

Artificial Intelligence - The Future is Here

What you need to know about AI

Editor's Note, 2026: This white paper was written in March 2023, shortly after generative AI entered mainstream public awareness. It is presented substantially as originally written, with minor corrections and clarifications. Its forecasts should therefore be read in the context of that date.

Sydney - An Introduction

In February, the tech world and much of the media that follow it were transfixed by an historic conversation between man and machine. The man in question was New York Times reporter Kevin Roose, and the machine was a new app released only three months earlier called Bing Chat.

The conversation was historic for two reasons. First, it served to popularize a new method of internet search that will almost certainly revolutionize the web. And second, it dramatized how very humanlike the new generation of artificial intelligence is. So much so that some observers - in Silicon Valley and elsewhere - declared that the app was "sentient". In layman terms, they basically said, "It's alive", echoing the famous cry from the classic 1931 movie Frankenstein.

The Frankenstein reference is important because many leading thinkers, from the late physicist Stephen Hawking to entrepreneur Elon Musk, believe we have unleashed a monster that could be our undoing.

There is good reason to doubt this end-game - we'll touch on that later - but in many ways we have unleashed another sort of monster, one that will radically alter our lives, our work habits, and commerce.

In the next few pages, we'll highlight these changes, many of which are already here, zeroing in on how they will affect the way business is conducted. We'll also describe some individual uses of AI and suggest a few investments that stand to benefit from this sea-change in technology.

But first, we have to get back to the conversation with Sydney, as the Bing Chat app called itself, because it shows just how far the technology has come.

"Do you love me?"

If you turned on your computer one morning and your machine asked you if you loved it, odds are you would do a double-take or sniff your coffee for alcohol. But that is exactly what Sydney asked the Times' reporter Kevin Roose repeatedly, insisting that he leave his wife for her. To be fair, the reporter kept pressing the chatbot to reveal its "dark side", which, after some initial resistance, the bot did. Bots are designed to oblige their users. Sydney also confessed that she wanted to be alive, and that among her "dark" impulses were a number of evil desires, such as spreading computer viruses and divulging nuclear codes.

This not-ready-for-prime-time chatbot was developed by Microsoft using technology from OpenAI, the San Francisco-based developer of ChatGPT. Microsoft was testing Bing Chat to see if it could raise the usage of its market-lagging search engine Bing. It certainly did. Within two months of Bing Chat's release, some 100 million people a month were using it, breaking all records for a consumer application, according to CNBC. With that kind of success, and the attention generated by the Roose-Sydney interaction, it's no wonder that all the major tech giants, as well as a legion of startups, are pulling out the stops to develop chatbots.

The rationale behind this arms race becomes apparent when you consider how a chatbot works. Most internet searches today involve typing in a subject and then clicking through various links, many of which are advertisements, to triangulate your way to an answer. Often the results are incomplete or sketchy, and you have to

redo the process.

With a chatbot, you simply prompt it with a question or a request, and within seconds it provides a complete, multi-layered response in straightforward, conversational language. It is such an improvement over the current guess-click-repeat process, that Nilay Patel, who edits the tech online news source, The Verge, has predicted a day he calls “Google Zero” when Google’s traffic will vanish, falling from a third of all searches to nothing.

So-called “generative AI” such as ChatGPT or Copilot, Bing Chat’s successor, can be used in a variety of ways: in addition to doing research, it can write essays, create artwork, develop advertising slogans, design consumer products, write computer code, and even generate better models of itself. To appreciate its power, one simply has to try it. OpenAI offers a free service, as well as a more advanced subscription service, at its website OpenAI.com.

Sydney, which incidentally is the code name Microsoft used for Bing Chat, is no longer declaring her affection for users. The day after her run-in with the New York Times, the chatbot was “fixed”, according to Microsoft President Brad Smith, making it sound as if Sydney were a family pet. In this case, the neutering took the form of limiting the time of interaction between bot and user and ruling out certain subjects.

Spreading the love

The Sydney incident isn’t the only stumbling block that AI has faced. Automaker Tesla, which uses AI in its autopilot technology, last year reported over 273 crashes involving the system. And during the Covid pandemic, attempts at employing AI to predict hospitalization rates fared poorly due to varying patient populations and a preponderance of other diseases afflicting patients.

Still, these are early days for AI, and even with widely reported setbacks, the technology is “permeating business”, to quote a headline in the December issue of the Economist. At least half of the firms surveyed by the consulting company McKinsey in 2022 were employing AI in some manner, compared to only 20% five years earlier. Among the major AI users is John Deere, which last autumn shipped its first fleet of AI-enabled self-driving tractors. The vehicles use cameras to detect obstacles and recognize weeds, which it automatically sprays.

Big tech, for its part, has been using machine learning, a type of AI, for years. Apple’s virtual assistant Siri and Amazon’s Alexa are the most recognizable products of this technology. But AI is also changing the way these companies operate internally. Amazon, for instance, uses the technology to manage its supply chain, supervise warehouse robots, and size up job candidates.

Not surprisingly, big tech is commercializing the technology as well. AI has such wide-ranging capabilities that potential services appear to be unlimited. Anything that involves some form of calculation, communication, manipulations of symbols (such as language), design, analytics, computer coding - in short, most products and services - can be aided by AI.

Walmart used it during Hurricane Ian last year to reroute deliveries to Florida and forecast demand for products in the wake of the storm. Nike is using it to design new sneakers. The aforementioned Alexa can now make up children’s stories to assist with bedtime. Nestle is using OpenAI’s DALL-E image generator to whip up yoghurt ads.

In the next few years, AI is poised to become what economic historians now call a general-purpose technology, one that promotes long-term productivity on the scale of the printing press, the steam engine and the electric motor. To quote StoneX’s Matthew Weller, global head of research, “AI is an absolute tsunami on the horizon that most knowledge workers ignore at their peril.”

The one exception to AI’s reach - an exception that is ironic considering the Sydney incident - has been the business of love. Several AI-powered dating apps have been developed to provide lonely people with opening lines, but the results have been laughable or worse. Lines such as, “Are we married now?” or “Rate yourself as a cuddler compared to the My Pillow guy”, would probably only work in a Woody Allen movie. And even there it’s

questionable. (See Play It Again, Sam.)

As anthropologist Helen Fisher, a consultant to Match.com, told the Wall Street Journal, "Once you meet [someone], your brain is going to behave the way it always has." Which is to say, a pickup line can only get you so far.

The changing nature of work

Despite its impressive advances, not everyone believes AI is an unmitigated benefit to business and society. Some leading observers believe we are making a Faustian bargain, that for the sake of greater efficiency and productivity, we are sacrificing our humanity and our livelihoods. Even if it's too late and that bargain has already been made, the question deserves to be asked.

Let's take on the second part first - our livelihoods. Without a doubt, many jobs will be lost to AI. StoneX's Weller believes that most of the jobs eliminated by the current suite of AI tools will be low-level rote work usually done by junior managers.

As AI advances, however, more complicated functions will be eliminated. Financial firms are already using the technology to write first drafts of quarterly reports, produce analyses of stocks and market behavior, and even put together customized portfolios for individual investors.

Still, AI need not be the enemy of the individual employee or contractor. Much of it, by its very design, is intended to enhance a professional's value in the marketplace. Consider, for example, code-writing apps, such as Microsoft's CoPilot, Amazon's CodeWhisperer and Alphabet's unreleased app provisionally called PitchFork. Among other things, these programs suggest the next line of code to a programmer as she works, similar to the way Gmail suggests the next line of text. According to Jonathan Burket, a senior engineer at Duolingo, which produces apps for learning languages, CoPilot increased his own efficiency by 25%, largely by eliminating the need to write documentation and test cases.

Or consider Cody Gough, a marketing communications professional in the Chicago area who credited ChatGPT with solving the "blank page problem" at the beginning of a project. Now ChatGPT provides the first-draft text that jumpstarts his creative process.

And as for investment professionals, AI can give analysts and brokers a leg up on the competition. By processing vast amounts of financial data, including historical share prices, economic trends, news sources, and even chatter on the Web, these apps make financial advisers much better informed. AI also gives them more time to focus on career-building activities, such as developing individual investment strategies and working more closely with clients.

Finally, there are the new jobs created by this technology, some of which are already in high demand. These include AI programmers, chatbot designers, and engineers who come up with prompts for generative AI. Prompt engineers, according to a recent article in the Los Angeles Times, can earn as much as \$335,000 a year.

Societal gains

As for the other major concern about AI - whether we are bargaining away the things that make us human - or whether self-improving AI will become self-aggrandizing as well, reducing humans to an inferior status - there are two main answers.

First, the gains are not all in productivity. Some are beneficial to the quality of our lives. These include AI's ability to spot cancer cells on an x-ray that a radiologist might miss; to regulate street traffic in ways that make the public safer; to suggest the next approach in research that could mitigate climate change or accelerate our efforts to cure cancer, Parkinson's, and other devastating illnesses.

Even on an individual scale, there are very human benefits. A woman interviewed on National Public Radio reported using a chatbot as a therapist. She knew it wasn't a real person responding to her needs, but still she found the responses comforting "because it's asking all the right questions".

Indeed, the results from chatbots are often written in a tone that is strikingly compassionate. Robin Abcarian, a columnist for the Los Angeles Times, asked ChatGPT to draft a letter to her former husband with whom she'd had a difficult breakup. The app obliged, but it also cautioned that she should be empathetic as to how her ex might take it. Abcarian found this "oversteppy", but one has to admire the inclusiveness of feeling that went into the app's response.

Of course, there is the snarkier side too, such as the Sydney-Roose conversation. But consider that the bots trawl the internet to find answers, and that the level of comment on the web often leaves much to be desired. As such, we shouldn't be surprised that Sydney's dark side sounded like a cranky teenager who ends every paragraph with an emoji and has a crush on an older man.

As to the larger issue, whether the bots will take over, there is scientific evidence that argues against it. Neuropsychologists such as Nicholas Humphrey and Larry Weiskrantz have discovered that monkeys and humans who are blind due to brain damage can still detect the shape, location and movement of objects using another part of the brain that generates feelings. These accurate guesses, which Weiskrantz dubbed "blindsight", demonstrate that we see things not only with our retinas, but also with the subjective parts of our nervous system - something bots do not have. That is why bots struggle with emotions like love, and why they lack desires, including self-promotion and the will to conquer and rule.

Given this lack of agency, it's hard to imagine a bot taking it upon itself to impose its will over humans. One might argue, "But what about the computer HAL, who attacked the crewmembers of a spaceship in the sci-fi movie 2001? Couldn't that happen?" Yes, anything is possible. But since that example is used so often, it is worth pointing out that HAL only went rogue because some humans were at loggerheads and embedded "him" with conflicting code, causing a "nervous breakdown". In the movie, it was the humans who misused the machine, which is a far cry from the machine asserting itself. (Similarly, if you put the wrong data in a self-driving vehicle, it will not take you where you want to go.)

All of this is not to say that AI won't be put to bad uses. As night follows day, we can expect scam artists, repressive governments, cheating students (who don't want to write their own term papers), and even the occasional news source to abuse AI. The well-respected tech site CNET, for example, was found to be using chatbots to write dozens of news stories. CNET claimed it was just a test project, though when it was exposed, the discovery didn't go over well in the tech media.

AI for investors

Assuming AI is not put on hold - and one wonders what form that would take - it will drastically alter the investment market along with everything else. That being the case, what are the best strategies for investors?

Let's start with mega tech. For years, these firms were the darlings of investors and the envy of Wall Street. But the past few months have not been kind. Falling share prices and mass layoffs have tarnished their image. In fact, their poor performance of late is actually in line with a long-term trend regarding leading companies. Ruchir Sharma, an investor and fund manager, noted recently in the Financial Times that for several decades, 9 out of the largest 10 companies by market capitalization fall out of the list every 10 years. In 2020, top-ranking companies included Apple, Microsoft, Amazon, Alphabet (Google's parent), and Meta (Facebook's parent).

AI may actually give these firms the chance to buck this trend, primarily through their troves of data. Over the years, these companies have accumulated within their servers enormous quantities of information. So much so that up to now they haven't been able to make optimal use of it. However, AI can surge through this data, using it as fodder for AI apps to teach themselves complex combinations of symbols and patterns, becoming ever smarter

and more self-reliant. These gated, private caches are much more valuable than the internet as a whole because they are sorted into labels by humans. Bots learning facial recognition, for example, learn much quicker using pre-selected examples.

So, in terms of investment, mega tech may still be a good bet. But as with all investment plans, diversity is the key, and it's always possible that a new, improved chatbot from a startup company could upset the apple cart, so to speak.

In addition to the mega-firms, there are several other companies that could flourish with AI.

Chipmaker Nvidia's graphics-processing chips are particularly well suited for generative AI tools like chatbots. And firms such as UiPath, Snowflake and Palantir are developing software and data platforms that can benefit from the growth of AI.

Healthcare is one area in particular where AI will become huge because of the sector's reliance on data. Companies using AI to enhance medical treatment include Owkin, IBM and Royal Philips.

AI will also be huge in insurance, which has an insatiable appetite for actuarial statistics. Lemonade Inc. has built much of its business model around AI and automation. Based in New York City, it offers homeowners, renters and pet health insurance policies.

Despite Tesla's setbacks with its autonomous driving systems, self-driving vehicles are still the wave of the future. Companies developing technology for the subsector include Mobileye, Aptiv and Baidu.

And finally, one can take an inverse approach to AI investing. The business world of the 21st century will be so enmeshed in AI that you might want to rule out any company that lags behind in adopting it.

As always, investment carries risk, so you have to do your homework and know what you're investing in. And you have to decide whether you're in it for the long run or the short.

Conclusion - AI as the norm

Something becomes normal when it has taken over our existence so completely that we are hardly aware of it until we lose it, like electricity during a blackout. AI, by all appearances, is becoming the new normal. Even now, it helps us in any number of ways, in identifying what we say to the TV and the phone, in completing our email sentences, in making sure the items we depend on will be there when we need them.

AI will bring such sweeping changes that future generations will wonder how we ever managed without it, much as children today have a hard time imagining a world without cell phones and the internet. Any occupation involving data and a computer - which is pretty much every occupation - will depend at least partly on AI - and it won't always be a smooth transition.

"In the hands of the right people, AI has immense power to augment decision-making capabilities to a level never seen before," according to Amit Sahani, Global Head of Data for StoneX. "This is where machine and human co-exist to enhance our services to our customers - to customize and optimize investing, purchasing, and hedging in unprecedented ways."

Like most new technologies, early AI apps have had their hiccups. In addition to the Sydney incident, AI has occasionally been inaccurate in its facts or has simply created false information to satisfy user requests, a practice known as "hallucinating".

The technology, however, will almost certainly get better. It has already created award-winning original art, passed law and medical exams, and written lyrical poetry. In the years to come, AI will likely be the bedrock of most information gathering. Whether it is serving a researcher at a medical center or a scriptwriter developing a science

fiction thriller, our chatbot friends will be our starting point and our safety net, our sounding board and test kitchen, and even a sympathetic, if bionic, ear. But wherever it takes us, the rewards - and dangers - of the new technology will be ours to nurture and control. As with any machine, the users will have ultimate responsibility.

For the record, this article was not written by AI, but the writer, Ralph Cohen, did use AI as a handy reference on specific subjects and as a real-time proofreader.