

Blockchain and AI: Dual Pillars for Tomorrow's World

This essay will discuss the future of AI, with a focus on the perspective of ChatGpt, then proceeds into the role of blockchain technology that stands as an antidote to the systemic problems posed by AI.

In early 2023, the world began to experience the profound impacts of AI technology. ChatGPT, launched by OpenAI in November 2022 (Armanda Hetler, 2023), quickly became an integral part of our daily routines. Its functionality, similar to the Google search engine but with enhanced efficiency, offers a time-saving solution for a variety of job tasks such as composing music and drafting emails, making it the most visited AI tool in 2023 (Writerbuddy, 2023). ChatGPT exhibits the characteristics of AI, including machine learning, natural language processing, and human-like interaction. The algorithms involve two phases: The spidering and data-gathering phase, in which the model is trained via both supervised and non-supervised pre-training approaches; and the user interaction phase (David Gewirtz, 2023).

The engine's recent updates have led to continuous key improvements in the scalability of pre-training, which allows a wide range of tasks to be executed to a high standard. Besides, the techniques of natural language processing and human-like interaction allow the AI to interpret and simulate normal human conversations, making it accessible and user-friendly even for individuals without an AI background (David Gewirtz, 2023).

The impact of ChatGPT on society can be both positive and negative, depending on the extent of its reliance. On the positive side, the platform serves as a reliable learning assistant, potentially a vital role in the future reform of education. In Scotland, teachers have used ChatGPT in classrooms to simplify the teaching materials for students with learning difficulties (Olivia Waxman, 2023). The data collected from tertiary level ESL students suggests that ChatGPT has a positive impact on their academic writing and perception skills (Santosh Mahapatra, 2024).

However, hazards to education arise as ChatGPT continues to evolve: this increasing tendency for people to over-rely on AI. Abbas, Jam and Khan (2024) believe that ChatGPT is negatively related to academic performance, stating that "The excessive (or less) use of ChatGPT may affect students' procrastination, memory loss, and academic performance." In precise terms, the learning process might also backfire when using ChatGPT because it can deteriorate their critical thinking ability, hindering them from developing a deep understanding of a topic.

ChatGPT also poses big economic challenges for the future world. It is important to recognise the negative aspects of competition between AI and humans. ChatGPT, as a core representative of AI technology, can automate job tasks and potentially replace the human workforce. In general, AI is capable of self-improvement in accessibility attributes, designs like chatbots and voice interfaces are regularly upgraded using machine learning algorithms (Sreedev R, 2023). Recently, there have been signs of job displacement in some sectors, with customer service being a typical example. AI chatbots possess better workflows than human assistants because they can automate routine processes and work tirelessly at a lower cost (Scott Weiss, 2024). Moreover, the future is likely to witness a trend of job transformation within the AI industry.

In this digital era, blockchain applications stand as another notable contemporary technology. The birth of blockchain can be traced back to 2009 when Satoshi Nakamoto conducted the first Bitcoin transaction. Blockchain comprises a distributed ledger with the characteristic of decentralisation, aiming to record transactions immutably and permanently without third-party authentication (Deepesh Patel, n.d.). In fact, the use cases of blockchain technology extend far beyond the recognition of many, those who only associate it with cryptocurrency. Its utilisations are found in many industries: energy companies have created peer-to-peer trading platforms for the sale of electricity and crowd-funding services; retail companies like Amazon use blockchain to track the goods between buyers and sellers (AWS, n.d.).

Across these practical uses, it is evident that blockchain technology emphasises the importance of privacy and security. This makes blockchain and AI closely interlinked, as cybersecurity risk is one of the main systemic problems in using AI. Daniel Tannenbeum (2023) mentioned that threat actors can use AI tools to generate risks such as data poisoning, manipulation, and automated malware. To address these concerns, decentralised ledger technology prevents AI applications from being stored in a single server, thus reducing the risk of data being overwritten. This system is also autonomous, which helps reduce human error in managing AI training and operations (Turing, n.d.). Furthermore, the use of cryptographic techniques in blockchain provides an effective solution against malicious attack, the data is encrypted to ensure its protection (GeeksforGeeks, 2022).

Another significant systemic issue of AI technology is its vulnerability to exploitation by well-funded organisations for unethical benefits. For instance, AI can be manipulated to produce propaganda and misinformation in favor of political parties (Rande Price, 2023). The presence of blockchain technology builds a barrier against monopolistic control over AI technology, and preserving the diversity and integrity of AI development ecosystems. Protocols like decentralised autonomous organisations (DAOs) are established to provide a governance framework for AI development, where token holders from the AI community have the voting right to determine the ethical development path for the future (Carlos Santana, Laura Albareda, 2022).

While the integration of Blockchain and AI technology holds potential in addressing many systemic issues, the integration complexity remains a considerable challenge. There are structural obstacles that must be resolved before the integration process can proceed. One such challenge is the environmental impact, as both technologies consume large amounts of energy and produce high carbon footprints. Also, there is a conflict between Blockchain's limitations on transaction throughput and latency, and AI's demand on processing power (Sercan Koç, 2024).

In conclusion, ChatGPT, as an advanced AI technology, has played a vital role in our daily lives with its rapid development. It has had positive and negative impacts on our economic and educational sectors. Simultaneously, cybersecurity and monopolistic control issues arise alongside AI technology, blockchain serves as a viable solution to these challenges. Given the rapid advancement of both technologies, it is likely that they will overcome integration complexity and effectively address systemic problems.

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