

Use of Artificial Intelligence in Agriculture

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Abstract: *The integration of artificial intelligence (AI) technologies in agriculture has revolutionized traditional farming practices, offering transformative solutions to address various challenges faced by the industry. This paper presents a comprehensive review of the use of AI in agriculture, encompassing its applications, benefits, challenges, and future prospects. AI techniques such as machine learning, computer vision, and robotics have been applied across different stages of agricultural processes, including crop monitoring, disease detection, yield prediction, pest control, and resource management. These technologies enable precise and data-driven decision-making, optimizing resource utilization, enhancing productivity, and ensuring sustainable practices.*

Key benefits of AI in agriculture include increased efficiency, improved crop yields, reduced environmental impact, and enhanced profitability for farmers. However, the adoption of AI poses challenges related to data quality, infrastructure requirements, and accessibility for small-scale farmers. Addressing these challenges requires concerted efforts from stakeholders to develop user-friendly solutions, promote data sharing, and bridge the digital divide. Looking ahead, the future of AI in agriculture holds tremendous potential for further advancements. Emerging technologies such as edge computing, Internet of Things (IoT), and blockchain are expected to complement AI, enabling real-time monitoring, autonomous decision-making, and enhanced traceability throughout the agricultural value chain.

In conclusion, the use of AI in agriculture presents significant opportunities to address global food security challenges, promote sustainable farming practices, and drive innovation in the agri-food sector. By overcoming existing barriers and embracing technological advancements, stakeholders can harness the full potential of AI to create a more resilient and productive agricultural ecosystem.

Keywords: blockchain.

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