KNITSMART

FUNCTIONS USED

MEAN BLUR

Given the nature of the fabric, we would want to homogenize the ‘dark strips’ a bit more. This can be done by blurring which will also in turn blurs out the noise/brightness irregularities in the image

SCHARR

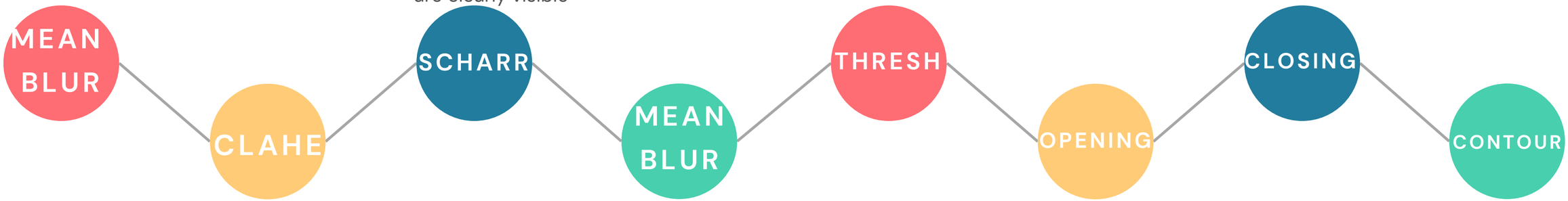
The Scharr filter is used to find edges in an image, highlighting where there are rapid changes in brightness. We do this by specifying a matrix . Here we make the matrix in such a way that the changes in the x-direction are clearly visible

THRESHOLDING

Thresholding in OpenCV converts a greyscale image to black and white. Here we use thresholding to create a greater visible divide between the lighter and darker ares

CLOSING

Closing in OpenCV smooths the edges of objects in an image by filling small holes and gaps. It's done by first expanding (dilating) the white regions, then shrinking (eroding) them back



CLAHE

CLAHE is a contrasting technique which improves image contrast by adjusting brightness in small sections. The idea is to get the most contrast out of the image but also to not let too much noise get highlighted, given the varied luminous nature of the image dataset.

MEAN BLUR

This is used again because we get the ‘bright strips’ which are slightly discontinuous. To make these continuous and to make the noise clear out a bit, we blur this result

OPENING

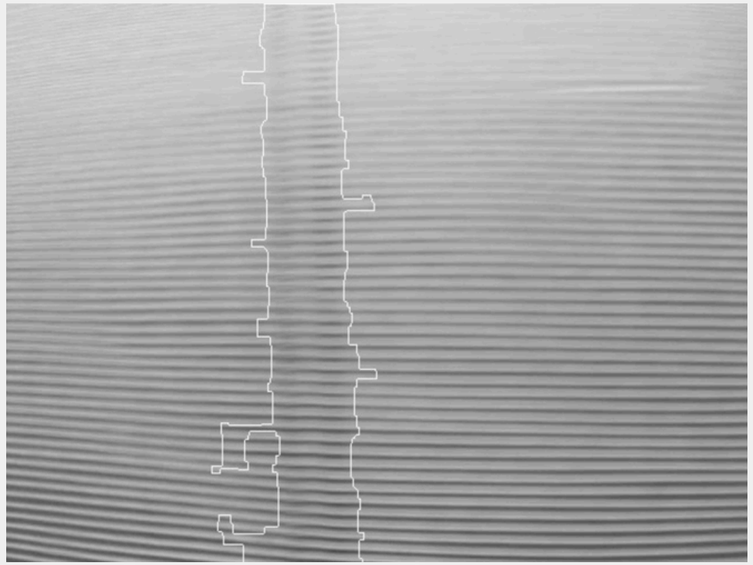
Opening smooths out the edges of objects in an image by removing small background noise while preserving the shape and size of the objects. It involves eroding the white regions followed by dilating them which is helpful so as to remove any white noise and .

CONTOUR DETECTION

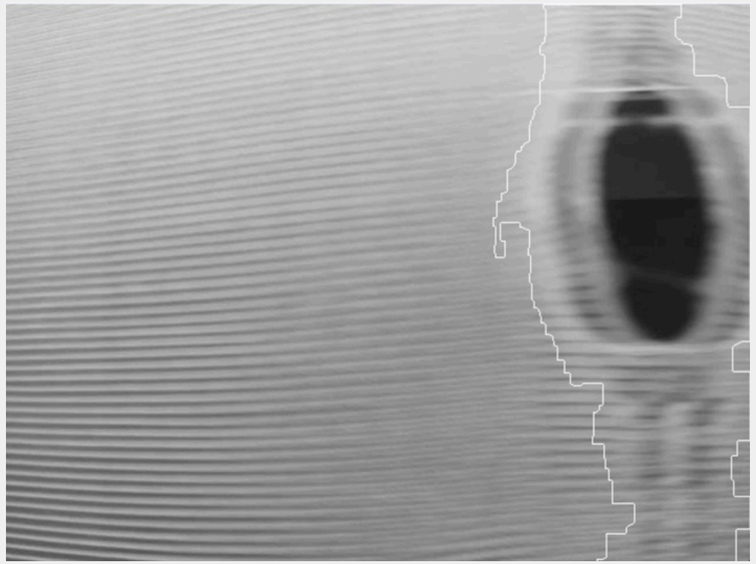
Contour detection in OpenCV finds and outlines the shapes and objects in an image. It identifies continuous regions of similar intensity or color.

RESULTS

GOOD IMAGE



MINOR FAULT



MAJOR FAULT