# EcoVision Transformer: Predicting Plant Species and Biodiversity Loss from Space to Soil

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## Abstract

In this study, we propose the development of a multi-source predictive model for plant species classification and biodiversity loss calculation, leveraging satellite imagery, climatic data, and soil parameters. A novel multimodal architecture based on vision transformers, a cutting-edge convolutional neural network (CNN) model, is employed to integrate these diverse data sources for enhanced accuracy in predicting plant species distribution. Furthermore, the model calculates biodiversity loss by evaluating the temporal and spatial changes in plant species populations. Our findings indicate that the proposed architecture significantly improves classification performance and provides meaningful insights into biodiversity loss trends.

## Keywords

Multimodal learning, predictive model, biodiversity loss, plant species, satellite data, climatic data, soil data, ConvNeXT, ViT, convolutional neural network, deep learning.