Technique report

This is the report on the experiment with the LIVE dataset and collected dataset.

1. LIVE dataset

Experiment with traditional metrics

1. SSIM
2. MSSSIM
3. PSNR
4. FSIM

Experiment with Deep learning

1. Collected dataset

Experiment with traditional metrics

1. SSIM

When calculate ssim, some pairs of images have neatly the same quality resulting in Inf value.

There some different between ssim for color image and gray image:

Ex: ssim(gray,gray) = 0.5820, ssim(color,color) = 0.5728.

Input color images for calculating ssim need to be convert to gray to avoid getting error.

1. MSSSIM

The Gaussian kernel size should be set smaller than 11(3 for ex) so that we can calculate msssim

1. PSNR
2. FSIM

When calculate fsim, some pairs of images have neatly the same quality resulting in Nan value. Therefore, we can assign them the fsim value are 1 for each pair.

Experiment with Deep learning

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SSIM | MSSSIM | PSNR | FSIM | DL |
| 0.79 | 0.82 | 0.68 | 0.81 | 0.7736 |