

# The Future of Artificial Intelligence

Artificial intelligence (AI) is currently experiencing exponential growth, however, there has yet to be a public consensus on whether its benefits outweigh its risks. From the scientific world to the busy streets, it is everywhere and its influence should not be overlooked. Nevertheless, each of its positives comes with a certain caveat - if and only if its drawbacks are minimised, can we say for certain that AI is truly beneficial to mankind.

From a scientific perspective, one way AI is beneficial to humanity is by enhancing data collation, prediction and simulation. With the help of AI, Microsoft's project Hanover accelerated personalised medical diagnoses by extracting information from publications in minutes rather than years<sup>1</sup>. AI is not only beneficial in medical research, but can be applied to fundamental science too. In a research paper on quantum mechanics, AI was used to predict molecular wave functions and the electronic properties of molecules. Flexible enough to capture the shape and behaviour of wave functions, the AI system was capable of performing complex quantum molecular simulations<sup>2</sup>. On the opposite end of the distance scale, AI was also used in the search for extraterrestrial intelligence by efficiently identifying technosignatures in artificially generated radio signals from the Arecibo Observatory in Puerto Rico<sup>3</sup>.

In the corporate world, Darktrace's Enterprise Immune System is a platform that secures a company's intellectual property and client data by modelling the behaviour of devices, users, and

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<sup>1</sup> Vincent, J., "Microsoft announces new AI-powered health care initiatives targeting cancer" The Verge (2016) <https://www.theverge.com/2016/9/20/12986314/microsoft-ai-healthcare-project-hanover-cancer> last accessed: 2 December 2022

<sup>2</sup> Pati, S., "Use of Artificial Intelligence in the Research of Quantum Mechanics" Analytics Insights (2021) <https://www.analyticsinsight.net/use-of-artificial-intelligence-in-the-research-of-quantum-mechanics/> last accessed: 8 December 2022

<sup>3</sup> Gutowska, M., Scriney, M., McCarren, A., "Identifying extra-terrestrial intelligence using machine learning" (2019): 2-6

networks with AI to identify anomalous behaviour<sup>4</sup>. At Tesla, AI was deployed in developing a robot for performing simulations of accidents<sup>5</sup>, and was utilised to make processors for automatic driving <sup>6</sup>, reducing accident rates and enhancing road safety.

Yet there are always two sides to every story, and AI is no different. Its humongous potential comes with a plethora of downsides.

The most obvious drawback of AI is the risk of widespread unemployment. A study conducted by McKinsey Global Institute predicts that automation will displace between 400 and 800 million jobs by 2030<sup>7</sup>, and according to a report by the International Monetary Fund<sup>8</sup>, as physical jobs are replaced by AI, employees not qualified for middle-level work will soon find themselves unemployed, which could widen socioeconomic inequality by benefiting those working in high-paying industries.

Another potential risk of AI is an increase in malicious usage. A report by Miles Brundage anticipates not only an expansion of existing threats, but also an introduction of new ones. As the hardware cost of existing attacks drops, new forms of attacks become possible<sup>9</sup>. For instance, the first known deepfake attack occurred in 2019 when a UK energy firm was scammed for \$243,000. AI was used

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<sup>4</sup> Segal, E., "AI Applications in Cybersecurity with Real-Life Examples" Altexsoft (2020) <https://www.altexsoft.com/blog/ai-cybersecurity/> last accessed: 8 December 2022

<sup>5</sup> Ackerman, E., "For Better or Worse, Tesla Bot Is Exactly What We Expected" IEEE Spectrum (2022) <https://spectrum.ieee.org/tesla-optimus-robot> last accessed: 8 December 2022

<sup>6</sup> Knight, W., "Why Tesla Is Designing Chips to Train Its Self-Driving Tech" Wired (2021) <https://www.wired.com/story/why-tesla-designing-chips-train-self-driving-tech/> last accessed: 8 December 2022

<sup>7</sup> McClelland, C., "The Impact of Artificial Intelligence - Widespread Job Losses" iot for all (2020) <https://www.iotforall.com/impact-of-artificial-intelligence-job-losses> last accessed: 8 December 2022

<sup>8</sup> Alonso, C., Kothari, S., Rehman, S., "How Artificial Intelligence Could Widen the Gap Between Rich and Poor Nations" IMF Blog (2020) <https://www.imf.org/en/Blogs/Articles/2020/12/02/blog-how-artificial-intelligence-could-widen-the-gap-between-rich-and-poor-nations> last accessed: 8 December 2022

<sup>9</sup> Brundage, M., Avin, S., Clark, J., Toner, H., et al "The Malicious Use of Artificial Intelligence: Forecasting, Prevention, and Mitigation" (2018): 31-49

to mimic a manager's voice and German accent, which increased the credibility of the phishing attack<sup>10</sup>. The prevalence of such attacks shows that malevolent uses of AI threatens digital, physical and political security, and could even lead to an AI arms race between countries.

Notwithstanding the potential drawbacks, the future of AI still excites me. Nonetheless this is established on the premise that it is used appropriately, and this could only be achieved through drafting new laws and widespread moral education. As Amit Ray puts it, "As more and more artificial intelligence is entering into the world, more and more emotional intelligence must enter into leadership."<sup>11</sup>

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<sup>10</sup> Damiani, J., "A Voice Deepfake Was Used To Scam A CEO Out of \$243,000" Forbes (2019) <https://www.forbes.com/sites/jessedamiani/2019/09/03/a-voice-deepfake-was-used-to-scam-a-ceo-out-of-243000/?sh=3592ef4e2241> last accessed: 8 December 2022

<sup>11</sup> Balaganur, S., "Ten Famous Quotes About Artificial Intelligence" Analytics India Mag (2020) <https://analyticsindiamag.com/ten-famous-quotes-about-artificial-intelligence/> last accessed: 8 December 2022

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