

Artificial Intelligence: Transforming the World

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Artificial Intelligence (AI) has become a buzzword in contemporary times. It essentially means machines imitating human intelligence and performing some of the functions that a human brain can perform, such as understanding language, problem-solving, and learning from experience, etc. Momentous developments are taking place in this field which are transforming healthcare, manufacturing, marketing, and financing, etc. People and companies are increasingly relying on robotics, machine learning, and AI to improve customer experience and to make their products and processes more efficient. Whether it is the phones we use, cars we drive, or the television we watch, AI is transforming travel, communication, and entertainment.

The applications of AI are endless. For instance, it is being used in the healthcare sector to interpret, review, and even recommend solutions to complex medical issues. It is capable of predicting and diagnosing illness and disease at a faster rate than most medical and healthcare professionals. A case in point is a study in which an AI model using deep learning and algorithms diagnosed breast cancer faster than 11 pathologists. AI relies on the interpretation and analysis of massive amounts of data sets to aid medical professionals in making an accurate diagnosis, managing patient information and creating personalized prescription plans from huge data sets.

Similarly, AI is reshaping the automotive industry. A report by the McKinsey Global Institute predicts that 'AI will enable autonomous vehicles to become mainstream while transforming most aspects of the auto-manufacturing process, from research and design to project management and business support functions.' A demonstration of the increasing significance of emerging technologies for the automotive industry is that the automotive AI market is forecasted to grow at a Compound Annual Growth Rate (CAGR) of 40% through 2025.

The phenomenal changes led by AI are also revolutionizing the manufacturing sector. AI can potentially enhance operational efficiency, customize product designs, launch new products, and plan future financial strategies. According to a study by the Capgemini Research Institute, 51% of European manufacturers are already implementing AI-based solutions, followed by Japan (30%) and the US (28%). The popularity of AI in the sector is driven by the fact that manufacturing data is an ideal fit for machine learning. Manufacturing mainly comprises analytical data which is easier for computers to analyze compared to data involving emotions or language.

Furthermore, the world's largest tech giants such as Google, Facebook, Apple, IBM, and Microsoft are investing billions of dollars in AI research and development at breakneck speed. For example, Apple paid nearly \$200m for an AI start-up in 2020 that specialized in bringing intelligence to 'smart' devices. In the same year, Intel invested \$117 million in 14 start-ups working on developing different AI platforms.

According to Sundar Pichai, Google's CEO, 'In an AI-empowered world, we will need to adapt hardware solutions into a combination of processors tailored to specific use cases – like inference processing at the edge – and customer needs that best deliver breakthrough insights.' Google uses DeepMind – an AI start-up which it bought in 2014 – to, inter alia, 'find the quickest route between underground stations, defeat champion players of the boardgame

‘Go’, and to improve healthcare.’ Similarly, AI technology underpins several products offered by Google such as Google Assistant and Google Mail.

The International Data Corporation (IDC) forecasts that ‘global spending on AI is expected to reach \$110 billion’ by 2024. Investment in AI is expected to accelerate in the future as companies seek to deploy this technology as part of digital transformation in order to remain competitive.

The above would have far-reaching implications for the job market. Humans may be supplanted by AI-powered robots for performing dangerous, repetitive, and strenuous jobs. What will this mean for the hundreds and thousands of factory workers who depend on such jobs for a living? AI may change the nature of jobs requiring creativity, innovation, social and human intelligence.

Beyond this, there are other pitfalls of AI. Such systems could have built-in bias. If an algorithm is built by an individual with a particular prejudice (e.g., towards a certain group of people, race, religion, or ethnicity etc.) or fed data that is discriminatory or prejudiced, the system will also have similar flaws.

Additionally, AI systems are also expensive. They exact a heavy installation, repair, and maintenance cost. Its programs require regular upgradation to cater to the changing environment, and if there is a breakdown in the system, the procurement cost could be very high.

However, the fundamental challenge posed by AI is the lack of laws and regulations concerning its use. Globalization has meant that countries are no longer isolated from one another, the actions of one country in the AI domain could adversely affect others. This means that new international laws need to be determined by governments regarding the safe and effective use of AI technology.

This is especially important since in the long-term, AI could help in surmounting conflict, disease, and poverty. Owing to its massive potential and deep impact on society, it is paramount to investigate how to reap its benefits while mitigating potential risks. Data laws would have to be enacted defining what data is accessible to AI machines and for what purpose. While there is still great uncertainty regarding its future, efforts should be made to lay the foundations for safe and robust AI systems.

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