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Class: Image Processing

Final Project

Initial version

Steps Undertaken for image analysis

Identify the region with handwriting:

First goal is to identify the region with handwriting. As the pictures are taken by phone and the lighting is not ideal there is a problem of background being of different shades of white-blue in different parts of the image this can be a problem later when we want to construct and do histogram analysis. For this purpose I have created a **pluginAdjustBackground** which sets the background color to one particular shade. I have tried several different shades and this shade is the most optimal in a sense that it does the least damage to the text on the paper. The plugin can be found in the repository.
Further steps can be to crop the printed text region only and try to analyze its histogram. Construct the histogram of the original image and match it with the cropped printed text image's histogram. Smooth the background if necessary. Find out the differences between the original image and the cropped image. We can identify this change because the handwriting part will have higher difference and printed text will have lower change.

Identifying the edges in the picture:

Since the pictures also contain background other than the white pages another task is to try to identify the edges of the paper and remove unnecessary background. For that I have tried to

Edge Detection: We can use edge detection from the ImageJ built in commands by doing the following:

1. Process + Enhance Contrast.
2. Process + Find Edges.
3. Image Type 8 bits.
4. Image Adjust Threshold
    - Set Black value to 122
    - Set White value to 122

This will help us to do some edge detection for the image.