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Edge Intelligent for Agricultural IoT AI Driven Crop Monitoring and Management

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Abstract: *The agricultural landscape is undergoing a transformative revolution with the integration of Intelligent Edge technologies in the context of the Internet of Things (IoT) and Artificial Intelligence (AI). This abstract explores three key aspects of Edge Intelligence applied to agricultural IoT, focusing on AI-driven crop monitoring and management. The convergence of edge computing, machine learning, and sensor technologies empowers farmers and stakeholders with real-time insights, enabling proactive decision-making and resource optimization. The first dimension delves into the deployment of edge devices for on-site data processing, reducing latency and enhancing responsiveness in crop monitoring. The second dimension explores the role of machine learning algorithms in analyzing data generated by IoT sensors, providing predictive analytics for crop health, yield estimation, and disease detection. The third dimension investigates intelligent decision support systems at the edge, facilitating automated and localized management strategies. These abstract lays the foundation for an in-depth exploration of each dimension, highlighting the potential and challenges of leveraging Intelligent Edge for AI-driven crop monitoring and management in modern agriculture.*

Keywords: Edge Computing in Agriculture, Agricultural IoT (Agri-IoT), AI-Driven Crop Monitoring, Precision Farming Solutions, Smart Agriculture Management