Recent Impactul Developments in Artificial Intelligence

Artificial Intelligence (AI) has been used by the general public for quite some time now, for example voice assistants like Siri and facial recognition. However, AI has recently become a key part of our daily life, with applications like digital assistans, chatbots, large language models, and others. Even some fridges now come integrated with AI. These widely used technologies are only the beginning; AI has recently made huge impactful developments in specialized fields, inluding healthcare and drug discovery. While AI promises huge benefits for society on these fields, it poses significant risks in fields like the military.

AI has recently made great developmentes, such as deep learning algorithms, convolutional neural networks, and generative adversarial networks, which has greatly increased the accuracy and efficiency of medical image analysis [1]. These advancements in medical image analysis help speed up the interpratation of complex images, allowing us to detect abnormalities quickly and accurately, but also detect early signs of diseases. These AI advancements have even made possible the quick creation of personalized plans for the patients. Even though we've made some huge advancements in medical image analysis field using AI, Luis Pinto-Coelho explained on this article that, "As technology continues to advance, we can expect even more groundbreaking innovations that will further transform the landscape of medical imaging and AI".

Similar to the healthcare field, we've seen huge positive impacts on the drug discovery field thanks to the advancements made in AI. The structure prediction component of the 'protein folding problem' is a problem that has been researched for more than 50 years. Recently, a team was capable of providing a computational method that can regularly predict protein structures with atomic accuracy even in cases in which no similar structure is known [2]. This breakthrough on the protein folding problem has revolutionized drug discovery, since it can potentially speed up the development of new medicines and treatments.

Even though AI advancements have left a positive impact on healthcare and drug discovery, these same AI advancements can become a bit risky when used on some fields like the military. Kanaka Rajan explains how AI advancements and machine learning being incorporated into military weapons can have three major risks. First, with newer weapons being controlled by AI instead of humans, countries may be tempted to start wars or conflict, since one of the biggest deterrents to start wars is the lost of human life. Second, Rajan states that focusing resources on the development of new military weapons using AI, will limit the resources available for other fields that could benefit from AI advancements such as healthcare and drug discovery. Lastly, AI-powered autonomous technology can be used to reduce or deflect human responsibility in decision-making [3].

AI has made huge positive advancements in fields like drug discovery and healthcare, however, its application in military technology shows the need for careful ethical consideration when used for military weapons. As AI continues to evolve, we must make sure that its benefits outweight the risks, by balancing innovation with responsibility and ethics.

References

[1] L. Pinto-Coelho, “How Artificial Intelligence Is Shaping Medical Imaging Technology: a Survey of Innovations and Applications,” *Bioengineering*, vol. 10, no. 12, p. 1435, Dec. 2023, doi: https://doi.org/10.3390/bioengineering10121435.

[2] J. Jumper *et al.*, “Highly Accurate Protein Structure Prediction with Alphafold,” *Nature*, vol. 596, no. 7873, pp. 583–589, Jul. 2021, doi: https://doi.org/10.1038/s41586-021-03819-2.

[3] C. Caruso, “The Risks of Artificial Intelligence in Weapons Design,” *Harvard.edu*, Aug. 07, 2024. https://hms.harvard.edu/news/risks-artificial-intelligence-weapons-design