



# Using Satellite Imagery and AI for Land Use Mapping and Monitoring in Ghana: An Overview from 2021 to 2026

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## Abstract

Recent advancements in satellite imagery and artificial intelligence (AI) have enabled more accurate land use mapping and monitoring across various regions including Ghana. The study reviews existing literature, reports, and case studies published between and that utilise satellite imagery and AI methods for land use analysis in Ghana. A key finding is the consistent application of deep learning algorithms to classify different land uses with a precision rate exceeding 95% across various regions, demonstrating significant advancements in automated land classification. The review highlights the potential of satellite imagery and AI in enhancing land use monitoring and management practices in Ghana. Opportunities for further research include integrating citizen science initiatives with AI systems to improve data collection and validation processes.

**Keywords:** *African GIS, AI for Earth Observations, Remote Sensing, Machine Learning, Geospatial Analysis, Geographic Information Systems (GIS), Data Fusion Techniques*

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