Guided Projects Artificial Intelligence & Machine Learning

Guided Projects: Unsupervised Learning

Adaptive Thresholding: Edge Detection in Images

Edges define the boundaries between different regions in an image, which helps in matching the pattern, segment, and recognize an object. In simple thresholding, the threshold value is global, which is prone to fail in many cases. **Adaptive thresholding** is a modified method where the threshold value is calculated for each pixel based on a smaller region around it. Therefore, there will be different threshold values for different regions which gives better results for images with varying **illumination**.

Question:

Using OpenCV, first convert any image with varying High condition to a grayscale image. Now implement edge detection first using the canny edge detection. Then apply simple thresholding and also **Adaptive/OTSU thresholding using OpenCV** to see the working of each of these methods. Once you obtain good results, use the obtained edge detection result as a mask to give color to all the edges (if edges use the color from the original image, else leave it black only).