

First Research Paper

Analysis of Machine Learning Techniques for Sentinel-2A Satellite Images

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Importance of Satellite Imagery

- Role of satellite imagery in environmental monitoring, resource management, and urban planning.
- Significance of correct LULC categorization for efficient land administration, conservation, and sustainable development.

AI-Generated LULC Maps

- Influence of AI-generated LULC maps on executive planning, regional monitoring, and strategic decision-making.
- Essential role in environmental security and local/global spatial planning.

GIS Software and Machine Learning

- Preference for open-source GIS software like SAGA GIS.
- Prioritization of LULC classification using supervised machine learning.
- Use of SVM, RF, and K-Nearest Neighbors in pixel-based classification.

Advanced Classification Techniques

- Object-based classification leveraging spatial connections and contextual data.
- The role of the Random Forest algorithm in improving classification accuracy.
- Use of decision tree classification and K-nearest neighbors.
- Appeal of artificial neural networks like Multilayer Perceptron (MLP).