

HW2

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1. Method:

In Q1, we do histogram equalization to the given image by following these steps:

- I. Calculate the histogram by counting every pixel.
- II. Evaluate the PDF with the histogram by dividing its sum.
- III. Evaluate the CDF with the PDF.
- IV. Get the new image with the position in CDF in the original image.

In Q2, we do histogram specification from the source image to the reference image by following these steps:

- I. Get the CDF of both images with the method in Q1.
- II. Construct a list call mapping by calculating the minimum difference between every value of pixel in the CDF of the source image and the reference image.
- III. Get the new image by applying mapping to the source image.

2. Result:

- I. Histogram Equalization



In this result, we can see that the contrast is strongly enhanced.

II. Histogram specification



In this result, we can see that the brightness is slightly enhanced after the specification to the CDF of the reference image.

3. Feedback

In this homework, I reviewed the algorithm to do histogram equalization and histogram specification, and have a better comprehension after seeing the transformation of the images. Thank you for giving me this chance to practice it!