**CS-499 6-1 Journal**

In the ever-evolving landscape of technology, certain innovations emerge that fundamentally alter the status quo, reshaping industries and society at large. These game-changing technologies disrupt established practices and create new paradigms, much like the advent of personal computing and the widespread adoption of mobile phones. In this journal, I have chosen to focus on two such transformative technologies – Artificial Intelligence (AI) and Blockchain – that have not only revolutionized their respective fields but also promise significant implications for the future of computer science and broader societal structures.

**1. What is the identification and description of each technology?**

a. Artificial Intelligence (AI): Artificial Intelligence, especially advancements in deep learning, continues to revolutionize how machines interact with human-like tasks. AI enables systems to process and analyze vast data sets at unprecedented speeds, improving decision-making and operational efficiencies across various sectors. This encompasses technologies like advanced neural networks and generative AI, which drive innovation in areas from automated driving to personalized medicine (Heikkila & Heaven, 2024).

b. Blockchain Technology: Blockchain remains a foundational technology that offers a secure, immutable ledger distributed across a network, ensuring transparency and reducing fraud risks. Its use has extended beyond cryptocurrency into realms such as decentralized finance (DeFi), supply chain management, and secure digital identities, providing robust solutions in data integrity and transparency (Hayes, 2023).

**2. What are the likely impacts on computer science or your career?**

a. Artificial Intelligence: The integration of AI into various industries necessitates the development of more sophisticated algorithms and data handling techniques. This means a growing number of opportunities within AI research and development, such as creating more efficient machine learning models or enhancing AI ethics to address the increasing use of AI in critical decision-making processes.

b. Blockchain Technology: As blockchain technology matures, its role in enhancing data security and enabling transparent operations positions it as a critical area of expertise in fields like finance, healthcare, and government services. Gaining skills in blockchain could lead to significant career opportunities, especially in developing solutions that leverage their potential for ensuring data integrity and trust.

**3. How might the two technologies impact humans, communities, or the world?**

a. Artificial Intelligence: AI's impact on society is extensive, transforming industries such as healthcare, where it aids in faster, more accurate diagnoses, and finance, where it provides sophisticated asset management strategies. However, its widespread implementation in automation also poses challenges to employment and necessitates careful consideration of ethical implications, including privacy and bias in AI algorithms (Bergmann, 2024).

b. Blockchain Technology: On a global scale, blockchain technology offers a revolutionary approach to managing and verifying transactions and data without central oversight, promoting greater economic inclusion and efficiency. Its ability to secure data and provide transparency supports improved governance and trust, particularly in environments vulnerable to corruption or inefficiency (Daly & Whitfield, 2024).

**4. Which course outcomes have you achieved so far, and which ones remain?**

I have completed all course outcomes, except for uploading my files to my ePortfolio. All enhancements are complete. All that remains is for me to publish everything to GitHub, in such a way that I can leverage it for employment.

**Status Checkpoints for All Categories**

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| --- | --- | --- | --- |
| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| *Name of Artifact Used* | IT-145 Final Project | IT-145 Final Project | IT-145 Final Project |
| *Status of Initial Enhancement* | Complete | Complete | Complete |
| *Status of Final Enhancement* | Complete | Complete | Complete |
| *Uploaded to ePortfolio* | In Progress | In Progress | In Progress |
| *Status of Finalized ePortfolio* | In Progress | In Progress | In Progress |

***References:***

Bergmann, D. (2024, February 12). *The most important AI trends in 2024*. IBM Blog. https://www.ibm.com/blog/artificial-intelligence-trends/

Daly, S., & Whitfield, B. (2024, April 10). *36 blockchain applications and real-world use cases*. Built In. https://builtin.com/blockchain/blockchain-applications

Hayes, A. (2023, December 15). *Blockchain facts: What is it, how it works, and how it can be used*. Investopedia. https://www.investopedia.com/terms/b/blockchain.asp

Heikkila, M., & Heaven, W. D. (2024, January 8). *What’s next for AI in 2024*. MIT Technology Review. https://www.technologyreview.com/2024/01/04/1086046/whats-next-for-ai-in-2024/