

Guidelines for using Code and experimental dataset to implement Image Processing and Machine Learning framework

1. Image Preprocessing with CLAHE:

First, apply the CLAHE (Contrast Limited Adaptive Histogram Equalization) algorithm using the provided code. This will improve image quality, making it suitable for the machine learning process.

2. Create Final Image Dataset:

Once the images are enhanced using CLAHE, compile them into a new dataset. This will be the finalized set of images used for analyzing the soil erosion process within the integrated image processing and machine learning framework.

3. Feature Extraction:

Use the provided code to extract key features from the images. These features include:

RGB values, Gradient, Texture

This extracted data will form the input for training and testing machine learning models.

4. Training and Testing of Machine Learning Models:

With the new dataset, train and test the provided supervised machine learning models. The goal is to identify patterns in the images that correspond to the erosion process.

5. Apply the Model and Generate New Images:

Organize your images into directory. Then, apply the trained machine learning model to all images. The model will generate new images, which can be used to quantify and predict soil erosion.

For further assistance, feel free to reach out to us at uday@iitmandi.ac.in; shubhamkhatana754@gmail.com

Thank you