

Assignment 2

1

- a) See applyFilter.m
- b) % s =
%
% 11657

This filter is useful for highlighting or emphasizing vertical edges of an image.



2

- a) See computeEngGrad.m
- b) % s =
%
% 4.5304e+06



3

- a) See computeEngColor.m
% s =
%
% -58999407



4

- a) See computeEng.m
- b) See removeSeamV.m
- c) See addSeamV.m
- d) See seamV_DP.m
- e) See bestSeamV.m
- f) See reduceWidth.m
- g) See reduceHeight.m

- h) See increaseWidth.m
- i) See increaseHeight.m
- j) See intelligentResize.m
- k)

Cat:

% totalCost =

%

% -1.0109e+06



Face:

% totalCost =

%

% -4.0257e+05



5

a)

```
% sigma2 =  
%  
% 2.0833  
%  
%  
% W =  
%  
% 1.0000 4.0000 0.7866  
% 2.0000 5.0000 0.7866  
% 3.0000 6.0000 0.3829  
% 4.0000 7.0000 0.1153  
% 5.0000 8.0000 0.7866  
% 6.0000 9.0000 1.0000  
% 1.0000 2.0000 0.7866  
% 4.0000 5.0000 0.7866  
% 7.0000 8.0000 0.7866  
% 2.0000 3.0000 0.3829  
% 5.0000 6.0000 0.7866  
% 8.0000 9.0000 0.7866  
% 4.0000 1.0000 0.7866  
% 5.0000 2.0000 0.7866  
% 6.0000 3.0000 0.3829  
% 7.0000 4.0000 0.1153  
% 8.0000 5.0000 0.7866  
% 9.0000 6.0000 1.0000  
% 2.0000 1.0000 0.7866  
% 5.0000 4.0000 0.7866  
% 8.0000 7.0000 0.7866  
% 3.0000 2.0000 0.3829  
% 6.0000 5.0000 0.7866  
% 9.0000 8.0000 0.7866  
%  
%  
% segm =  
%  
% 3 x 3 logical array  
%  
% 0 0 0  
% 0 0 0  
% 0 1 1  
%
```

```
%  
% e2 =  
%  
% 1.5524
```

6

After a while of experimentation, my favorite modification thus far is what I call “*intelligentRemove.m.*” Here, instead of intelligently finding seams of low energy to use to preserve the foreground content of the picture, this program does the opposite—it intelligently finds seams of high energy to preserve the background of the image. I chose to implement this by simply inverting the *computeEng* function by multiplying it by -1.

Before:



After:

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