

Artificial Intelligence

A briefing note for average people

June 1, 2024



Introduction

Welcome to a briefing note on artificial intelligence (AI), something you have heard about but may be wondering exactly what this stuff is and what it means. Whether you're a tech enthusiast, a business leader, or simply a curious individual, this note aims to provide you with a clear, down-to-earth understanding of the current state of AI. The rapid advance of AI can feel overwhelming, and it seems like every week there's new tech being showcased and new capabilities announced. This note is about where we are at, where we are going, and what Leaders need to be aware of when it comes to AI.

Background

AI feels like a new thing, but its foundations trace back to one of the first ever computer science conferences in the 1960s, with huge leaps forward in the 90s and now today. For the sake of brevity, we're going to focus on the most recent developments that are contributing to putting this conversation front of mind for so many.

- **What is AI?** In simple terms, AI is the ability for a computer to perform tasks that were the traditional domain of human beings. "Narrow AI" refers to a computer that's really good at a specific task – like ChatGPT is really good at generating responses that look and feel like a human wrote them most of the time, but it does this way faster than a human being can type. Other types of narrow AI are great at making music or images. "General AI" refers to a computer that can perform any intellectual task a human being can do. Reason, Logic, figuring stuff out and solving problems – General AI (also known as Artificial General Intelligence) will be able to do anything you or I can do, but probably faster, and it won't get tired, frustrated, or need a coffee break. We're not there yet, but experts in the field are saying we'll get there really soon.
- **Key Developments in Technology:** Machine Learning is focusing on, as its name suggests, helping computers (aka machines) "learn" from data. In layman's terms, the reason ChatGPT is so good at producing human-like responses is because the machine has been "trained" on massive amounts of human language. It's more complex than this, but basically Machine Learning is about processing massive amounts of data, spotting patterns, and then replicating them. It works with text, images, sound – basically if there's data involved, Machine Learning can spot patterns in it.

In addition, natural language processing (a result of Machine Learning identifying patterns) means we can "talk" and the computer can "understand" what we are asking it in natural spoken language. If you remember back in the day using the DOS Operating System, you had to learn a whole new language in the form of "Command Prompts" – like typing "coreldraw.exe" to launch a program. Later, along came Windows, which used a "Graphical User Interface" – meaning we could click on pretty pictures and objects and the computer would know what it was supposed to do based on those clicks – like double-clicking on your Google Chrome icon launched your web browser. Now we've got natural language interfaces, which means we can just talk like a human to the computer, and the computer understands in the same way it understood the click-of-the-icon or the DOS prompt.

Finally, we are on the frontiers of “Multi-Modal” AI – this means it can understand natural language, images, audio, and more *at the same time* – just like a human does – and connect those different kinds of information together into a contextual response. For an example of this, the new version of ChatGPT can already do that – take a look here at how it reacts to seeing a dog in real time. The AI knows it’s a dog and changes it’s tone of voice and style of engagement to talk to the dog the way a human would.

- **Why the current boom?** Machine Learning relies on spotting patterns in massive amounts of data, and the proliferation of the internet and social media has provided massive quantities of data to train these AI models on. It’s getting some companies into trouble, but in other areas we’re seeing content deals being struck. Some of these are amusing, like Reddit licensing all of its posts to Google for use in their AI, which has resulted in people being told that Elmer’s Glue makes a good pizza topping, but anecdotes aside the quantity of data available today is a boon to training these AI models.

There are also significant increases in computing power. We’ve covered this in detail in this post, but essentially our processing power is growing fast, and more processing power means a faster “brain” for the AI.

We are also at the stage where AI is good enough to speed up AI development. Writing code used to be a manual process, but AI can write code at exceptionally high speeds allowing software engineers to create and test new algorithms faster than ever before.

Why Does This Matter

- 1) **Economic Impact:** AI is a tool for replacing human labour, but more and more it’s replacing “Cognitive Work” – white collar folks, that’s you – as compared to previous technological revolutions which focused on manual labour. As we stated in our AI White Paper that was published in January, grocery stores didn’t put self-checkouts in because they cared about introverts – they did it because a machine was cheaper than a cashier. Apply that same logic to accountants, doctors, musicians, managers, and other types of decision-maker labour, and you’ve got a totally different kind of economic impact than before. And, because it’s speeding up how we train robots, we will see a dramatic rise in robots that can do tasks reserved for humans.
- 2) **Ethical and Social Implications:** The most obvious implication from the above bullet is if AI takes white-collar and blue-collar jobs, what are people going to do to pay for food and shelter? A single humanoid robot (and there’s lots of options coming) is already price-competitive with a minimum wage worker and like all technology, mass adoption drives prices down which exacerbates this problem. Nobody has a good solution for this, but generally the consensus is there will be a need for some kind of universal basic income, though we don’t know how that will work either even with some creative ideas. Good thing we are testing out models for UBI now so we can figure out how – oh, wait. No, we’re cancelling them.

It’s not all bad – AI has continued to contribute to incredible breakthroughs in science and medicine, with a “ChatGPT” for the Human Genome. Basically, with a technology called “CRISPR”, we can modify the genetic code of a living creature; the barrier has been the cost of mapping the genome and figuring out which gene to modify. AI has made that way faster and cheaper. What does this mean? Some examples: First, baldness is genetic. No more Rogaine. Second, injuries heal when a person gets pregnant due to the body producing stem cells – that’s a genetic response that can be theoretically turned on and off if we can identify the switch, meaning instead of knee replacements you might be able to heal those busted knees naturally. Third, It’s already proven to cure HIV. Fourth, Aging is genetic – at least partly – meaning we can *maybe turn it off*. Let me repeat that – we are on the precipice of *turning off some aspects of aging*. This is really significant stuff.

But it comes with ethical implications. While I'm a huge fan of living forever – lots to do, see, and experience – what happens if this medical miracle is only for the mega rich? There is already a concern about charging the “lifetime cost of treatment” prices for the cure – in other words, if Acme Pharma would have made \$2 million from treating your disease before CRISPR, even if the new post-CRISPR treatment is comparably cheap, they'll still want to charge \$2 million. Gotta maintain that share price, after all.

In addition, there is a real fear that AI will go rogue and, like they warned us about in Sci Fi movies, decide humanity is the problem and wipe us out. The experts are split on this one, and there's a lot of work going into preventing it by making sure that AI aligns with human values and interests. Plus, tech companies have agreed in principle to a “kill switch” in case they accidentally make HAL-9000 or the Terminator.

Our assessment is that the benefits of AI outweigh the costs, so long as the benefits are distributed fairly. If they are kept behind closed doors for only the few, it will be a significant source of inequity which will drive instability and disruption.

- 3) Practical Applications:** You already use AI every single day, but probably don't know it. Your iPhone Photos App uses AI when it generates those “Memories”. Your Facebook feed is sending you advertisements based on your interests using AI. It's all around us and growing fast. Apple recently signed a deal with OpenAI and it looks like Siri is about to get a PhD, which will increase its everyday use.

AI is already able to do a ton of stuff – like tutor a student through a math problem by looking at the student's iPad screen. But, we are used to virtual assistants who, when asked to add a calendar event for us, end up putting apples on our groceries list. But, the new wave of Ai is a lot smarter and more useful. AI is already changing the way we travel for example, but this technology will very soon be able to take a plain language request – like “Book me a trip to Toronto in June” – and it will compare flight prices, your calendar, weather, and more data points to *actually book your flight and hotel and everything else*. Replace “trip to Toronto” with any other cognitive task, and most people will be using Dr. Siri soon – it will save too much time and effort not to.

Conclusion

- 1) AI is a hugely transformative force. It can solve complex problems and create significant opportunities for all of us in medicine, science, education, and more.
- 2) AI is a hugely disruptive force. It can and will impact employment, both white collar labour and blue collar labour, and humans aren't used to disruptions in the white collar work force like this.
- 3) Some people think AI is going to end the world, but probably not – it is a tool like a nuclear weapon. What really matters is how it's used, and that will likely be a result of our systems rather than the invention itself. However if we can use it properly, we'll capture its transformative potential mentioned in 1).
- 4) AI is all around you already, with new and innovative products that use AI being released every day (Like our very own Procedure Pilot!). Soon, AI “Agents” will be able to do stuff for you like plan trips and other cognitive tasks, which will make your life easier.

We will continue to provide resources like this as our research continues. [Sign up for our mailing list to keep up to date.](#)

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