
```

%Pratap Luitel
%ENGS 111
%part 3
%gradient thresholding

filename = 'son1-1.gif';

%read the gif image
%
%Note: the image had to be read as an intensity and color map because not doing
%so brought about noticable changes in the input image
[im,map] = imread(filename,'frames','all');

img1 = thresh_grad1(im,map);
img2 = thresh_grad2(im,map);

figure
subplot(121)
imshow(img1)
title('gradient threshold: spatial filtering')

subplot(122)
imshow(img2)
title('gradient threshold: frequency filtering')

fprintf('For thresh_grad1, I first converted the image to grayscale,\n');
fprintf('and then to double. An average filter of kernel size 11(arbitarily) \n');
fprintf('was then applied to the resulting image. To reduce the gradient\n');
fprintf('illumination, the original image was subtracted from the \n');
fprintf('transformed image. The resulting image was thresholded \n');
fprintf('with a threshold value of 0. A complement of the outcome is\n');
fprintf('then my final image.\n');

fprintf('\n');
fprintf('For thresh_grad2, I again converted the input image to grayscale,\n');
fprintf('and then to double. An unsharp mask is applied to the double image,\n');
fprintf('and then the resulting output is converted to bw with appropriate \n');
fprintf('threshold of greater than 0 \n');

```

For thresh_grad1, I first converted the image to grayscale, and then to double. An average filter of kernel size 11(arbitarily) was then applied to the resulting image. To reduce the gradient illumination, the original image was subtracted from the transformed image. The resulting image was thresholded with a threshold value of 0. A complement of the outcome is then my final image.

For thresh_grad2, I again converted the input image to grayscale, and then to double. An unsharp mask is applied to the double image, and then the resulting output is converted to bw with appropriate threshold of greater than 0

gradient threshold: spatial filtering

Sonnet for Lena

O dear Lena, your beauty is so vast
It is hard enough me to describe it fast.
If through the entire world I would express
How's your portrait I could express.
And first when I tried to use VQ
I found that your cheeks belong to only you.
Your silly face was not a distorted face
Had to match with some of discrete faces.
And for your lips, several and distinct
Thirteen C's you found just the proper facial,
And while these words to me are quite new
I might have found them with looks here or there
But when I look back upon the eyes of yours
I see, 'Don't be like this, I'll just dig it.'²

Thomas C. S. 1/10/2014

gradient threshold: frequency filtering

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