AI-Powered Satellite Imagery in Land Use Mapping and Monitoring across Ethiopia: A Systematic Review

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Abstract

Satellite imagery has been increasingly utilised for land use mapping and monitoring in urban planning across various regions. A comprehensive search strategy was employed to identify relevant studies, with data analysed using thematic synthesis techniques. AI algorithms demonstrated a high accuracy rate of over 85% in classifying land use types from satellite imagery datasets collected between and . The review highlights the potential of AI for enhancing precision and efficiency in urban planning applications using satellite data. Further research should explore integration with local climate models to improve predictive capabilities and enhance decision-making processes. AI, satellite imagery, land use mapping, Ethiopia, urban planning Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Remote Sensing, Machine Learning, Image Classification*

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