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Quantum Computing for Smart Agriculture Optimization in Potato Farming and CO_2 Emission Reduction

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Abstract:

The integration of quantum computing into smart agriculture offers novel solutions for optimizing farming practices and addressing environmental challenges. This study explores the application of quantum computing to optimize potato farming while simultaneously reducing CO_2 emissions. Quantum algorithms are used to model complex agricultural processes, including soil conditions, crop yield predictions, and water usage, allowing for more accurate and efficient resource management. By leveraging quantum-enhanced machine learning techniques, the system identifies optimal farming practices that minimize input costs, enhance crop yields, and reduce carbon footprints. The study demonstrates that quantum computing can significantly improve decision-making in smart agriculture, promoting sustainability and CO_2 reduction in agricultural systems.

Keywords:

Quantum computing, smart agriculture, potato farming, CO_2 emission reduction, optimization, sustainability.

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