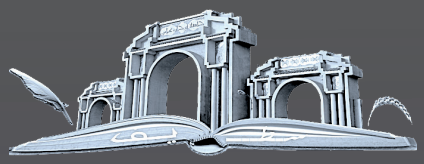

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Mini-Project

Image processing

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Mini-Project
Image processing

This code is a simple GUI application built with Tkinter and PIL libraries for image processing tasks such as loading, converting to grayscale or binary, adding noise, displaying histogram, and saving an image.

Here is a brief explanation of the code:

Importing necessary libraries:

The first few lines of the code imports necessary libraries such as Tkinter, PIL, numpy, matplotlib, and OpenCV for image processing tasks.

Defining a class ImageConverter:

The ImageConverter class is defined to create a GUI application for image processing tasks.

Initializing the ImageConverter class:

In the constructor of the ImageConverter class, the main window is created with a title. Also, it creates some labels and buttons for different image processing tasks.

Load Image:

The load_image method is used to load an image from the file system using the file dialog. The selected image is displayed on the left label.

Convert to Grayscale:

The convert_to_grayscale method is used to convert the loaded image to grayscale using the convert() method of the PIL library. The grayscale image is displayed on the right label.

Convert to Binary:

The convert_to_binary method is used to convert the loaded image to a binary image. The method first converts the image to grayscale and then applies a threshold using the point() method of the PIL library. The binary image is displayed on the right label.

Add Noise:

The add_noise method is used to add random Gaussian noise to the loaded image. The method reads the image using OpenCV and then adds Gaussian noise using the numpy library. Finally, it displays the noisy image on the right label.

Display Histogram:

The display_histogram method is used to display a histogram of the loaded image using the matplotlib library. It first converts the image to grayscale and then calculates the histogram using the np.histogram() method of the numpy library. Finally, it plots the histogram using the plt.bar() method of the matplotlib library.

Save Image:

The save_image method is used to save the processed image to the file system. If no image is loaded, it shows a message box to the