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## AI And Neural Networks In Agriculture: Opportunities And Challenges For Enhancing Sustainability And Efficiency

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Abstract: This study looks at the coordination of AI and neural networks in agriculture and their effect on different parts of cultivating rehearses. Using trend setting innovations like Data analysis, artificial intelligence, and remote detecting, we break down the ramifications of computer based intelligence reception in the farming area. We examine the impacts on business, ability prerequisites, and labor force variation, as well as the financial, social, and natural changes in rustic economies. Also, we evaluate impartial access and decency in artificial intelligence reception and break down the current administration components and strategy systems. Through this research, we give important bits of knowledge to dependable and powerful execution of artificial intelligence in agriculture. In this research we have used python coding language to perform data analysis, modeling, and AI implementation.

**Keywords:** AI, neural networks, agriculture, crop yield prediction, plant disease detection, agricultural drone technology, efficiency, sustainability, data privacy, ethical, legal, social implications

## REFERENCES

- [1]. Zou, Q., & Liu, J. (2019). Artificial intelligence in agriculture: Applications, prospects, and challenges. Theriogenology, 137, 83-93.
- [2]. Kamilaris, A., & Prenafeta-Boldú, F. X. (2018). Deep learning in agriculture: A survey. Computers and Electronics in Agriculture, 147, 70-90.
- [3]. Pan, X., et al. (2019). A review of data management in smart farming: Practices, technologies, and future directions. Computers and Electronics in Agriculture, 163, 104859.
- [4]. Willemen, S., et al. (2020). Data interoperability in agriculture: A conceptual framework and review of key concepts and components. Computers and Electronics in Agriculture, 175, 105567.
- [5]. Cheng, D., et al. (2020). Responsible artificial intelligence in agriculture: Challenges, opportunities, and recommendations. Environmental Research Letters, 15(5), 054009.
- [6]. Epstein, R., & Arkin, R. C. (2019). AI in agriculture: Applications, challenges, and ethical considerations. Frontiers in Robotics and AI, 6, 64.
- [7]. Research on Enhancing Sustainability and Efficiency in Agriculture through AI and Neural Networks.
- [8]. Dhawan, A., et al. (2021). Deep learning for sustainable agriculture: A review and Electronics in Agriculture, 189, 106314.
- [9]. Liu, B., et al. (2019). Internet of (IOT) in agriculture: A systematic literature review. Computers and Electronics in Agriculture, 163, 104855.
- [10]. Miao, P., et al. (2020). A survey on the internet of things for agriculture. Computers and Electronics in Agriculture, 175, 105572

