ChatGPT-3 is a chatbot developed by OpenAI, a US-based artificial intelligence research lab. (ddp)

Let's chat about ChatGPT

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ChatGPT-3 has captured headlines and generated a mix of excitement and fear among consumers.

We view ChatGPT-3 as the current leader in a fast growing market that will see significant investment and development by leading, large technology companies globally. Like prior technology developments, we believe artificial intelligence (AI) will ultimately be additive to employment and economic growth.

No, this wasn't written by ChatGPT…but it probably could have been
ChatGPT-3 is a chatbot developed by OpenAI, a US-based artificial intelligence research lab. Many consumers are familiar with chatbots, but less so with the underlying technology. ChatGPT-3 uses a generative pre-trained transformer (GPT) to generate text that is largely identical to human conversation. GPT is part of the broader family of large language models, which are AI models that understand and can generate text.

Large language models are compelling because of their flexibility. With minimal training, large language models can complete sentences, translate a foreign language, summarize information from multiple sources, and generate content ranging from technical answers to humorous vignettes.

Enormous amounts of data from a range of sources are used in the training process. ChatGPT-3 ingested content from books, academic papers, and the entirety of Wikipedia. According to OpenAI, ChatGPT-3 was trained on over 45 terabytes of data. The system iteratively and without supervision learned to predict the next word in a sequence of text. This unsupervised learning required a network of distributed computers, which allowed for a faster learning process than could have been accomplished using a single computer. The combination of a vast amount of ingested data and massive computing power resulted in a model with 175 billion parameters, making it one of the largest language models ever created. Parameters in large language models are essentially the values that the model is solving.

Use cases, from the source
Rather than speculate ourselves, we asked ChatGPT for some potential use cases. Here's its response:

"ChatGPT has many potential use cases including chatbots for customer service and mental health support, personal assistants, content creation, language translation, knowledge management, and education/training."

We see ChatGPT as an engine that will eventually power human interactions with computer systems in a familiar, natural, and intuitive way. As ChatGPT stated, large language models can be put to work as a communication engine in a variety of applications across a number of vertical markets.

Glaringly absent in its answer is the use of ChatGPT in search engines. Microsoft, which is an investor in OpenAI, is integrating ChatGPT into its Bing search engine. The use of a large language model enables more complex and more natural searches and extract deeper meaning and better context from source material. This is ultimately expected to deliver more robust and useful results.

Is AI coming for your job?
Every wave of new and disruptive technology has incited fears of mass job losses due to automation, and we are already seeing those fears expressed relative to AI generally and ChatGPT specifically. The year 1896, when Henry Ford rolled out his first automobile, was probably not a good year for buggy whip makers. When IBM introduced its first mainframe, the System/360, in 1964, office workers feared replacement by mechanical brains that never made mistakes, never called in sick, and never took vacations.

There are certainly historical cases of job displacement due to new technology adoption, and ChatGPT may unseat some office workers or customer service reps. However, we think AI tools broadly will end up as part of the solution in an economy that has more job openings than available workers.

However, economic history shows that technology of any sort (i.e., manufacturing technology, communications technology, information technology) ultimately makes productive workers more productive and is net additive to employment and economic growth.

How big is the opportunity?
The broad AI hardware and services market was nearly USD 36bn in 2020, based on IDC and Bloomberg Intelligence data. We expect the market to grow by 20% CAGR to reach USD 90bn by 2025. Given the relatively early monetization stage of conversational AI, we estimate that the segment accounted for 10% of the broader AI's addressable market in 2020, predominantly from enterprise and consumer subscriptions.

That said, user adoption is rapidly rising. ChatGPT reached its first 1 million user milestone in a week, surpassing Instagram to become the quickest application to do so. Similarly, we see strong interest from enterprises to integrate conservational AI into their existing ecosystem. As a result, we believe conversational AI's share in the broader AI's addressable market can climb to 20% by 2025 (USD 18–20bn). Our estimate may prove to be conservative; they could be even higher if conversational AI improvements (in terms of computing power, machine learning, and deep learning capabilities), availability of talent, enterprise adoption, spending from governments, and incentives are stronger than expected.

How to invest in AI?
We see artificial intelligence as a horizontal technology that will have important use cases across a number of applications and industries. From a broader perspective, AI, along with big data and cybersecurity, forms what we call the ABCs of technology. We believe these three major foundational technologies are at inflection points and should see faster adoption over the next few years as enterprises and governments increase their focus and investments in these areas.

Conservational AI is currently in its early stages of monetization and costs remain high as it is expensive to run. Instead of investing directly in such platforms, interested investors in the short term can consider semiconductor companies, and cloud-service providers that provides the infrastructure needed for generative AI to take off. In the medium to long term, companies can integrate generative AI to improve margins across industries and sectors, such as within healthcare and traditional manufacturing.

Outside of public equities, investors can also consider opportunities in private equity (PE). We believe the tech sector is currently undergoing a new innovation cycle after 12–18 months of muted activity, which provides interesting and new opportunities that PE can capture through early-stage investments.

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See the original report - Let's chat about ChatGPT, 22 February, 2023.

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Non-traditional asset classes are alternative investments that include hedge funds, private equity, real estate, and managed futures (collectively, alternative investments). Interests of alternative investment funds are sold only to qualified investors, and only by means of offering documents that include information about the risks, performance and expenses of alternative investment funds, and which clients are urged to read carefully before subscribing and retain. An investment in an alternative investment fund is speculative and involves significant risks. Specifically, these investments (1) are not mutual funds and are not subject to the same regulatory requirements as mutual funds; (2) may have performance that is volatile, and investors may lose all or a substantial amount of their investment; (3) may engage in leverage and other speculative investment practices that may increase the risk of investment loss; (4) are long-term, illiquid investments, there is generally no secondary market for the interests of a fund, and none is expected to develop; (5) interests of alternative investment funds typically will be illiquid and subject to restrictions on transfer; (6) may not be required to provide periodic pricing or valuation information to investors; (7) generally involve complex tax strategies and there may be delays in distributing tax information to investors; (8) are subject to high fees, including management fees and other fees and expenses, all of which will reduce profits.

Interests in alternative investment funds are not deposits or obligations of, or guaranteed or endorsed by, any bank or other insured depository institution, and are not federally insured by the Federal Deposit Insurance Corporation, the Federal Reserve Board, or any other governmental agency. Prospective investors should understand these risks and have the financial ability and willingness to accept them for an extended period of time before making an investment in an alternative investment fund and should consider an alternative investment fund as a supplement to an overall investment program.

In addition to the risks that apply to alternative investments generally, the following are additional risks related to an investment in these strategies:

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