

Technical Assignment (72 Hrs)

Choose 1 of the two tasks and submit your work within 72hrs

1. Land Cover Classification

You are a data scientist working with an environmental conservation organisation focused on promoting sustainable land management practices. The organisation has collected a comprehensive dataset containing geospatial data for a region experiencing rapid land-use changes. The dataset includes three key land cover categories:

- Buildings
- Cropland
- Woody vegetation cover (>60%)

The organisation aims to use this data to develop a predictive model that can accurately classify land cover into these three categories. The model should output occurrence probabilities for each class.

Objective:

Your task is to build a robust predictive model that can classify land cover into the three target categories .

Deliverables

1. Complete GitHub repository containing:
 - Source code/notebooks with the entire process
2. Technical report (1-2 pages) including:
 - Detailed methodology and approach
 - Critical findings and recommendations

Provide a test set submission in the specified format , with predicted labels and corresponding occurrence probabilities for each class.

Resources

- Train Dataset: Provided dataset with labels.

[train_land_cover_assignment.csv](#)

- Test Dataset: Provided dataset without labels.

[test_land_cover_assignment.csv](#)

[sample_submission_assignment.csv](#)

- Dataset Documentation and Metadata: Detailed documentation to help you understand the data variables

[CIV_grids.csv](#)

2. Geospatial Data Processing

You are a geospatial engineer working with a research team focused on environmental monitoring and climate change analysis. The team has identified a specific Area of Interest (AOI) that is experiencing significant land use changes and climatic variations. To support their research, they need a comprehensive dataset that integrates multiple sources of remote sensing and meteorological data over the last three months. The datasets required include:

- Sentinel-1 VV and VH
- Sentinel-2 NDVI
- Temperature Data
- Elevation

You are then needed to integrate these datasets into a unified datacube and store it in the data format of your choice. Ensure that the datacube is resampled to the highest spatial resolution available across the datasets.

Deliverables

1. Complete Github with code/jupyter notebook.
2. Final Datacube file - if large add it to your drive and attach the link to your repository readme.

Resources

AOI

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