# **Overview of AI Models for Greater Sustainability in the Forests Summary**

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In this project, we used AI tools to further the cause of forest sustainability, supporting this important goal of the United Nations through their Sustainable Development Goals (SDG 15: Life on Land).

What we did:

1. Image Analysis using CNN for Monitoring Forest

2. Sentiment Analysis towards Environmental Articles

## **1. Classification of Satellite Images in Monitoring Forest with CNN**

- Objective: To classify automatically and self-satellite images for monitoring the forests for protection.

- Proposed System: We have worked on the deep learning model with Image analytics. But in this case, we used Convolutional Neural Networks.

**Process:**

- Data Preparation: In this section, satellite images for forests are collected and prepared for the CNN.

- Model Training: The CNN trained to classify land covers correctly of two different kinds, with features in the images.

- Validation: This we validated if the CNN could classify the new image, which was not a part of the training set.

## **2. Sentiment Analysis of Environment Articles**

- Objective: Given a news article, find the attitude or reaction of the public with respect to environmental issues.

- Method: We used an LSTM

Process:

- Data preparation: Getting a dataset of news articles on environmental-related topics

- Sentiment labelling: The articles were labeled positive or negative by the presence of keywords regarding environmental issues.

- Text Preprocessing: Converted text into a format that LSTM can understand, such as tokenization and padding.

## - Model Training: The LSTM model is trained on patterns in text that are indicative of sentiment.

## - Evaluation: Lastly, the LSTM will be benchmarked based on the ability to know the sentiment of new articles.

## **Implementation plan:**

## Suppose you want to protect a forest:

## 1. You have a special camera (satellite) taking pictures of your forest from the sky.

## 2. So training a computer (CNN) to look at those pictures and tell you if that land is forested or not

## 3. Reading a lot of that same environment related news articles

## 4. So now you train another computer (LSTM) to understand the articles and to alert you if people are writing good things or bad things about the environment.

## AI models help in monitoring forests and understanding public opinion, providing insights that can be used to make better decisions for the securement of our natural resources.