takes extended leave" (<https://techcrunch.com/2024/08/05/openai-co-founder-leaves-for-anthropic/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240807070712/https://techcrunch.com/2024/08/05/openai-co-founder-leaves-for-anthropic/>) from the original on August 7, 2024. Retrieved August 7, 2024.
101. Field, Hayden (September 25, 2024). "OpenAI CTO Mira Murati announces she's leaving the company" (<https://www.cnbc.com/2024/09/25/openai-cto-mira-murati-announces-shes-leaving-the-company.html>). *CNBC*. Retrieved September 25, 2024.
102. Wiggers, Maxwell Zeff, Kyle (September 25, 2024). "OpenAI CTO Mira Murati says she's leaving the company" (<https://techcrunch.com/2024/09/25/openai-cto-mira-murati-says-shes-leaving-the-company/>). *TechCrunch*. Retrieved September 27, 2024.
103. Cade Metz: *OpenAI Completes Deal That Values Company at \$157 Billion*. (<https://www.nytimes.com/2024/10/02/technology/openai-valuation-150-billion.html>) In: *New York Times*, October 2, 2024. Retrieved October 3, 2024
104. Hu, Krystal (October 2, 2024). "OpenAI closes \$6.6 billion funding haul with investment from Microsoft and Nvidia" (<https://www.reuters.com/technology/artificial-intelligence/openai-closes-66-billion-funding-haul-valuation-157-billion-with-investment-2024-10-02/>). *Reuters*. Retrieved October 3, 2024.
105. "Silicon Valley investors to bankroll artificial-intelligence center" (<http://www.seattletimes.com/business/technology/silicon-valley-investors-to-bankroll-artificial-intelligence-center/>). *The Seattle Times*. December 13, 2015. Archived (<https://web.archive.org/web/20160105181552/http://www.seattletimes.com/business/technology/silicon-valley-investors-to-bankroll-artificial-intelligence-center/>) from the original on January 5, 2016. Retrieved December 19, 2015.
106. Bordoloi, Pritam (May 9, 2022). "OpenAI gets a new president, CTO & COO in the latest rejig" (<https://analyticsindiamag.com/openai-gets-a-new-president-cto-coo-in-the-latest-rejig/>). *AIM*. Archived (<https://web.archive.org/web/20221016010242/https://analyticsindiamag.com/openai-gets-a-new-president-cto-coo-in-the-latest-rejig/>) from the original on October 16, 2022. Retrieved October 11, 2022.
107. "OpenAI hires former Nextdoor CEO Sarah Friar as first CFO" (<https://www.reuters.com/technology/openai-hires-sarah-friar-cfo-2024-06-10/>). *Reuters*. June 10, 2024. Archived (<https://web.archive.org/web/20240611124940/https://www.reuters.com/technology/openai-hires-sarah-friar-cfo-2024-06-10/>) from the original on June 11, 2024. Retrieved June 11, 2024.
108. Peters, Jay (June 13, 2024). "Former head of NSA joins OpenAI board" (<https://www.theverge.com/2024/6/13/24178079/openai-board-paul-nakasone-nsa-safety>). *The Verge*. Archived (<https://web.archive.org/web/20240614060521/https://www.theverge.com/2024/6/13/24178079/openai-board-paul-nakasone-nsa-safety>) from the original on June 14, 2024. Retrieved June 14, 2024.
109. "OpenAI Names Computer Scientist Zico Kolter as New Board Member" (<https://www.bloomberg.com/news/articles/2024-08-08/openai-names-computer-scientist-zico-kolter-as-new-board-member>). *Bloomberg.com*. August 8, 2024. Retrieved August 14, 2024.
110. "Who are OpenAI's new board members?" (<https://www.reuters.com/technology/who-are-openais-new-board-members-2024-03-11/>). *Reuters*. March 11, 2024.

111. Liedtke, Michael. "Elon Musk, Peter Thiel, Reid Hoffman, others back \$1 billion OpenAI research center" ([http://www.mercurynews.com/business/ci\\_29256196/elon-musk-peter-thiel-reid-hoffman-others-back](http://www.mercurynews.com/business/ci_29256196/elon-musk-peter-thiel-reid-hoffman-others-back)). *Mercury News*. Archived ([https://web.archive.org/web/20151222152100/http://www.mercurynews.com/business/ci\\_29256196/elon-musk-peter-thiel-reid-hoffman-others-back](https://web.archive.org/web/20151222152100/http://www.mercurynews.com/business/ci_29256196/elon-musk-peter-thiel-reid-hoffman-others-back)) from the original on December 22, 2015. Retrieved December 19, 2015.
112. Vincent, James (July 22, 2019). "Microsoft invests \$1 billion in OpenAI to pursue holy grail of artificial intelligence" (<https://www.theverge.com/2019/7/22/20703578/microsoft-openai-investment-partnership-1-billion-azure-artificial-general-intelligence-agi>). *The Verge*. Archived (<https://web.archive.org/web/20190723011910/https://www.theverge.com/2019/7/22/20703578/microsoft-openai-investment-partnership-1-billion-azure-artificial-general-intelligence-agi>) from the original on July 23, 2019. Retrieved July 23, 2019.
113. "About OpenAI" (<https://openai.com/about/>). *OpenAI*. December 11, 2015. Archived (<https://web.archive.org/web/20171222181056/https://openai.com/about/>) from the original on December 22, 2017. Retrieved December 23, 2022.
114. "Elon Musk, Infosys, others back OpenAI with \$1 bn" ([https://www.business-standard.com/article/news-ians/elon-musk-infosys-others-back-openai-with-1-bn-115121200862\\_1.html](https://www.business-standard.com/article/news-ians/elon-musk-infosys-others-back-openai-with-1-bn-115121200862_1.html)). *Business Standard India*. Indo-Asian News Service. December 12, 2015. Archived ([https://web.archive.org/web/20190830090926/https://www.business-standard.com/article/news-ians/elon-musk-infosys-others-back-openai-with-1-bn-115121200862\\_1.html](https://web.archive.org/web/20190830090926/https://www.business-standard.com/article/news-ians/elon-musk-infosys-others-back-openai-with-1-bn-115121200862_1.html)) from the original on August 30, 2019. Retrieved August 30, 2019.
115. Shontell, Alyson (December 2, 2023). "The rise of Joshua Kushner: How the young VC quietly built a \$5.3 billion firm, Thrive Capital" (<https://archive.today/20231206150706/https://fortune.com/longform/josh-kushner-net-worth-thrive-capital-investments/>). *Fortune*. Archived from the original (<https://fortune.com/longform/josh-kushner-net-worth-thrive-capital-investments/>) on December 6, 2023.
116. Graham, Paul (December 2, 2023). "Paul Graham on X" (<https://twitter.com/paulg/status/1796174494026879040>).
117. Metz, Cade (October 2, 2024). "OpenAI Completes Deal That Values Company at \$157 Billion" (<https://www.nytimes.com/2024/10/02/technology/openai-valuation-150-billion.html>). *The New York Times*.
118. Piper, Kelsey (November 2, 2018). "Why Elon Musk fears artificial intelligence" (<https://www.vox.com/future-perfect/2018/11/2/18053418/elon-musk-artificial-intelligence-google-deepmind-openai>). *Vox*. Archived (<https://web.archive.org/web/20210423095445/https://www.vox.com/future-perfect/2018/11/2/18053418/elon-musk-artificial-intelligence-google-deepmind-openai>) from the original on April 23, 2021. Retrieved March 10, 2021.
119. Lewontin, Max (December 14, 2015). "Open AI: Effort to democratize artificial intelligence research?" (<http://www.csmonitor.com/Technology/2015/1214/Open-AI-Effort-to-democratize-artificial-intelligence-research>). *The Christian Science Monitor*. Archived (<https://web.archive.org/web/20151219071134/http://www.csmonitor.com/Technology/2015/1214/Open-AI-Effort-to-democratize-artificial-intelligence-research>) from the original on December 19, 2015. Retrieved December 19, 2015.
120. Cade Metz (April 27, 2016). "Inside OpenAI, Elon Musk's Wild Plan to Set Artificial Intelligence Free" (<https://www.wired.com/2016/04/openai-elon-musk-sam-altman-plan-to-set-artificial-intelligence-free/>). *Wired*. Archived (<https://web.archive.org/web/20160427162700/http://www.wired.com/2016/04/openai-elon-musk-sam-altman-plan-to-set-artificial-intelligence-free/>) from the original on April 27, 2016. Retrieved April 28, 2016.
121. Mendoza, Jessica. "Tech leaders launch nonprofit to save the world from killer robots" (<http://www.csmonitor.com/Science/2015/1214/Tech-leaders-launch-nonprofit-to-save-the-world-from-killer-robots>). *The Christian Science Monitor*. Archived (<https://web.archive.org/web/20180703170556/https://www.csmonitor.com/Science/2015/1214/Tech-leaders-launch-nonprofit-to-save-the-world-from-killer-robots>) from the original on July 3, 2018. Retrieved December 19, 2015.

122. Metz, Cade (December 15, 2015). "Elon Musk's Billion-Dollar AI Plan Is About Far More Than Saving the World" (<https://www.wired.com/2015/12/elon-musks-billion-dollar-ai-plan-is-about-far-more-than-saving-the-world/>). *Wired*. Archived (<https://web.archive.org/web/20151219155928/http://www.wired.com/2015/12/elon-musks-billion-dollar-ai-plan-is-about-far-more-than-saving-the-world/>) from the original on December 19, 2015. Retrieved December 19, 2015. "Altman said they expect this decades-long project to surpass human intelligence."
123. Vishal Sikka (December 14, 2015). "OpenAI: AI for All" ([https://web.archive.org/web/20151222094518/http://www.infosysblogs.com/infytalk/2015/12/openai\\_ai\\_for\\_all.html](https://web.archive.org/web/20151222094518/http://www.infosysblogs.com/infytalk/2015/12/openai_ai_for_all.html)). *InfyTalk*. Infosys. Archived from the original ([http://www.infosysblogs.com/infytalk/2015/12/openai\\_ai\\_for\\_all.html](http://www.infosysblogs.com/infytalk/2015/12/openai_ai_for_all.html)) on December 22, 2015. Retrieved December 22, 2015.
124. "Sam Altman's Manifest Destiny" (<http://www.newyorker.com/magazine/2016/10/10/sam-altmans-manifest-destiny>). *The New Yorker*. No. October 10, 2016. Archived (<https://web.archive.org/web/20161004091200/http://www.newyorker.com/magazine/2016/10/10/sam-altmans-manifest-destiny>) from the original on October 4, 2016. Retrieved October 4, 2016.
125. Vincent, James (February 21, 2019). "AI researchers debate the ethics of sharing potentially harmful programs" (<https://www.theverge.com/2019/2/21/18234500/ai-ethics-debate-researchers-harmful-programs-openai>). *The Verge*. Archived (<https://web.archive.org/web/20210209123243/https://www.theverge.com/2019/2/21/18234500/ai-ethics-debate-researchers-harmful-programs-openai>) from the original on February 9, 2021. Retrieved March 6, 2020.
126. "Our approach to alignment research" (<https://openai.com/blog/our-approach-to-alignment-research>). *openai.com*. Archived (<https://web.archive.org/web/20230426111006/https://openai.com/blog/our-approach-to-alignment-research>) from the original on April 26, 2023. Retrieved April 26, 2023.
127. Sorkin, Andrew Ross; Mattu, Ravi; Warner, Bernhard; Kessler, Sarah; Merced, Michael J. de la; Hirsch, Lauren; Livni, Ephrat (November 22, 2023). "The Fallout From Sam Altman's Return to OpenAI" (<https://web.archive.org/web/20231217010304/https://www.nytimes.com/2023/11/22/business/dealbook/openai-altman-microsoft-board.html>). *The New York Times*. ISSN 0362-4331 (<https://search.worldcat.org/issn/0362-4331>). Archived from the original (<https://www.nytimes.com/2023/11/22/business/dealbook/openai-altman-microsoft-board.html>) on December 17, 2023. Retrieved February 17, 2024.
128. Wiggers, Kyle (July 16, 2021). "OpenAI disbands its robotics research team" (<https://venturebeat.com/business/openai-disbands-its-robotics-research-team/>). *VentureBeat*. Archived (<https://web.archive.org/web/20230212150930/https://venturebeat.com/business/openai-disbands-its-robotics-research-team/>) from the original on February 12, 2023. Retrieved February 12, 2023.
129. Lee, Dave (October 15, 2019). "Robot solves Rubik's cube, but not grand challenge" (<https://www.bbc.com/news/technology-50064225>). *BBC News*. Archived (<https://web.archive.org/web/20200403202722/https://www.bbc.com/news/technology-50064225>) from the original on April 3, 2020. Retrieved February 29, 2020.
130. Greg Brockman; John Schulman (April 27, 2016). "OpenAI Gym Beta" (<https://openai.com/blog/openai-gym-beta/>). *OpenAI Blog*. OpenAI. Archived (<https://web.archive.org/web/20190226173517/https://openai.com/blog/openai-gym-beta/>) from the original on February 26, 2019. Retrieved April 29, 2016.
131. "openai/gym" (<https://github.com/openai/gym>). *GitHub*. Archived (<https://web.archive.org/web/20240823033813/https://github.com/openai/gym>) from the original on August 23, 2024. Retrieved August 29, 2024. "The team that has been maintaining Gym since 2021 has moved all future development to Gymnasium, a drop in replacement for Gym (import gymnasium as gym), and Gym will not be receiving any future updates."
132. "Announcing The Farama Foundation - The future of open source reinforcement learning" (<https://farama.org/Announcing-The-Farama-Foundation>). *The Farama Foundation*. October 25, 2022. Archived (<https://web.archive.org/web/20240829061404/https://farama.org/Announcing-The-Farama-Foundation>) from the original on August 29, 2024. Retrieved August 29, 2024.



133. "Gym Retro" (<https://openai.com/blog/gym-retro/>). *OpenAI*. May 25, 2018. Archived (<https://web.archive.org/web/20230212155510/https://openai.com/blog/gym-retro/>) from the original on February 12, 2023. Retrieved February 12, 2023.
134. "AI Sumo Wrestlers Could Make Future Robots More Nimble" (<https://www.wired.com/story/ai-sumo-wrestlers-could-make-future-robots-more-nimble/>). *Wired*. October 11, 2017. Archived (<https://web.archive.org/web/20171107024652/https://www.wired.com/story/ai-sumo-wrestlers-could-make-future-robots-more-nimble/>) from the original on November 7, 2017. Retrieved November 2, 2017.
135. "OpenAI's Goofy Sumo-Wrestling Bots Are Smarter Than They Look" (<https://www.technologyreview.com/the-download/609117/openais-goofy-sumo-wrestling-bots-are-smarter-than-the-y-look/>). *MIT Technology Review*. Archived (<https://web.archive.org/web/20181109021143/https://www.technologyreview.com/the-download/609117/openais-goofy-sumo-wrestling-bots-are-smarter-than-the-y-look/>) from the original on November 9, 2018. Retrieved November 2, 2017.
136. Savov, Vlad (August 14, 2017). "My favorite game has been invaded by killer AI bots and Elon Musk hype" (<https://www.theverge.com/2017/8/14/16141938/dota-2-openai-bots-elon-musk-artificial-intelligence>). *The Verge*. Archived (<https://web.archive.org/web/20180626030145/https://www.theverge.com/2017/8/14/16141938/dota-2-openai-bots-elon-musk-artificial-intelligence>) from the original on June 26, 2018. Retrieved June 25, 2018.
137. Frank, Blair Hanley. "OpenAI's bot beats top Dota 2 player so badly that he quits" (<https://web.archive.org/web/20170812065202/https://venturebeat.com/2017/08/11/openais-bot-beats-top-dota-2-player-so-badly-that-he-quits/>). *Venture Beat*. Archived from the original (<https://venturebeat.com/2017/08/11/openais-bot-beats-top-dota-2-player-so-badly-that-he-quits/>) on August 12, 2017. Retrieved August 12, 2017.
138. "Dota 2" (<https://blog.openai.com/dota-2/>). *blog.openai.com*. August 11, 2017. Archived (<https://web.archive.org/web/20170811235617/https://blog.openai.com/dota-2/>) from the original on August 11, 2017. Retrieved August 12, 2017.
139. "More on Dota 2" (<https://blog.openai.com/more-on-dota-2/>). *blog.openai.com*. August 16, 2017. Archived (<https://web.archive.org/web/20190223171009/https://blog.openai.com/more-on-dota-2/>) from the original on February 23, 2019. Retrieved August 16, 2017.
140. Simonite, Tom. "Can Bots Outwit Humans in One of the Biggest Esports Games?" (<https://www.wired.com/story/can-bots-outwit-humans-in-one-of-the-biggest-esports-games/>). *Wired*. Archived (<https://web.archive.org/web/20180625213810/https://www.wired.com/story/can-bots-outwit-humans-in-one-of-the-biggest-esports-games/>) from the original on June 25, 2018. Retrieved June 25, 2018.
141. Kahn, Jeremy (June 25, 2018). "A Bot Backed by Elon Musk Has Made an AI Breakthrough in Video Game World" (<https://www.bloomberg.com/news/articles/2018-06-25/musk-backed-bot-conquers-e-gamer-teams-in-ai-breakthrough>). *Bloomberg.com*. Bloomberg L.P. Archived (<https://web.archive.org/web/20180627144300/https://www.bloomberg.com/news/articles/2018-06-25/musk-backed-bot-conquers-e-gamer-teams-in-ai-breakthrough>) from the original on June 27, 2018. Retrieved June 27, 2018.
142. Clifford, Catherine (June 28, 2018). "Bill Gates says gamer bots from Elon Musk-backed nonprofit are 'huge milestone' in A.I." (<https://www.cnbc.com/2018/06/27/bill-gates-openai-robots-beating-humans-at-dota-2-is-ai-milestone.html>). *CNBC*. Archived (<https://web.archive.org/web/20180628231125/https://www.cnbc.com/2018/06/27/bill-gates-openai-robots-beating-humans-at-dota-2-is-ai-milestone.html>) from the original on June 28, 2018. Retrieved June 29, 2018.
143. "OpenAI Five Benchmark" (<https://blog.openai.com/openai-five-benchmark/>). *blog.openai.com*. July 18, 2018. Archived (<https://web.archive.org/web/20190213165905/https://blog.openai.com/openai-five-benchmark/>) from the original on February 13, 2019. Retrieved August 25, 2018.

144. Vincent, James (June 25, 2018). "AI bots trained for 180 years a day to beat humans at Dota 2" (<https://www.theverge.com/2018/6/25/17492918/openai-dota-2-bot-ai-five-5v5-matches>). *The Verge*. Archived (<https://web.archive.org/web/20180625183203/https://www.theverge.com/2018/6/25/17492918/openai-dota-2-bot-ai-five-5v5-matches>) from the original on June 25, 2018. Retrieved June 25, 2018.
145. Savov, Vlad (August 6, 2018). "The OpenAI Dota 2 bots just defeated a team of former pros" (<https://www.theverge.com/2018/8/6/17655086/dota2-openai-bots-professional-gaming-ai>). *The Verge*. Archived (<https://web.archive.org/web/20180807113227/https://www.theverge.com/2018/8/6/17655086/dota2-openai-bots-professional-gaming-ai>) from the original on August 7, 2018. Retrieved August 7, 2018.
146. Simonite, Tom. "Pro Gamers Fend off Elon Musk-Backed AI Bots—for Now" (<https://www.wired.com/story/pro-gamers-fend-off-elon-musks-ai-bots/>). *Wired*. Archived (<https://web.archive.org/web/20180824120523/https://www.wired.com/story/pro-gamers-fend-off-elon-musks-ai-bots/>) from the original on August 24, 2018. Retrieved August 25, 2018.
147. Quach, Katyanna. "Game over, machines: Humans defeat OpenAI bots once again at video games Olympics" ([https://www.theregister.co.uk/2018/08/24/openai\\_bots\\_eliminated\\_dota\\_2/](https://www.theregister.co.uk/2018/08/24/openai_bots_eliminated_dota_2/)). *The Register*. Archived ([https://web.archive.org/web/20180825110329/https://www.theregister.co.uk/2018/08/24/openai\\_bots\\_eliminated\\_dota\\_2/](https://web.archive.org/web/20180825110329/https://www.theregister.co.uk/2018/08/24/openai_bots_eliminated_dota_2/)) from the original on August 25, 2018. Retrieved August 25, 2018.
148. "The International 2018: Results" (<https://blog.openai.com/the-international-2018-results/>). *blog.openai.com*. August 24, 2018. Archived (<https://web.archive.org/web/20180824131639/https://blog.openai.com/the-international-2018-results/>) from the original on August 24, 2018. Retrieved August 25, 2018.
149. Statt, Nick (April 13, 2019). "OpenAI's Dota 2 AI steamrolls world champion e-sports team with back-to-back victories" (<https://www.theverge.com/2019/4/13/18309459/openai-five-dota-2-finals-ai-bot-competition-og-e-sports-the-international-champion>). *The Verge*. Archived (<https://web.archive.org/web/20190415011925/https://www.theverge.com/2019/4/13/18309459/openai-five-dota-2-finals-ai-bot-competition-og-e-sports-the-international-champion>) from the original on April 15, 2019. Retrieved July 20, 2019.
150. "How to Train Your OpenAI Five" (<https://openai.com/blog/how-to-train-your-openai-five/>). *OpenAI Blog*. April 15, 2019. Archived (<https://web.archive.org/web/20190630013455/https://openai.com/blog/how-to-train-your-openai-five/>) from the original on June 30, 2019. Retrieved July 20, 2019.
151. Wiggers, Kyle (April 22, 2019). "OpenAI's Dota 2 bot defeated 99.4% of players in public matches" (<https://venturebeat.com/2019/04/22/openais-dota-2-bot-defeated-99-4-of-players-in-public-matches/>). *Venture Beat*. Archived (<https://web.archive.org/web/20190711151127/https://venturebeat.com/2019/04/22/openais-dota-2-bot-defeated-99-4-of-players-in-public-matches/>) from the original on July 11, 2019. Retrieved April 22, 2019.
152. Fangasadha, Edbert Felix; Soeroredjo, Steffi; Anderies; Gunawan, Alexander Agung Santoso (September 17, 2022). "Literature Review of OpenAI Five's Mechanisms in Dota 2's Bot Player". *2022 International Seminar on Application for Technology of Information and Communication (ISemantic)* (<https://ieeexplore.ieee.org/document/9920480>). IEEE. pp. 183–190. doi:10.1109/iSemantic55962.2022.9920480 (<https://doi.org/10.1109/iSemantic55962.2022.9920480>). ISBN 978-1-6654-8837-2. S2CID 253047170 (<https://api.semanticscholar.org/CorpusID:253047170>). Archived (<https://web.archive.org/web/20230512224139/https://ieeexplore.ieee.org/document/9920480>) from the original on May 12, 2023. Retrieved August 7, 2023.
153. Vincent, James (July 30, 2018). "OpenAI sets new benchmark for robot dexterity" (<https://www.theverge.com/2018/7/30/17621112/openai-robot-dexterity-dactyl-artificial-intelligence>). *The Verge*. Archived (<https://web.archive.org/web/20230212152342/https://www.theverge.com/2018/7/30/17621112/openai-robot-dexterity-dactyl-artificial-intelligence>) from the original on February 12, 2023. Retrieved February 12, 2023.

154. OpenAI; Andrychowicz, Marcin; Baker, Bowen; Chociej, Maciek; Józefowicz, Rafał; McGrew, Bob; Pachocki, Jakub; Petron, Arthur; Plappert, Matthias; Powell, Glenn; Ray, Alex; Schneider, Jonas; Sidor, Szymon; Tobin, Josh; Welinder, Peter; Weng, Lilian; Zaremba, Wojciech (2019). "Learning Dexterous In-Hand Manipulation". [arXiv:1808.00177v5](https://arxiv.org/abs/1808.00177v5) (<https://arxiv.org/archive/cs.LG>).
155. OpenAI; Akkaya, Ilge; Andrychowicz, Marcin; Chociej, Maciek; Litwin, Mateusz; McGrew, Bob; Petron, Arthur; Paino, Alex; Plappert, Matthias; Powell, Glenn; Ribas, Raphael (2019). "Solving Rubik's Cube with a Robot Hand". [arXiv:1910.07113v1](https://arxiv.org/abs/1910.07113v1) (<https://arxiv.org/archive/cs.LG>).
156. "OpenAI API" (<https://openai.com/blog/openai-api/>). *OpenAI*. June 11, 2020. Archived (<https://web.archive.org/web/20200611150951/https://openai.com/blog/openai-api/>) from the original on June 11, 2020. Retrieved June 14, 2020. "Why did OpenAI choose to release an API instead of open-sourcing the models?  
There are three main reasons we did this. First, commercializing the technology helps us pay for our ongoing AI research, safety, and policy efforts. Second, many of the models underlying the API are very large, taking a lot of expertise to develop and deploy and making them very expensive to run. This makes it hard for anyone except larger companies to benefit from the underlying technology. We're hopeful that the API will make powerful AI systems more accessible to smaller businesses and organizations. Third, the API model allows us to more easily respond to misuse of the technology. Since it is hard to predict the downstream use cases of our models, it feels inherently safer to release them via an API and broaden access over time, rather than release an open source model where access cannot be adjusted if it turns out to have harmful applications."
157. "TechCrunch Startup and Technology News" (<https://techcrunch.com/2020/06/11/openai-makes-an-all-purpose-api-for-its-text-based-ai-capabilities/>). *TechCrunch*. June 11, 2020. Archived (<https://web.archive.org/web/20200612041855/https://techcrunch.com/2020/06/11/openai-makes-an-all-purpose-api-for-its-text-based-ai-capabilities/>) from the original on June 12, 2020. Retrieved June 11, 2020. "If you've ever wanted to try out OpenAI's vaunted machine learning toolset, it just got a lot easier. The company has released an API that lets developers call its AI tools in on "virtually any English language task.""
158. "GPT-1 to GPT-4: Each of OpenAI's GPT Models Explained and Compared" (<https://www.makeuseof.com/gpt-models-explained-and-compared/>). April 11, 2023. Archived (<https://web.archive.org/web/20230415175013/https://www.makeuseof.com/gpt-models-explained-and-compared/>) from the original on April 15, 2023. Retrieved April 29, 2023.
159. "Improving Language Understanding by Generative Pre-Training" ([https://cdn.openai.com/research-covers/language-unsupervised/language\\_understanding\\_paper.pdf](https://cdn.openai.com/research-covers/language-unsupervised/language_understanding_paper.pdf)) (PDF). Archived ([https://web.archive.org/web/20210126024542/https://cdn.openai.com/research-covers/language-unsupervised/language\\_understanding\\_paper.pdf](https://web.archive.org/web/20210126024542/https://cdn.openai.com/research-covers/language-unsupervised/language_understanding_paper.pdf)) (PDF) from the original on January 26, 2021. Retrieved June 9, 2020.
160. Hern, Alex (February 14, 2019). "New AI fake text generator may be too dangerous to release, say creators" (<https://www.theguardian.com/technology/2019/feb/14/elon-musk-backed-ai-writes-convincing-news-fiction>). *The Guardian*. Archived (<https://web.archive.org/web/20190214173112/https://www.theguardian.com/technology/2019/feb/14/elon-musk-backed-ai-writes-convincing-news-fiction>) from the original on February 14, 2019. Retrieved February 14, 2019.
161. Schwartz, Oscar (July 4, 2019). "Could 'fake text' be the next global political threat?" (<https://www.theguardian.com/technology/2019/jul/04/ai-fake-text-gpt-2-concerns-false-information>). *The Guardian*. Archived (<https://web.archive.org/web/20190716035703/https://www.theguardian.com/technology/2019/jul/04/ai-fake-text-gpt-2-concerns-false-information>) from the original on July 16, 2019. Retrieved July 16, 2019.

162. Vincent, James (February 14, 2019). "OpenAI's new multitalented AI writes, translates, and slanders" (<https://www.theverge.com/2019/2/14/18224704/ai-machine-learning-language-models-read-write-openai-gpt2>). *The Verge*. Archived (<https://web.archive.org/web/20201218091707/https://www.theverge.com/2019/2/14/18224704/ai-machine-learning-language-models-read-write-openai-gpt2>) from the original on December 18, 2020. Retrieved July 16, 2019.
163. "GPT-2: 1.5B Release" (<https://openai.com/blog/gpt-2-1-5b-release/>). *OpenAI*. November 5, 2019. Archived (<https://web.archive.org/web/20191114074358/https://openai.com/blog/gpt-2-1-5b-release/>) from the original on November 14, 2019. Retrieved November 14, 2019.
164. "Write With Transformer" (<https://transformer.huggingface.co/>). Archived (<https://web.archive.org/web/20191204060111/https://transformer.huggingface.co/>) from the original on December 4, 2019. Retrieved December 4, 2019.
165. "Talk to Transformer" (<https://talktotransformer.com/>). Archived (<https://web.archive.org/web/20191204015009/https://talktotransformer.com/>) from the original on December 4, 2019. Retrieved December 4, 2019.
166. "CreativeEngines" (<https://creativeengines.ai/>). Archived (<https://web.archive.org/web/20230203201104/https://creativeengines.ai/>) from the original on February 3, 2023. Retrieved June 25, 2021.
167. *Language Models are Unsupervised Multitask Learners* ([https://d4mucfpksyww.cloudfront.net/better-language-models/language\\_models\\_are\\_unsupervised\\_multitask\\_learners.pdf](https://d4mucfpksyww.cloudfront.net/better-language-models/language_models_are_unsupervised_multitask_learners.pdf)) (PDF), archived ([https://web.archive.org/web/20191212223916/https://d4mucfpksyww.cloudfront.net/better-language-models/language\\_models\\_are\\_unsupervised\\_multitask\\_learners.pdf](https://web.archive.org/web/20191212223916/https://d4mucfpksyww.cloudfront.net/better-language-models/language_models_are_unsupervised_multitask_learners.pdf)) (PDF) from the original on December 12, 2019, retrieved December 4, 2019
168. "openai/gpt-3" (<https://github.com/openai/gpt-3>). OpenAI. May 29, 2020. Archived (<https://web.archive.org/web/20201114165742/https://github.com/openai/gpt-3>) from the original on November 14, 2020. Retrieved May 29, 2020.
169. Sagar, Ram (June 3, 2020). "OpenAI Releases GPT-3, The Largest Model So Far" (<https://analyticsindiamag.com/open-ai-gpt-3-language-model/>). *Analytics India Magazine*. Archived (<https://web.archive.org/web/20200804173452/https://analyticsindiamag.com/open-ai-gpt-3-language-model/>) from the original on August 4, 2020. Retrieved June 14, 2020.
170. Brown, Tom; Mann, Benjamin; Ryder, Nick; Subbiah, Melanie; Kaplan, Jared; Dhariwal, Prafulla; Neelakantan, Arvind; Shyam, Pranav; Sastry, Girish; Askell, Amanda; Agarwal, Sandhini (June 1, 2020). "Language Models are Few-Shot Learners". p. appendix. arXiv:2005.14165 (<https://arxiv.org/abs/2005.14165>) [cs.CL (<https://arxiv.org/archive/cs.CL>)].
171. *Language Models are Unsupervised Multitask Learners* ([https://d4mucfpksyww.cloudfront.net/better-language-models/language\\_models\\_are\\_unsupervised\\_multitask\\_learners.pdf](https://d4mucfpksyww.cloudfront.net/better-language-models/language_models_are_unsupervised_multitask_learners.pdf)) (PDF), archived ([https://web.archive.org/web/20191212223916/https://d4mucfpksyww.cloudfront.net/better-language-models/language\\_models\\_are\\_unsupervised\\_multitask\\_learners.pdf](https://web.archive.org/web/20191212223916/https://d4mucfpksyww.cloudfront.net/better-language-models/language_models_are_unsupervised_multitask_learners.pdf)) (PDF) from the original on December 12, 2019, retrieved December 4, 2019, "GPT-2, is a 1.5B parameter Transformer"
172. Brown, Tom; Mann, Benjamin; Ryder, Nick; Subbiah, Melanie; Kaplan, Jared; Dhariwal, Prafulla; Neelakantan, Arvind; Shyam, Pranav; Sastry, Girish; Askell, Amanda; Agarwal, Sandhini (June 1, 2020). "Language Models are Few-Shot Learners". arXiv:2005.14165 (<https://arxiv.org/abs/2005.14165>) [cs.CL (<https://arxiv.org/archive/cs.CL>)]. "Since we increase the capacity by over two orders of magnitude from GPT-2 to GPT-3"
173. Ray, Tiernan (2020). "OpenAI's gigantic GPT-3 hints at the limits of language models for AI" (<https://www.zdnet.com/article/openais-gigantic-gpt-3-hints-at-the-limits-of-language-models-for-ai/>). ZDNet. Archived (<https://web.archive.org/web/20200601081629/https://www.zdnet.com/article/openais-gigantic-gpt-3-hints-at-the-limits-of-language-models-for-ai/>) from the original on June 1, 2020. Retrieved June 5, 2020.

174. Amodei, Dario; Hernandez, Danny (May 16, 2018). "AI and Compute" (<https://openai.com/blog/ai-and-compute/#fn2>). Archived (<https://web.archive.org/web/20200617200602/https://openai.com/blog/ai-and-compute/#fn2>) from the original on June 17, 2020. Retrieved August 30, 2020. "A petaflop/s-day (pfs-day) consists of performing  $10^{15}$  neural net operations per second for one day, or a total of about  $10^{20}$  operations. The compute-time product serves as a mental convenience, similar to kW-hr for energy."
175. Eadicicco, Lisa. "The artificial intelligence company that Elon Musk helped found is now selling the text-generation software it previously said was too dangerous to launch" (<https://www.businessinsider.com/elon-musk-openai-sell-text-tool-it-said-was-dangerous-2020-6>). *Business Insider*. Archived (<https://web.archive.org/web/20201114205255/https://www.businessinsider.com/elon-musk-openai-sell-text-tool-it-said-was-dangerous-2020-6>) from the original on November 14, 2020. Retrieved July 6, 2020.
176. "OpenAI is giving Microsoft exclusive access to its GPT-3 language model" (<https://www.technologyreview.com/2020/09/23/1008729/openai-is-giving-microsoft-exclusive-access-to-its-gpt-3-language-model/>). *MIT Technology Review*. Archived (<https://web.archive.org/web/20210205121656/https://www.technologyreview.com/2020/09/23/1008729/openai-is-giving-microsoft-exclusive-access-to-its-gpt-3-language-model/>) from the original on February 5, 2021. Retrieved September 24, 2020.
177. "Microsoft gets exclusive license for OpenAI's GPT-3 language model" (<https://venturebeat.com/2020/09/22/microsoft-gets-exclusive-license-for-openais-gpt-3-language-model/>). *VentureBeat*. September 22, 2020. Archived (<https://web.archive.org/web/20201108090524/https://venturebeat.com/2020/09/22/microsoft-gets-exclusive-license-for-openais-gpt-3-language-model/>) from the original on November 8, 2020. Retrieved September 24, 2020.
178. Alford, Anthony (August 31, 2021). "OpenAI Announces 12 Billion Parameter Code-Generation AI Codex" (<https://www.infoq.com/news/2021/08/openai-codex/>). *InfoQ*. Archived (<https://web.archive.org/web/20220709221205/https://www.infoq.com/news/2021/08/openai-codex/>) from the original on July 9, 2022. Retrieved September 3, 2021.
179. Wiggers, Kyle (July 8, 2021). "OpenAI warns AI behind GitHub's Copilot may be susceptible to bias" (<https://venturebeat.com/2021/07/08/openai-warns-ai-behind-githubs-copilot-may-be-susceptible-to-bias/>). *VentureBeat*. Archived (<https://web.archive.org/web/20230203201912/https://venturebeat.com/business/openai-warns-ai-behind-githubs-copilot-may-be-susceptible-to-bias/>) from the original on February 3, 2023. Retrieved September 3, 2021.
180. Zaremba, Wojciech (August 10, 2021). "OpenAI Codex" (<https://openai.com/blog/openai-codex/>). *OpenAI*. Archived (<https://web.archive.org/web/20230203201912/https://openai.com/blog/openai-codex/>) from the original on February 3, 2023. Retrieved September 3, 2021.
181. Dickson, Ben (August 16, 2021). "What to expect from OpenAI's Codex API" (<https://venturebeat.com/2021/08/16/what-to-expect-from-openais-codex-api/>). *VentureBeat*. Archived (<https://web.archive.org/web/20230203201913/https://venturebeat.com/ai/what-to-expect-from-openais-codex-api/>) from the original on February 3, 2023. Retrieved September 3, 2021.
182. Claburn, Thomas (August 25, 2021). "GitHub's Copilot may steer you into dangerous waters about 40% of the time – study" ([https://www.theregister.com/2021/08/25/github\\_copilot\\_study/](https://www.theregister.com/2021/08/25/github_copilot_study/)). *The Register*. Archived ([https://web.archive.org/web/20230203201913/https://www.theregister.com/2021/08/25/github\\_copilot\\_study/](https://web.archive.org/web/20230203201913/https://www.theregister.com/2021/08/25/github_copilot_study/)) from the original on February 3, 2023. Retrieved September 3, 2021.
183. "GitHub Copilot: The Latest in the List of AI Generative Models Facing Copyright Allegations" (<https://analyticsindiamag.com/github-copilot-the-latest-in-the-list-of-ai-generative-models-facing-copyright-allegations/>). *Analytics India Magazine*. October 23, 2022. Archived (<https://web.archive.org/web/20230322031738/https://analyticsindiamag.com/github-copilot-the-latest-in-the-list-of-ai-generative-models-facing-copyright-allegations/>) from the original on March 22, 2023. Retrieved March 23, 2023.

184. "OpenAI Might Invite Legal Trouble" (<https://analyticsindiamag.com/openai-might-invite-legal-trouble/>). *Analytics India Magazine*. March 21, 2023. Archived (<https://web.archive.org/web/20230323205407/https://analyticsindiamag.com/openai-might-invite-legal-trouble/>) from the original on March 23, 2023. Retrieved March 23, 2023.
185. Vincent, James (March 14, 2023). "OpenAI announces GPT-4—the next generation of its AI language model" (<https://www.theverge.com/2023/3/14/23638033/openai-gpt-4-chatgpt-multimodal-deep-learning>). *The Verge*. Archived (<https://web.archive.org/web/20230314195326/https://www.theverge.com/2023/3/14/23638033/openai-gpt-4-chatgpt-multimodal-deep-learning>) from the original on March 14, 2023. Retrieved March 14, 2023.
186. Wiggers, Kyle (March 14, 2023). "OpenAI releases GPT-4, a multimodal AI that it claims is state-of-the-art" (<https://techcrunch.com/2023/03/14/openai-releases-gpt-4-ai-that-it-claims-is-state-of-the-art/>). *TechCrunch*. Archived (<https://web.archive.org/web/20230315003723/https://techcrunch.com/2023/03/14/openai-releases-gpt-4-ai-that-it-claims-is-state-of-the-art/>) from the original on March 15, 2023. Retrieved March 14, 2023.
187. Belfield, Haydn (March 25, 2023). "If your AI model is going to sell, it has to be safe" (<https://www.vox.com/future-perfect/2023/3/25/23655082/ai-openai-gpt-4-safety-microsoft-facebook-meta>). *Vox*. Archived (<https://web.archive.org/web/20230328192017/https://www.vox.com/future-perfect/2023/3/25/23655082/ai-openai-gpt-4-safety-microsoft-facebook-meta>) from the original on March 28, 2023. Retrieved March 30, 2023.
188. Roose, Kevin (September 28, 2023). "The New ChatGPT Can 'See' and 'Talk.' Here's What It's Like" (<https://www.nytimes.com/2023/09/27/technology/new-chatgpt-can-see-hear.html>). *The New York Times*. Archived (<https://web.archive.org/web/20231031055345/https://www.nytimes.com/2023/09/27/technology/new-chatgpt-can-see-hear.html>) from the original on October 31, 2023. Retrieved December 1, 2023.
189. Vincent, James (March 15, 2023). "OpenAI co-founder on company's past approach to openly sharing research: 'We were wrong' " (<https://www.theverge.com/2023/3/15/23640180/openai-gpt-4-launch-closed-research-ilya-sutskever-interview>). *The Verge*. Archived (<https://web.archive.org/web/20230317210900/https://www.theverge.com/2023/3/15/23640180/openai-gpt-4-launch-closed-research-ilya-sutskever-interview>) from the original on March 17, 2023. Retrieved March 18, 2023.
190. Wiggers, Kyle (May 13, 2024). "OpenAI debuts GPT-4o 'omni' model now powering ChatGPT" (<https://techcrunch.com/2024/05/13/openais-newest-model-is-gpt-4o/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240522094111/https://techcrunch.com/2024/05/13/openais-newest-model-is-gpt-4o/>) from the original on May 22, 2024. Retrieved May 13, 2024.
191. van Rijmenam, Mark (May 13, 2024). "OpenAI Launched GPT-4o: The Future of AI Interactions Is Here" (<https://www.thedigitalspeaker.com/openai-gpt4o-future-ai-interactions/>). *The Digital Speaker*. Archived (<https://web.archive.org/web/20240517013424/https://www.thedigitalspeaker.com/openai-gpt4o-future-ai-interactions/>) from the original on May 17, 2024. Retrieved May 17, 2024.
192. Daws, Ryan (May 14, 2024). "GPT-4o delivers human-like AI interaction with text, audio, and vision integration" (<https://www.artificialintelligence-news.com/2024/05/14/gpt-4o-human-like-ai-interaction-text-audio-vision-integration/>). *AI News*. Archived (<https://web.archive.org/web/20240518131148/https://www.artificialintelligence-news.com/2024/05/14/gpt-4o-human-like-ai-interaction-text-audio-vision-integration/>) from the original on May 18, 2024. Retrieved May 18, 2024.
193. "Hello GPT-4o" (<https://openai.com/index/hello-gpt-4o/>). *OpenAI*. Archived (<https://web.archive.org/web/20240514024319/https://openai.com/index/hello-gpt-4o/>) from the original on May 14, 2024. Retrieved July 14, 2024.

194. Franzen, Carl (July 18, 2024). "OpenAI unveils GPT-4o mini — a smaller, much cheaper multimodal AI model" (<https://venturebeat.com/ai/openai-unveils-gpt-4o-mini-a-smaller-much-cheaper-multimodal-ai-model/>). *VentureBeat*. Archived (<https://web.archive.org/web/20240718185315/https://venturebeat.com/ai/openai-unveils-gpt-4o-mini-a-smaller-much-cheaper-multimodal-ai-model/>) from the original on July 18, 2024. Retrieved July 18, 2024.
195. Knight, Will. "OpenAI Announces a New AI Model, Code-Named Strawberry, That Solves Difficult Problems Step by Step" (<https://www.wired.com/story/openai-o1-strawberry-problem-reasoning/>). *Wired*. ISSN 1059-1028 (<https://search.worldcat.org/issn/1059-1028>). Archived (<https://web.archive.org/web/20240914005013/https://www.wired.com/story/openai-o1-strawberry-problem-reasoning/>) from the original on September 14, 2024. Retrieved September 14, 2024.
196. Robison, Kylie (September 12, 2024). "OpenAI releases o1, its first model with 'reasoning' abilities" (<https://www.theverge.com/2024/9/12/24242439/openai-o1-model-reasoning-strawberry-chatgpt>). *The Verge*. Archived (<https://web.archive.org/web/20240913134303/https://www.theverge.com/2024/9/12/24242439/openai-o1-model-reasoning-strawberry-chatgpt>) from the original on September 13, 2024. Retrieved September 17, 2024.
197. "CLIP: Connecting Text and Images" (<https://openai.com/blog/clip/>). January 5, 2021. Archived (<https://web.archive.org/web/20210325202038/https://openai.com/blog/clip/>) from the original on March 25, 2021. Retrieved March 27, 2021.
198. "DALL·E: Creating Images from Text" (<https://openai.com/blog/dall-e/>). January 5, 2021. Archived (<https://web.archive.org/web/20210327133043/https://openai.com/blog/dall-e/>) from the original on March 27, 2021. Retrieved March 27, 2021.
199. "DALL·E 2" (<https://openai.com/dall-e-2/>). *OpenAI*. Archived (<https://web.archive.org/web/20220406141035/https://openai.com/dall-e-2/>) from the original on April 6, 2022. Retrieved April 6, 2022.
200. "ChatGPT: A scientist explains the hidden genius and pitfalls of OpenAI's chatbot" (<https://www.sciencefocus.com/news/chatgpt-scientist-openai-chatbot/>). *BBC Science Focus Magazine*. 2022. Archived (<https://web.archive.org/web/20230203201910/https://www.sciencefocus.com/news/chatgpt-scientist-openai-chatbot/>) from the original on February 3, 2023. Retrieved December 30, 2022.
201. "OpenAI's new AI image generator pushes the limits in detail and prompt fidelity" (<https://web.archive.org/web/20231116152507/https://arstechnica.com/information-technology/2023/09/openai-announces-dall-e-3-a-next-gen-ai-image-generator-based-on-chatgpt/>). Archived from the original (<https://arstechnica.com/information-technology/2023/09/openai-announces-dall-e-3-a-next-gen-ai-image-generator-based-on-chatgpt/>) on November 16, 2023. Retrieved November 21, 2023.
202. "DALL·E 3 is now available in ChatGPT Plus and Enterprise" (<https://web.archive.org/web/20231120155249/https://openai.com/blog/dall-e-3-is-now-available-in-chatgpt-plus-and-enterprise>). Archived from the original (<https://openai.com/blog/dall-e-3-is-now-available-in-chatgpt-plus-and-enterprise>) on November 20, 2023. Retrieved November 21, 2023.
203. Metz, Cade (February 15, 2024). "OpenAI Unveils A.I. That Instantly Generates Eye-Popping Videos" (<https://www.nytimes.com/2024/02/15/technology/openai-sora-videos.html>). *The New York Times*. Archived (<https://web.archive.org/web/20240215220626/https://www.nytimes.com/2024/02/15/technology/openai-sora-videos.html>) from the original on February 15, 2024. Retrieved February 16, 2024.
204. "Video generation models as world simulators" (<https://openai.com/research/video-generation-models-as-world-simulators>). OpenAI. February 15, 2024. Archived (<https://web.archive.org/web/20240216072133/https://openai.com/research/video-generation-models-as-world-simulators>) from the original on February 16, 2024. Retrieved February 16, 2024.

205. Brooks, Tim; Peebles, Bill; Holmes, Connor; DePue, Will; Guo, Yufei; Jing, Li; Schnurr, David; Taylor, Joe; Luhman, Troy; Luhman, Eric; Ng, Clarence Wing Yin; Wang, Ricky; Ramesh, Aditya (February 15, 2024). "Video generation models as world simulators" (<https://openai.com/research/video-generation-models-as-world-simulators>). *Openai.com*. OpenAI. Archived (<https://web.archive.org/web/20240216072133/https://openai.com/research/video-generation-models-as-world-simulators>) from the original on February 16, 2024. Retrieved February 16, 2024.
206. Pequeño IV, Antonio (February 15, 2024). "OpenAI Reveals 'Sora': AI Video Model Capable Of Realistic Text-To-Video Prompts" (<https://www.forbes.com/sites/antoniopequenoiv/2024/02/15/openai-reveals-sora-ai-video-model-capable-of-realistic-text-to-video-prompts/>). *Forbes*. Archived (<https://web.archive.org/web/20240215220634/https://www.forbes.com/sites/antoniopequenoiv/2024/02/15/openai-reveals-sora-ai-video-model-capable-of-realistic-text-to-video-prompts/>) from the original on February 15, 2024. Retrieved February 16, 2024.
207. Clark, Elijah. "Tyler Perry Warns Of AI Threat After Sora Debut Halts An \$800 Million Studio Expansion" (<https://www.forbes.com/sites/elijahclark/2024/02/23/tyler-perry-warns-of-ai-threat-to-jobs-after-viewing-openai-sora/>). *Forbes*. Retrieved March 24, 2024.
208. Wiggers, Kyle (September 21, 2022). "OpenAI open-sources Whisper, a multilingual speech recognition system" (<https://techcrunch.com/2022/09/21/openai-open-sources-whisper-a-multilingual-speech-recognition-system/>). *TechCrunch*. Archived (<https://web.archive.org/web/20230212154543/https://techcrunch.com/2022/09/21/openai-open-sources-whisper-a-multilingual-speech-recognition-system/>) from the original on February 12, 2023. Retrieved February 12, 2023.
209. Radford, Alec; Kim, Jong Wook; Xu, Tao; Brockman, Greg; McLeavey, Christine; Sutskever, Ilya (2022). "Robust Speech Recognition via Large-Scale Weak Supervision". *arXiv:2212.04356* (<https://arxiv.org/abs/2212.04356>) [eess.AS (<https://arxiv.org/archive/eess>. AS)].
210. "OpenAI's MuseNet generates AI music at the push of a button" (<https://www.theverge.com/2019/4/26/18517803/openai-musenet-artificial-intelligence-ai-music-generation-lady-gaga-harry-potter-mozart>). *The Verge*. April 2019. Archived (<https://web.archive.org/web/20190628164236/https://www.theverge.com/2019/4/26/18517803/openai-musenet-artificial-intelligence-ai-music-generation-lady-gaga-harry-potter-mozart>) from the original on June 28, 2019. Retrieved June 8, 2020.
211. "MuseNet" (<https://openai.com/blog/musenet/>). OpenAI. April 25, 2019. Archived (<https://web.archive.org/web/20200613055143/https://openai.com/blog/musenet/>) from the original on June 13, 2020. Retrieved June 8, 2020.
212. "Arcade Attack Podcast – September (4 of 4) 2020 - Alex Hall (Ben Drowned) - Interview" (<https://www.arcadeattack.co.uk/podcast-september-4-2020/>). *Arcade Attack*. September 28, 2020. Archived (<https://web.archive.org/web/20230203201108/https://www.arcadeattack.co.uk/podcast-september-4-2020/>) from the original on February 3, 2023. Retrieved January 29, 2023.
213. "Archived copy" (<https://mobile.twitter.com/alexanderdhall/status/1276186528264392707>). Archived (<https://web.archive.org/web/20230203201107/https://mobile.twitter.com/alexanderdhall/status/1276186528264392707>) from the original on February 3, 2023. Retrieved January 29, 2023.
214. "OpenAI introduces Jukebox, a new AI model that generates genre-specific music" (<https://www.theverge.com/2020/4/30/21243038/openai-jukebox-model-raw-audio-lyrics-ai-generated-copyright>). *The Verge*. April 30, 2020. Archived (<https://web.archive.org/web/20200608043659/https://www.theverge.com/2020/4/30/21243038/openai-jukebox-model-raw-audio-lyrics-ai-generated-copyright>) from the original on June 8, 2020. Retrieved June 8, 2020.



215. Stephen, Bijan (April 30, 2020). "OpenAI introduces Jukebox, a new AI model that generates genre-specific music" (<https://www.businessinsider.com/jukebox-ai-music-generator-realistic-songs-machine-learning-algorithm-deepfakes-2020-5>). *Business Insider*. Archived (<https://web.archive.org/web/20200608043703/https://www.businessinsider.com/jukebox-ai-music-generator-realistic-songs-machine-learning-algorithm-deepfakes-2020-5>) from the original on June 8, 2020. Retrieved June 8, 2020.
216. "Jukebox" (<https://openai.com/blog/jukebox/>). OpenAI. April 30, 2020. Archived (<https://web.archive.org/web/20200608043703/https://openai.com/blog/jukebox/>) from the original on June 8, 2020. Retrieved June 8, 2020.
217. Greene, Tristan (May 4, 2018). "OpenAI's Debate Game teaches you and your friends how to lie like robots" (<https://thenextweb.com/artificial-intelligence/2018/05/04/openais-debate-game-teaches-you-and-your-friends-how-to-lie-like-robots/>). *The Next Web*. Archived (<https://web.archive.org/web/20180505005129/https://thenextweb.com/artificial-intelligence/2018/05/04/openais-debate-game-teaches-you-and-your-friends-how-to-lie-like-robots/>) from the original on May 5, 2018. Retrieved May 31, 2018.
218. "Why Scientists Think AI Systems Should Debate Each Other" (<https://www.fastcompany.com/40569116/why-scientists-think-ai-systems-should-debate-each-other>). *Fast Company*. May 8, 2018. Archived (<https://web.archive.org/web/20180519140829/https://www.fastcompany.com/40569116/why-scientists-think-ai-systems-should-debate-each-other>) from the original on May 19, 2018. Retrieved June 2, 2018.
219. "OpenAI Microscope" (<https://openai.com/blog/microscope/>). April 14, 2020. Archived (<https://web.archive.org/web/20230203201911/https://openai.com/blog/microscope/>) from the original on February 3, 2023. Retrieved March 27, 2021.
220. Johnson, Khari (April 14, 2020). "OpenAI launches Microscope to visualize the neurons in popular machine learning models" (<https://venturebeat.com/ai/openai-launches-microscope-to-visualize-the-neurons-in-popular-machine-learning-models/>). *VentureBeat*. Archived (<https://web.archive.org/web/20230212154926/https://venturebeat.com/ai/openai-launches-microscope-to-visualize-the-neurons-in-popular-machine-learning-models/>) from the original on February 12, 2023. Retrieved February 12, 2023.
221. "OpenAI Microscope" (<https://microscope.openai.com/models>). *OpenAI Microscope*. Archived (<https://web.archive.org/web/20230203191623/https://microscope.openai.com/models>) from the original on February 3, 2023. Retrieved March 27, 2021.
222. "Mira Murati via Twitter" (<https://twitter.com/miramurati/status/1599796191243669504>). Mira Murati. December 5, 2022. Archived (<https://web.archive.org/web/20221214090229/https://twitter.com/miramurati/status/1599796191243669504>) from the original on December 14, 2022. Retrieved December 15, 2022.
223. "Pricing" (<https://openai.com/pricing>). OpenAI. Archived (<https://web.archive.org/web/20230320175036/https://openai.com/pricing>) from the original on March 20, 2023. Retrieved March 20, 2023.
224. Edwards, Benj (March 14, 2023). "OpenAI's GPT-4 exhibits "human-level performance" on professional benchmarks" (<https://arstechnica.com/information-technology/2023/03/openai-announces-gpt-4-its-next-generation-ai-language-model/>). *Ars Technica*. Archived (<https://web.archive.org/web/20230314225236/https://arstechnica.com/information-technology/2023/03/openai-announces-gpt-4-its-next-generation-ai-language-model/>) from the original on March 14, 2023. Retrieved March 15, 2023.
225. OpenAI (February 1, 2023). "Introducing ChatGPT Plus" (<https://openai.com/blog/chatgpt-plus>). *OpenAI Blog*. Archived (<https://web.archive.org/web/20230320005603/https://openai.com/blog/chatgpt-plus>) from the original on March 20, 2023. Retrieved March 20, 2023.
226. OpenAI. "OpenAI API" (<https://platform.openai.com/>). *platform.openai.com*. Archived (<https://web.archive.org/web/20230320023933/https://platform.openai.com/>) from the original on March 20, 2023. Retrieved March 20, 2023.

227. OpenAI. "GPT-4 API waitlist" (<https://openai.com/waitlist/gpt-4-api>). *openai.com*. Archived (<https://web.archive.org/web/20230320174149/https://openai.com/waitlist/gpt-4-api>) from the original on March 20, 2023. Retrieved March 20, 2023.
228. Wiggers, Kyle (February 1, 2023). "OpenAI launches ChatGPT Plus, starting at \$20 per month" (<https://techcrunch.com/2023/02/01/openai-launches-chatgpt-plus-starting-at-20-per-month/>). *TechCrunch*. Archived (<https://web.archive.org/web/20230212090719/https://techcrunch.com/2023/02/01/openai-launches-chatgpt-plus-starting-at-20-per-month/>) from the original on February 12, 2023. Retrieved February 12, 2023.
229. Lawler, Richard (July 25, 2023). "ChatGPT for Android is now available" (<https://www.theverge.com/2023/7/25/23807012/chatgpt-android-ai-chatbot-openai-llm>). *The Verge*. Archived (<https://web.archive.org/web/20230816172328/https://www.theverge.com/2023/7/25/23807012/chatgpt-android-ai-chatbot-openai-llm>) from the original on August 16, 2023. Retrieved August 17, 2023.
230. "Introducing the ChatGPT app for iOS" (<https://openai.com/blog/introducing-the-chatgpt-app-for-ios>). *openai.com*. Archived (<https://web.archive.org/web/20230605064406/https://openai.com/blog/introducing-the-chatgpt-app-for-ios>) from the original on June 5, 2023. Retrieved August 17, 2023.
231. "ChatGPT Android app FAQ | OpenAI Help Center" (<https://help.openai.com/en/articles/8142208-chatgpt-android-app-faq>). *help.openai.com*. Archived (<https://web.archive.org/web/20230817093628/https://help.openai.com/en/articles/8142208-chatgpt-android-app-faq>) from the original on August 17, 2023. Retrieved August 17, 2023.
232. "ChatGPT can now see, hear, and speak" (<https://openai.com/blog/chatgpt-can-now-see-hear-and-speak>). *openai.com*. Archived (<https://web.archive.org/web/20231107080728/https://openai.com/blog/chatgpt-can-now-see-hear-and-speak>) from the original on November 7, 2023. Retrieved October 16, 2023.
233. Roose, Kevin (September 27, 2023). "The New ChatGPT Can 'See' and 'Talk.' Here's What It's Like" (<https://www.nytimes.com/2023/09/27/technology/new-chatgpt-can-see-hear.html>). *The New York Times*. Archived (<https://web.archive.org/web/20231031055345/https://www.nytimes.com/2023/09/27/technology/new-chatgpt-can-see-hear.html>) from the original on October 31, 2023. Retrieved October 16, 2023 – via NYTimes.com.
234. David, Emilia (September 20, 2023). "OpenAI releases third version of DALL-E" (<https://www.theverge.com/2023/9/20/23881241/openai-dalle-third-version-generative-ai>). *The Verge*. Archived (<https://web.archive.org/web/20230920192429/https://www.theverge.com/2023/9/20/23881241/openai-dalle-third-version-generative-ai>) from the original on September 20, 2023. Retrieved September 23, 2023.
235. Metz, Cade; Hsu, Tiffany (September 20, 2023). "ChatGPT Can Now Generate Images, Too" (<https://www.nytimes.com/2023/09/20/technology/chatgpt-dalle3-images-openai.html>). *The New York Times*. ISSN 0362-4331 (<https://search.worldcat.org/issn/0362-4331>). Archived (<https://web.archive.org/web/20230923154712/https://www.nytimes.com/2023/09/20/technology/chatgpt-dalle3-images-openai.html>) from the original on September 23, 2023. Retrieved September 23, 2023.
236. Fried, Ina (December 1, 2023). "Scoop: OpenAI delays launch of custom GPT store until early 2024" (<https://www.axios.com/2023/12/01/openai-delays-launch-custom-gpt-store-2024>). *Axios*. Archived (<https://web.archive.org/web/20231203003716/https://www.axios.com/2023/12/01/openai-delays-launch-custom-gpt-store-2024>) from the original on December 3, 2023. Retrieved December 3, 2023.
237. Halper, Evan (September 20, 2024). "Microsoft deal would reopen Three Mile Island nuclear plant to power AI" (<https://www.washingtonpost.com/business/2024/09/20/microsoft-three-mile-island-nuclear-constellation/>). *Washington Post*. ISSN 0190-8286 (<https://search.worldcat.org/issn/0190-8286>). Retrieved October 7, 2024.

238. Robison, Kylie (July 25, 2024). "OpenAI announces SearchGPT, its AI-powered search engine" (<https://www.theverge.com/2024/7/25/24205701/openai-searchgpt-ai-search-engine-google-perplexity-rival>). *The Verge*. Archived (<https://web.archive.org/web/20240726180050/https://www.theverge.com/2024/7/25/24205701/openai-searchgpt-ai-search-engine-google-perplexity-rival>) from the original on July 26, 2024. Retrieved July 27, 2024.
239. Wiggers, Kyle (July 25, 2024). "With Google in its sights, OpenAI unveils SearchGPT" (<https://techcrunch.com/2024/07/25/with-google-in-its-sights-openai-unveils-searchgpt/>). *TechCrunch*. Archived (<https://web.archive.org/web/20240726010010/https://techcrunch.com/2024/07/25/with-google-in-its-sights-openai-unveils-searchgpt/>) from the original on July 26, 2024. Retrieved July 26, 2024.
240. Bajwa, Simao, Gregorio, Arsheeya, Paul, David (March 29, 2024). "Microsoft, OpenAI plan \$100 billion data-center project, media report says" (<https://www.reuters.com/technology/microsoft-openai-planning-100-billion-data-center-project-information-reports-2024-03-29/>). *Reuters*. Archived (<https://web.archive.org/web/20240620203250/https://www.reuters.com/technology/microsoft-openai-planning-100-billion-data-center-project-information-reports-2024-03-29/>) from the original on June 20, 2024. Retrieved June 6, 2024.
241. "Microsoft and OpenAI Plot \$100 Billion Stargate AI Supercomputer" (<https://www.theinformation.com/articles/microsoft-and-openai-plot-100-billion-stargate-ai-supercomputer>). *The Information*. March 29, 2024. Retrieved June 6, 2024.
242. "OpenAI announces leadership transition" (<https://openai.com/blog/openai-announces-leadership-transition>). *openai.com*. Archived (<https://web.archive.org/web/20231117212221/https://openai.com/blog/openai-announces-leadership-transition>) from the original on November 17, 2023. Retrieved November 17, 2023.
243. Montgomery, Blake; Anguiano, Dani (November 17, 2023). "OpenAI fires co-founder and CEO Sam Altman for allegedly lying to company board" (<https://www.theguardian.com/technology/2023/nov/17/openai-ceo-sam-altman-fired>). *The Guardian*. Archived (<https://web.archive.org/web/20231117210649/https://www.theguardian.com/technology/2023/nov/17/openai-ceo-sam-altman-fired>) from the original on November 17, 2023. Retrieved November 17, 2023.
244. Peters, Jay (November 18, 2023). "OpenAI co-founder Greg Brockman is leaving, too" (<https://www.theverge.com/2023/11/17/23966277/openai-co-founder-greg-brockman-leaving>). *The Verge*. Archived (<https://web.archive.org/web/20231118003259/https://www.theverge.com/2023/11/17/23966277/openai-co-founder-greg-brockman-leaving>) from the original on November 18, 2023. Retrieved November 18, 2023.
245. "Three Senior OpenAI Researchers Resign as Crisis Deepens" (<https://www.theinformation.com/articles/three-senior-openai-researchers-resign-as-crisis-deepens>). *The Information*. Archived (<https://web.archive.org/web/20231118065056/https://www.theinformation.com/articles/three-senior-openai-researchers-resign-as-crisis-deepens>) from the original on November 18, 2023. Retrieved November 18, 2023.
246. Edwards, Benj (November 18, 2023). "Details emerge of surprise board coup that ousted CEO Sam Altman at OpenAI" (<https://arstechnica.com/information-technology/2023/11/report-sutskever-led-board-coup-at-openai-that-ousted-altman-over-ai-safety-concerns/>). *Ars Technica*. Archived (<https://web.archive.org/web/20231119020114/https://arstechnica.com/information-technology/2023/11/report-sutskever-led-board-coup-at-openai-that-ousted-altman-over-ai-safety-concerns/>) from the original on November 19, 2023. Retrieved November 19, 2023.
247. Seetharaman, Keach Hagey, Berber Jin and Deepa. "OpenAI Investors Trying to Get Sam Altman Back as CEO After Sudden Firing" (<https://www.wsj.com/tech/openai-trying-to-get-sam-altman-back-4b728049>). *WSJ*. Archived (<https://web.archive.org/web/20231118233153/https://www.wsj.com/tech/openai-trying-to-get-sam-altman-back-4b728049>) from the original on November 18, 2023. Retrieved November 19, 2023.

248. Metz, Cade; Isaac, Mike; Griffith, Erin (November 19, 2023). "Sam Altman Is Said to Be Discussing Return to OpenAI With Company's Board" (<https://www.nytimes.com/2023/11/18/technology/sam-altman-openai-board.html?smid=nytcore-ios-share&referringSource=articleShare>). *The New York Times*. Archived (<https://web.archive.org/web/20231119014720/http://www.nytimes.com/2023/11/18/technology/sam-altman-openai-board.html?smid=nytcore-ios-share&referringSource=articleShare>) from the original on November 19, 2023. Retrieved November 19, 2023.
249. Patel, Nilay (November 18, 2023). "OpenAI board in discussions with Sam Altman to return as CEO" (<https://www.theverge.com/2023/11/18/23967199/breaking-openai-board-in-discussions-with-sam-altman-to-return-as-ceo>). *The Verge*. Archived (<https://web.archive.org/web/20231118225333/https://www.theverge.com/2023/11/18/23967199/breaking-openai-board-in-discussions-with-sam-altman-to-return-as-ceo>) from the original on November 18, 2023. Retrieved November 19, 2023.
250. Heath, Alex (November 19, 2023). "The deal to bring Sam Altman back to OpenAI has fallen apart" (<https://www.theverge.com/2023/11/20/23967515/sam-altman-openai-board-fired-new-ceo>). *The Verge*. Archived (<https://web.archive.org/web/20231120053238/https://www.theverge.com/2023/11/20/23967515/sam-altman-openai-board-fired-new-ceo>) from the original on November 20, 2023. Retrieved November 20, 2023.
251. Dastin, Jeffrey (November 21, 2023). "OpenAI's board approached Anthropic CEO about top job and merger" (<https://www.reuters.com/technology/openais-board-approached-anthropic-ceo-about-top-job-merger-sources-2023-11-21/>). *Reuters*. Archived (<https://web.archive.org/web/20231121203624/https://www.reuters.com/technology/openais-board-approached-anthropic-ceo-about-top-job-merger-sources-2023-11-21/>) from the original on November 21, 2023. Retrieved November 21, 2023.
252. Warren, Tom (November 20, 2023). "Microsoft hires former OpenAI CEO Sam Altman" (<https://www.theverge.com/2023/11/20/23968829/microsoft-hires-sam-altman-greg-brockman-employees-openai>). *The Verge*. Archived (<https://web.archive.org/web/20231120133123/https://www.theverge.com/2023/11/20/23968829/microsoft-hires-sam-altman-greg-brockman-employees-openai>) from the original on November 20, 2023. Retrieved November 20, 2023.
253. Patel, Nilay (November 20, 2023). "Sam Altman is still trying to return as OpenAI CEO" (<https://www.theverge.com/2023/11/20/23969586/sam-altman-plotting-return-open-ai-microsoft>). *The Verge*. Archived (<https://web.archive.org/web/20231120191138/https://www.theverge.com/2023/11/20/23969586/sam-altman-plotting-return-open-ai-microsoft>) from the original on November 20, 2023. Retrieved November 20, 2023.
254. "OpenAI Staff Near Total Mutiny With Threat to Jump to Microsoft" (<https://news.bloomberglaw.com/us-law-week/openai-staff-threaten-to-go-to-microsoft-if-board-doesnt-quit>). *Bloomberg*. Archived (<https://web.archive.org/web/20231120201119/https://news.bloomberglaw.com/us-law-week/openai-staff-threaten-to-go-to-microsoft-if-board-doesnt-quit>) from the original on November 20, 2023. Retrieved November 20, 2023.
255. Knight, Will. "OpenAI Staff Threaten to Quit Unless Board Resigns" (<https://www.wired.com/story/openai-staff-walk-protest-sam-altman/>). *Wired*. Archived (<https://web.archive.org/web/20231120150129/https://www.wired.com/story/openai-staff-walk-protest-sam-altman/>) from the original on November 20, 2023. Retrieved November 20, 2023.
256. Tong, Anna; Hu, Krystal; Tong, Anna; Hu, Krystal (November 20, 2023). "Exclusive: OpenAI investors considering suing the board after CEO's abrupt firing" (<https://www.reuters.com/technology/openai-investors-considering-suing-board-after-ceos-abrupt-firing-sources-2023-11-20/>). *Reuters*. Archived (<https://web.archive.org/web/20231120230652/https://www.reuters.com/technology/openai-investors-considering-suing-board-after-ceos-abrupt-firing-sources-2023-11-20/>) from the original on November 20, 2023. Retrieved November 20, 2023.

257. Lawler, Richard (November 21, 2023). "OpenAI exec to employees: 'our number one goal remains to reunify OpenAI.'" (<https://www.theverge.com/2023/11/21/23970550/openai-exec-to-employees-our-number-one-goal-remains-to-reunify-openai>). *The Verge*. Archived (<https://web.archive.org/web/20231121180928/https://www.theverge.com/2023/11/21/23970550/openai-exec-to-employees-our-number-one-goal-remains-to-reunify-openai>) from the original on November 21, 2023. Retrieved November 21, 2023.
258. Heath, Alex (November 22, 2023). "Breaking: Sam Altman to return as CEO of OpenAI" (<https://www.theverge.com/2023/11/22/23967223/sam-altman-returns-ceo-open-ai>). *The Verge*. Archived (<https://web.archive.org/web/20231122060733/https://www.theverge.com/2023/11/22/23967223/sam-altman-returns-ceo-open-ai>) from the original on November 22, 2023. Retrieved November 22, 2023.
259. Anna Tong; Jeffrey Dastin; Krystal Hu (November 22, 2023). "Exclusive: OpenAI researchers warned board of AI breakthrough ahead of CEO ouster, sources say" (<https://www.reuters.com/technology/sam-altmans-ouster-openai-was-precipitated-by-letter-board-about-ai-breakthrough-2023-11-22/>). *Reuters*. Archived (<https://web.archive.org/web/20231123045247/https://www.reuters.com/technology/sam-altmans-ouster-openai-was-precipitated-by-letter-board-about-ai-breakthrough-2023-11-22/>) from the original on November 23, 2023. Retrieved November 23, 2023. "Some at OpenAI believe Q\* (pronounced Q-Star) could be a breakthrough in the startup's search for what's known as artificial general intelligence (AGI), one of the people told Reuters. OpenAI defines AGI as autonomous systems that surpass humans in most economically valuable tasks."
260. "openai/prm800k" (<https://github.com/openai/prm800k>). January 16, 2024. Archived (<https://web.archive.org/web/20231124210953/https://github.com/openai/prm800k>) from the original on November 24, 2023. Retrieved December 4, 2023 – via GitHub.
261. Lightman, Hunter; Kosaraju, Vineet; Burda, Yura; Edwards, Harri; Baker, Bowen; Lee, Teddy; Leike, Jan; Schulman, John; Sutskever, Ilya; Cobbe, Karl (2023). "Let's Verify Step by Step". arXiv:2305.20050 (<https://arxiv.org/abs/2305.20050>) [cs.LG (<https://arxiv.org/archive/cs.LG>)].
262. Tong, Anna; Dastin, Jeffrey; Hu, Krystal (November 23, 2023). "Exclusive: OpenAI researchers warned board of AI breakthrough ahead of CEO ouster, sources say" (<https://www.reuters.com/technology/sam-altmans-ouster-openai-was-precipitated-by-letter-board-about-ai-breakthrough-2023-11-22/>). *Reuters*. Archived (<https://web.archive.org/web/20231211175826/https://www.reuters.com/technology/sam-altmans-ouster-openai-was-precipitated-by-letter-board-about-ai-breakthrough-2023-11-22/>) from the original on December 11, 2023. Retrieved November 23, 2023.
263. Heath, Alex (November 30, 2023). "Microsoft joins OpenAI's board with Sam Altman officially back as CEO" (<https://www.theverge.com/2023/11/29/23981848/sam-altman-back-open-ai-ceo-microsoft-board>). *The Verge*. Archived (<https://web.archive.org/web/20231214033303/https://www.theverge.com/2023/11/29/23981848/sam-altman-back-open-ai-ceo-microsoft-board>) from the original on December 14, 2023. Retrieved December 14, 2023.
264. "Microsoft ditches OpenAI board observer seat amid regulatory scrutiny" (<https://www.channelnewsasia.com/business/microsoft-ditches-openai-board-observer-seat-amid-regulatory-scrutiny-4469086>). *CNA*. Archived (<https://web.archive.org/web/20240711100155/https://www.channelnewsasia.com/business/microsoft-ditches-openai-board-observer-seat-amid-regulatory-scrutiny-4469086>) from the original on July 11, 2024. Retrieved July 10, 2024.
265. Perrigo, Billy (January 18, 2023). "Exclusive: The \$2 Per Hour Workers Who Made ChatGPT Safer" (<https://time.com/6247678/openai-chatgpt-kenya-workers/>). *Time*. Archived (<https://web.archive.org/web/20230119152814/https://time.com/6247678/openai-chatgpt-kenya-workers/>) from the original on January 19, 2023. Retrieved August 5, 2023.

266. Vincent, James (March 15, 2023). "OpenAI co-founder on company's past approach to openly sharing research: 'We were wrong'" (<https://www.theverge.com/2023/3/15/23640180/openai-gpt-4-launch-closed-research-ilya-sutskever-interview>). *The Verge*. Archived (<https://web.archive.org/web/20230317210900/https://www.theverge.com/2023/3/15/23640180/openai-gpt-4-launch-closed-research-ilya-sutskever-interview>) from the original on March 17, 2023. Retrieved August 20, 2023.
267. Piper, Kelsey (May 17, 2024). "ChatGPT can talk, but OpenAI employees sure can't" (<https://www.vox.com/future-perfect/2024/5/17/24158478/openai-departures-sam-altman-employees-chatgpt-release>). *Vox*. Archived (<https://web.archive.org/web/20240518221431/https://www.vox.com/future-perfect/2024/5/17/24158478/openai-departures-sam-altman-employees-chatgpt-release>) from the original on May 18, 2024. Retrieved May 18, 2024.
268. Christian, Jon (May 18, 2024). "OpenAI Employees Forced to Sign NDA Preventing Them From Ever Criticizing Company" (<https://futurism.com/the-byte/openai-nda-criticism>). *Futurism*. Archived (<https://web.archive.org/web/20240518221433/https://futurism.com/the-byte/openai-nda-criticism>) from the original on May 18, 2024. Retrieved May 18, 2024.
269. Getahun, Hannah. "Sam Altman addresses 'potential equity cancellation' in OpenAI exit agreements after 2 high-profile departures" (<https://www.businessinsider.com/sam-altman-openai-nda-clause-vested-equity-ilya-sutskever-2024-5>). *Business Insider*. Archived (<https://web.archive.org/web/20240519130546/https://www.businessinsider.com/sam-altman-openai-nda-clause-vested-equity-ilya-sutskever-2024-5>) from the original on May 19, 2024. Retrieved May 19, 2024.
270. Piper, Kelsey (May 22, 2024). "Leaked OpenAI documents reveal aggressive tactics toward former employees" (<https://www.vox.com/future-perfect/351132/openai-vested-equity-nda-sam-altman-documents-employees>). *Vox*. Archived (<https://web.archive.org/web/20240601161425/https://www.vox.com/future-perfect/351132/openai-vested-equity-nda-sam-altman-documents-employees>) from the original on June 1, 2024. Retrieved June 2, 2024.
271. Field, Hayden (May 24, 2024). "OpenAI sends internal memo releasing former employees from controversial exit agreements" (<https://www.cnn.com/2024/05/24/openai-sends-internal-memo-releasing-former-employees-from-non-disparagement-agreements-sam-altman.html>). *CNN*. Archived (<https://web.archive.org/web/20240530032655/https://www.cnn.com/2024/05/24/openai-sends-internal-memo-releasing-former-employees-from-non-disparagement-agreements-sam-altman.html>) from the original on May 30, 2024. Retrieved June 2, 2024.
272. Belanger, Ashley (July 10, 2023). "Sarah Silverman sues OpenAI, Meta for being 'industrial-strength plagiarists'" (<https://arstechnica.com/information-technology/2023/07/book-authors-sue-openai-and-meta-over-text-used-to-train-ai/>). *Ars Technica*. Archived (<https://web.archive.org/web/20230921134950/https://arstechnica.com/information-technology/2023/07/book-authors-sue-openai-and-meta-over-text-used-to-train-ai/>) from the original on September 21, 2023. Retrieved September 21, 2023.
273. Krithika, K. L. (August 21, 2023). "Legal Challenges Surround OpenAI: A Closer Look at the Lawsuits" (<https://analyticsindiamag.com/all-the-lawsuits-filed-against-openai/>). *Analytics India Magazine*. Archived (<https://web.archive.org/web/20230823225353/https://analyticsindiamag.com/all-the-lawsuits-filed-against-openai/>) from the original on August 23, 2023. Retrieved August 23, 2023.
274. Abshire, Elisha (July 6, 2023). "OpenAI faces copyright lawsuit from authors Mona Awad and Paul Tremblay" (<https://dailyai.com/2023/07/openai-faces-copyright-lawsuit-from-author-s-mona-awad-and-paul-tremblay/>). *DailyAI.com*. Archived (<https://web.archive.org/web/20230718091105/https://dailyai.com/2023/07/openai-faces-copyright-lawsuit-from-author-s-mona-awad-and-paul-tremblay/>) from the original on July 18, 2023. Retrieved July 19, 2023.

275. Belanger, Ashley (September 20, 2023). "Grisham, Martin join authors suing OpenAI: "There is nothing fair about this" [Updated]" (<https://arstechnica.com/tech-policy/2023/09/george-r-r-martin-joins-authors-suing-openai-over-copyright-infringement/>). *Ars Technica*. Archived (<https://web.archive.org/web/20230921164338/https://arstechnica.com/tech-policy/2023/09/george-r-r-martin-joins-authors-suing-openai-over-copyright-infringement/>) from the original on September 21, 2023. Retrieved September 21, 2023.
276. Korn, Jennifer (September 20, 2023). "George R. R. Martin, Jodi Picoult and other famous writers join Authors Guild in class action lawsuit against OpenAI" (<https://www.cnn.com/2023/09/20/tech/authors-guild-openai-lawsuit/index.html>). *CNN Business*. Archived (<https://web.archive.org/web/20230921141901/https://www.cnn.com/2023/09/20/tech/authors-guild-openai-lawsuit/index.html>) from the original on September 21, 2023. Retrieved September 21, 2023.
277. "NY Times sues OpenAI, Microsoft for infringing copyrighted works" (<https://www.reuters.com/legal/transactional/ny-times-sues-openai-microsoft-infringing-copyrighted-work-2023-12-27/>). *Reuters*. December 27, 2023. Archived (<https://web.archive.org/web/20231230163134/https://www.reuters.com/legal/transactional/ny-times-sues-openai-microsoft-infringing-copyrighted-work-2023-12-27/>) from the original on December 30, 2023. Retrieved December 27, 2023.
278. Chowdhury, Darius Rafieyan, Hasan. "OpenAI destroyed a trove of books used to train AI models. The employees who collected the data are gone" (<https://www.businessinsider.com/openai-destroyed-ai-training-datasets-lawsuit-authors-books-copyright-2024-5>). *Business Insider*. Archived (<https://web.archive.org/web/20240507235039/https://www.businessinsider.com/openai-destroyed-ai-training-datasets-lawsuit-authors-books-copyright-2024-5>) from the original on May 7, 2024. Retrieved May 8, 2024. "...Authors Guild said ... the datasets likely contained "more than 100,000 published books" ... central to its allegations that OpenAI used copyrighted materials to train AI models"
279. Metz, Cade; Kang, Cecilia; Frenkel, Sheera; Thompson, Stuart A.; Grant, Nico (April 6, 2024). "How Tech Giants Cut Corners to Harvest Data for A.I." (<https://www.nytimes.com/2024/04/06/technology/tech-giants-harvest-data-artificial-intelligence.html>) *The New York Times*. Archived (<https://web.archive.org/web/20240505040123/https://www.nytimes.com/2024/04/06/technology/tech-giants-harvest-data-artificial-intelligence.html>) from the original on May 5, 2024. Retrieved May 21, 2024.
280. Brittain, Blake (February 29, 2024). "OpenAI hit with new lawsuits from news outlets over AI training" (<https://www.reuters.com/legal/litigation/openai-hit-with-new-lawsuits-news-outlets-over-ai-training-2024-02-28/>). *Reuters*. Retrieved March 24, 2024.
281. OpenAI RAW STORY LAWSUIT INTERCEPT (<https://fingfx.thomsonreuters.com/gfx/legaldocs/xmpjrwjrpr/OPENAI%20RAW%20STORY%20LAWSUIT%20intercept.pdf>) Archived (<https://web.archive.org/web/20240328115412/https://fingfx.thomsonreuters.com/gfx/legaldocs/xmpjrwjrpr/OPENAI%20RAW%20STORY%20LAWSUIT%20intercept.pdf>) March 28, 2024, at the Wayback Machine - from Reuters
282. "The Intercept charts a new legal strategy for digital publishers suing OpenAI" (<https://www.niemanlab.org/2024/03/the-intercept-charts-a-new-legal-strategy-for-digital-publishers-suing-openai/>). *Nieman Lab*. Archived (<https://web.archive.org/web/20240328115412/https://www.niemanlab.org/2024/03/the-intercept-charts-a-new-legal-strategy-for-digital-publishers-suing-openai/>) from the original on March 28, 2024. Retrieved March 28, 2024.
283. Baron, Ethan (April 30, 2024). "Mercury News and other papers sue Microsoft, OpenAI over the new artificial intelligence" (<https://www.eastbaytimes.com/2024/04/30/mercury-news-and-other-papers-sue-microsoft-openai-over-the-new-artificial-intelligence/>). *East Bay Times*. Archived (<https://web.archive.org/web/20240430162841/https://www.eastbaytimes.com/2024/04/30/mercury-news-and-other-papers-sue-microsoft-openai-over-the-new-artificial-intelligence/>) from the original on April 30, 2024. Retrieved April 30, 2024.



284. "EDPB resolves dispute on transfers by Meta and creates task force on Chat GPT" ([https://edpb.europa.eu/news/news/2023/edpb-resolves-dispute-transfers-meta-and-creates-task-force-chat-gpt\\_en](https://edpb.europa.eu/news/news/2023/edpb-resolves-dispute-transfers-meta-and-creates-task-force-chat-gpt_en)). *EDPB resolves dispute on transfers by Meta and creates task force on Chat GPT*. Archived ([https://web.archive.org/web/20231122215754/https://edpb.europa.eu/news/news/2023/edpb-resolves-dispute-transfers-meta-and-creates-task-force-chat-gpt\\_en](https://web.archive.org/web/20231122215754/https://edpb.europa.eu/news/news/2023/edpb-resolves-dispute-transfers-meta-and-creates-task-force-chat-gpt_en)) from the original on November 22, 2023. Retrieved November 22, 2023.
285. "ChatGPT verbreitet falsche Infos über Personen – und OpenAI kann nichts tun" (<https://noyb.eu/de/chatgpt-provides-false-information-about-people-and-openai-cant-correct-it>). *noyb.eu*. Archived (<https://web.archive.org/web/20240429054826/https://noyb.eu/de/chatgpt-provides-false-information-about-people-and-openai-cant-correct-it>) from the original on April 29, 2024. Retrieved April 29, 2024.
286. "OpenAI Quietly Deletes Ban on Using ChatGPT for "Military and Warfare" " (<https://theintercept.com/2024/01/12/open-ai-military-ban-chatgpt/>). January 12, 2024. Archived (<https://web.archive.org/web/20240125091034/https://theintercept.com/2024/01/12/open-ai-military-ban-chatgpt/>) from the original on January 25, 2024. Retrieved January 13, 2024.
287. "OpenAI Is Working With US Military on Cybersecurity Tools" (<https://www.bloomberg.com/news/articles/2024-01-16/openai-working-with-us-military-on-cybersecurity-tools-for-veterans>). *Bloomberg.com*. January 16, 2024. Archived (<https://web.archive.org/web/20240126131713/https://www.bloomberg.com/news/articles/2024-01-16/openai-working-with-us-military-on-cybersecurity-tools-for-veterans>) from the original on January 26, 2024. Retrieved January 23, 2024.
288. "OpenAI | AIxCC" (<https://aicyperchallenge.com/openai/>). *Artificial Intelligence Cyber Challenge*. Archived (<https://web.archive.org/web/20240330202438/https://aicyperchallenge.com/openai/>) from the original on March 30, 2024. Retrieved March 30, 2024.
289. Bond, Shannon (May 30, 2024). "In a first, OpenAI removes influence operations tied to Russia, China and Israel" (<https://www.npr.org/2024/05/30/g-s1-1670/openai-influence-operations-china-russia-israel>). *NPR*. Archived (<https://web.archive.org/web/20240530183810/https://www.npr.org/2024/05/30/g-s1-1670/openai-influence-operations-china-russia-israel>) from the original on May 30, 2024. Retrieved May 30, 2024.
290. Bergengruen, Vera (May 30, 2024). "OpenAI Says Russia, China, and Israel Are Using Its Tools for Foreign Influence Campaigns" (<https://time.com/6983903/openai-foreign-influence-campaigns-artificial-intelligence/>). *Time*. Archived (<https://web.archive.org/web/20240711014517/https://time.com/6983903/openai-foreign-influence-campaigns-artificial-intelligence/>) from the original on July 11, 2024. Retrieved July 11, 2024.
291. "How OpenAI Leaving China Will Reshape the Country's AI Scene" (<https://time.com/6992026/openai-china-ai/>). *Time*. June 26, 2024. Archived (<https://web.archive.org/web/20240711014517/https://time.com/6992026/openai-china-ai/>) from the original on July 11, 2024. Retrieved July 11, 2024.
292. Xiang, Chloe (June 29, 2023). "OpenAI and Microsoft Sued for \$3 Billion Over Alleged ChatGPT 'Privacy Violations' " (<https://www.vice.com/en/article/wxjxgx/openai-and-microsoft-sued-for-dollar3-billion-over-alleged-chatgpt-privacy-violations>). *Vice*. Archived (<https://web.archive.org/web/20240713042222/https://www.vice.com/en/article/wxjxgx/openai-and-microsoft-sued-for-dollar3-billion-over-alleged-chatgpt-privacy-violations>) from the original on July 13, 2024. Retrieved July 13, 2024.

---

## Further reading

---


- Levy, Steven (September 5, 2023). "What OpenAI Really Wants" (<https://www.wired.com/story/what-openai-really-wants>). *Wired*. ISSN 1078-3148 (<https://search.worldcat.org/issn/1078-3148>). Archived (<https://web.archive.org/web/20230906191725/https://www.wired.com/story/what-openai-really-wants/>) from the original on September 6, 2023. Retrieved September 6, 2023.



- Duhigg, Charles (December 1, 2023). "The Inside Story of Microsoft's Partnership with OpenAI" (<https://www.newyorker.com/magazine/2023/12/11/the-inside-story-of-microsofts-partnership-with-openai>). *The New Yorker*. ISSN 0028-792X (<https://search.worldcat.org/issn/0028-792X>). Archived (<https://archive.today/20231222230940/https://www.newyorker.com/magazine/2023/12/11/the-inside-story-of-microsofts-partnership-with-openai>) from the original on December 22, 2023. Retrieved January 15, 2024.

## External links

---

- Official website (<https://openai.com/>) 
  - OpenAI (<https://x.com/OpenAI>) on [Twitter](#)
  - OpenAI (<https://www.instagram.com/OpenAI/>) on [Instagram](#)
  - OpenAI (<https://youtube.com/OpenAI>) on [Youtube](#)
- 

Retrieved from "<https://en.wikipedia.org/w/index.php?title=OpenAI&oldid=1251657287>"