Weekly Report

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1 Finger Knuckle Project

1.1 Using histogram equalization to normalize image

I have tried linear, log, and histogram to normalize image for getting better bounding box detection. From experiments, I found histogram equalization algorithm can get the best performance for detecting finger knuckle on the dark light.

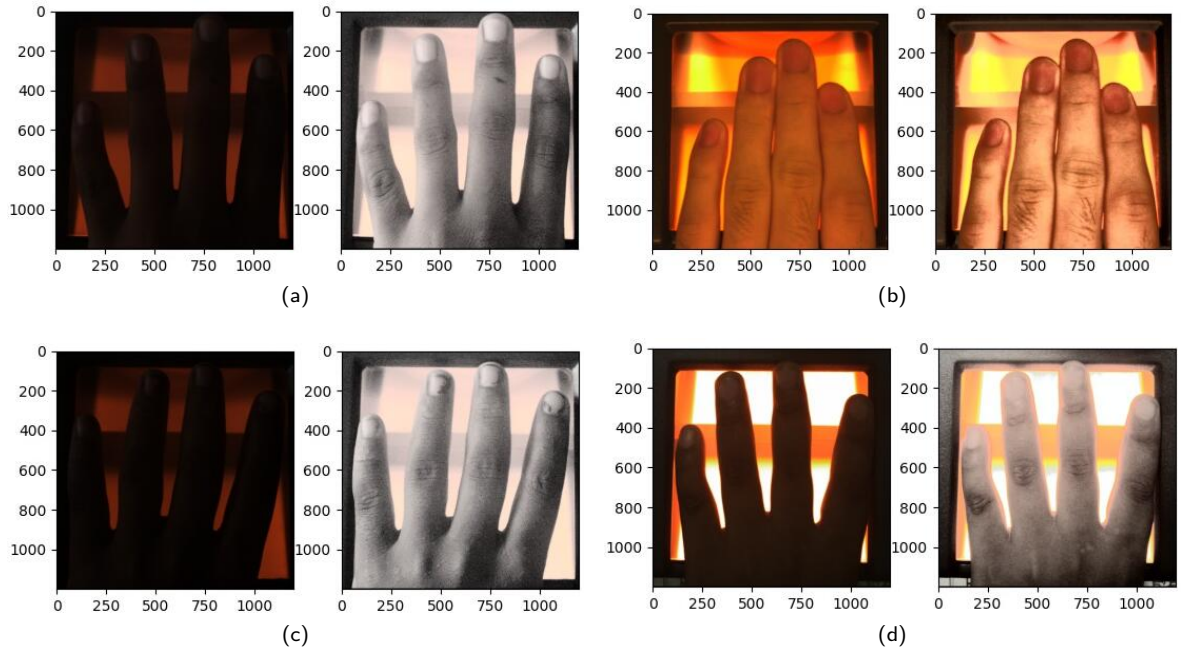

Figure 1: After using histogram equalization algorithm, the texture of finger knuckle is very clear for detecting.

1.2 Choose the hyperparameters

1.2.1 Input image size

I have tried that change the input image size $h \times w$ from 128×128 to 208×184. As for the former size, it just follows the RFN model parameter, and the latter input image

size is the mean size of the segmented finger knuckle. When I train the RFN model, I also removed the values of ten pixels on each side of the finger knuckle for eliminating background interference. I just used the RFN to test the performance on the middle finger knuckle of left hand, as shown the