

EE5175 - Lab 8 Report

Gadha Premadasan Malayil - NS24Z155

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1 Introduction

This report presents the implementation of the Otsu's Thresholding algorithm in Python. The algorithm is applied to grayscale images to automatically determine the optimal threshold value.

2 Functions

2.1 Threshold Finding

The function `find_best_b` implements the Otsu's algorithm to find the optimal threshold value for image segmentation. It calculates the threshold value that minimizes the within-class variance of pixel intensities.

2.2 Image Thresholding

The function `otsu_threshold` applies the threshold found by `find_best_b` to the input image, resulting in a image where pixels are classified as foreground or background based on their intensities.

3 Implementation

The Otsu's Thresholding algorithm is implemented using the `numpy` library for numerical operations and the `Pillow` library for image processing. The algorithm is applied to two input grayscale images, and the resulting thresholded images are saved to a specified folder path.

4 Results

The implementation is tested on two given grayscale input images. The functions successfully determines the optimal threshold values for both images, resulting in properly thresholded result images

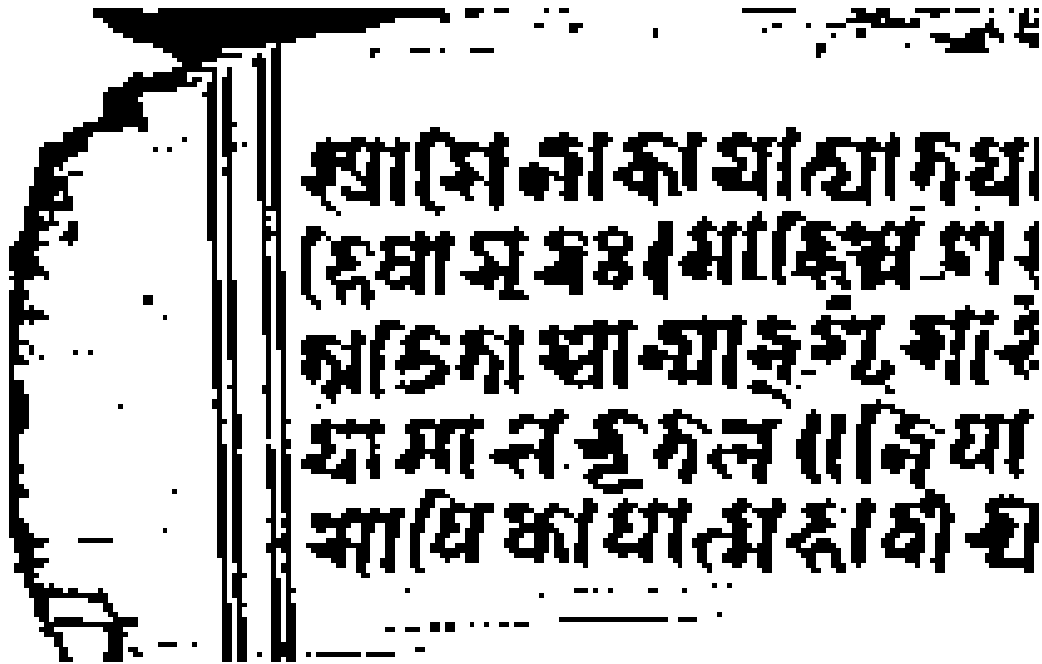


Figure 1: Thresholded Image 1

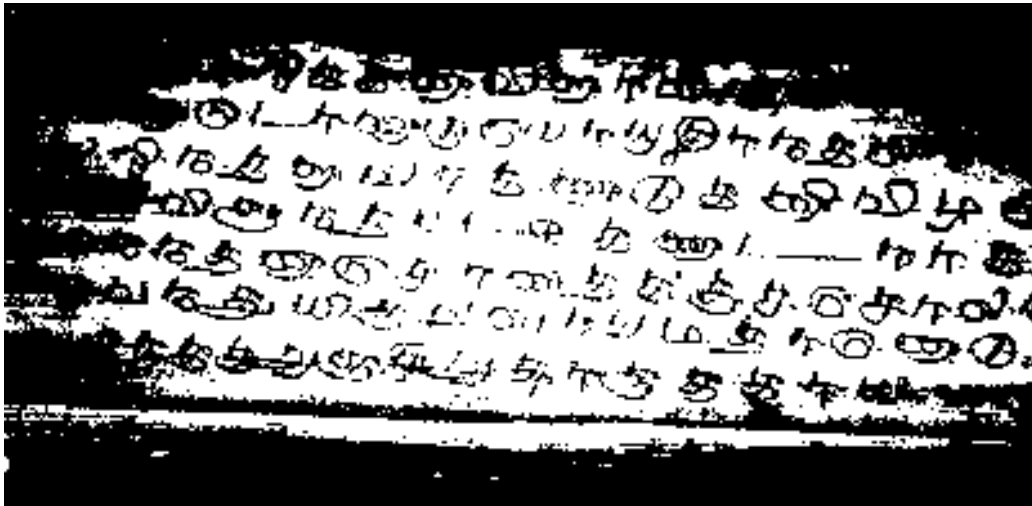


Figure 2: Thresholded Image 2

5 Conclusions

The implementation of Otsu's Thresholding algorithm successfully segments the input images into foreground and background regions based on their pixel intensities.