

Cloud and distributed architectures for data management in agriculture 4.0 : Review and future trends

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1. Summary

- 1.1. Motivation/purpose/aims/hypothesis: This paper is motivated by the projected need to increase food production by 70% by 2050 to cater to a global populace of 9.7 billion. It aims to explore the potential of advanced computing architectures like Blockchain, cloud, fog, and edge computing in fostering a new agricultural era, termed Agriculture 5.0, which could meet these needs sustainably.
- 1.2. Contribution: The contributions include a detailed examination of various computing architectures and their applicability in agricultural settings. It brings to light new trends like Data Lake, Osmotic Computing, and Microservice Architecture, and their potential impact on data management and processing in agriculture.
- 1.3. Methodology : The methodology shows a systematic review of existing literature and a comparative analysis of different architectures. Through a detailed examination, it evaluates the potential of these technologies in addressing the specific needs of Agriculture 4.0 and 5.0, and how they can transition from research to industrialization.
- 1.4. Conclusion: The paper concludes that embracing advanced computing architectures and upcoming technologies like 5G and Satellite Internet is pivotal for transitioning into Agriculture 5.0. It emphasizes that these technologies will not only improve data management and processing but also potentially lower equipment costs and extend these advancements to developing regions.

2. Limitations

- 2.1. First Limitation: The paper could have benefitted from a more thorough exploration of the economic implications and the cost-benefit analysis of implementing these advanced architectures, especially in developing countries where resources are scarce.
- 2.2. Second Limitation: The paper could have benefitted from a more thorough exploration of the economic implications and the cost-benefit analysis of implementing these advanced architectures, especially in developing countries where resources are scarce.
- 2.3. Synthesis: The paper could have benefitted from a more thorough exploration of the economic implications and the cost-benefit analysis of implementing these advanced architectures, especially in developing countries where resources are scarce.