Satellite Image Segmentation and Analysis

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Problem Statement:

To develop a satellite image segmentation model to accurately classify land features, such as forests, water bodies, urban areas, and agricultural land, from high-resolution satellite images. Furthermore, we will use the model to analyse satellite images to draw inferences.

Proposed Strategy:

1. Data Collection: We will be using labelled satellite image dataset for training the model.
2. Data Preprocessing: Clean and preprocess images, including resizing, normalisation, and augmentation.
3. Model Selection: Explore deep learning models like U-Net, Mask R-CNN, or FCN for semantic segmentation.
4. Training: Train the selected model using labelled data.
5. Evaluation: Evaluate the model's performance using metrics like Intersection over Union (IoU), accuracy, and precision-recall.
6. Fine-tuning and Optimization: Refine the model by fine-tuning hyperparameters and optimising for better accuracy.