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CS4442B Assignment 2

Problem 1(a)

Refer to applyFilter.m for the code for this problem.

Problem 1(b)

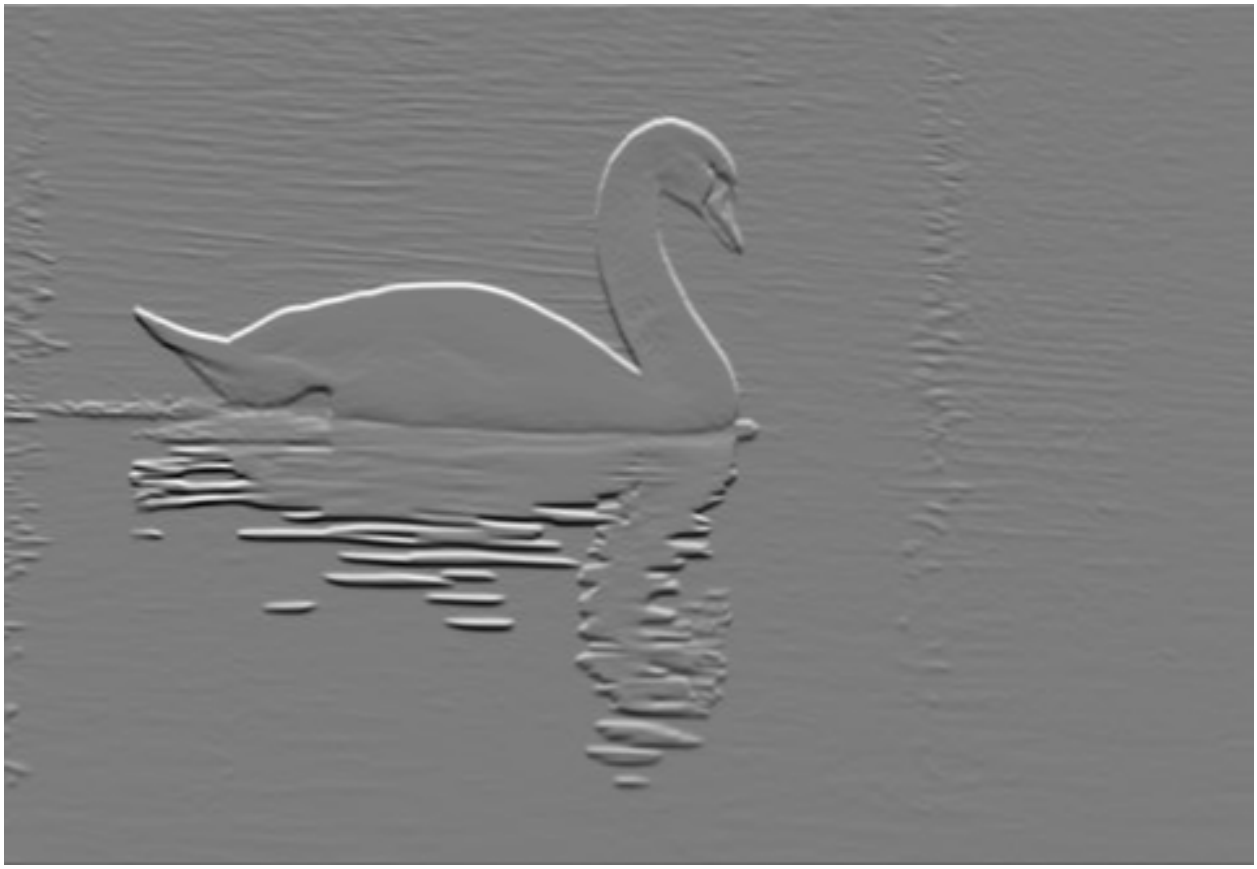
Using filter

$$F = \begin{bmatrix} -1 & -3 & -1 \\ 0 & 0 & 0 \\ 1 & 3 & 1 \end{bmatrix}$$

The sum of absolute values is: 7227422

The filter turns the whole image into a completely gray image. This completely gray image contains the outline of the swan, as well as the outline of the swans reflection in the water.

Copy of image



Problem 2(a)

Refer to computeEngGrad.m for the code for this problem.

Problem 2(b)

The sum of the energy values is: 3.522015783010032e+06

Copy of faceEngG.jpg

Problem 3(a)

Refer to computeEngColor.m for the code for this problem

Problem 3(b)

The sum of values in the energy image is: -58999407

Copy of image

Problem 4(a)

Refer to computeEng.m for the code for this problem

Problem 4(b)

Refer to removeSeamV.m for the code for this problem

Problem 4(c)

Refer to addSeamV.m for the code for this problem

Problem 4(d)

Refer to seamV_DP.m for the code for this problem

Problem 4(e)

Refer to bestSeamV.m for the code for this problem

Problem 4(f)

Refer to reduceWidth.m for the code for this problem

Problem 4(g)

Refer to reduceHeight.m for the code for this problem

Problem 4(h)

Refer to increaseWidth.m for the code for this problem

Problem 4(i)

Refer to increaseHeight.m for the code for this problem

Problem 4(j)

Refer to intelligentResize.m for the code for this problem

Problem 4(k)

Cat Seam Carving

Total cost of seams: -1.0138e+06
20 Vertical and 20 Horizontal seams were removed from the image.

It seems like the hat on the cat has gotten smaller.

Copy of catResized.png

Face Seam Carving

Total cost of seams: -4.3450e+05
20 horizontal and vertical seams removed.

The new image looks like it has removed quite a bit of hair from the original. This new image is also more zoomed in.

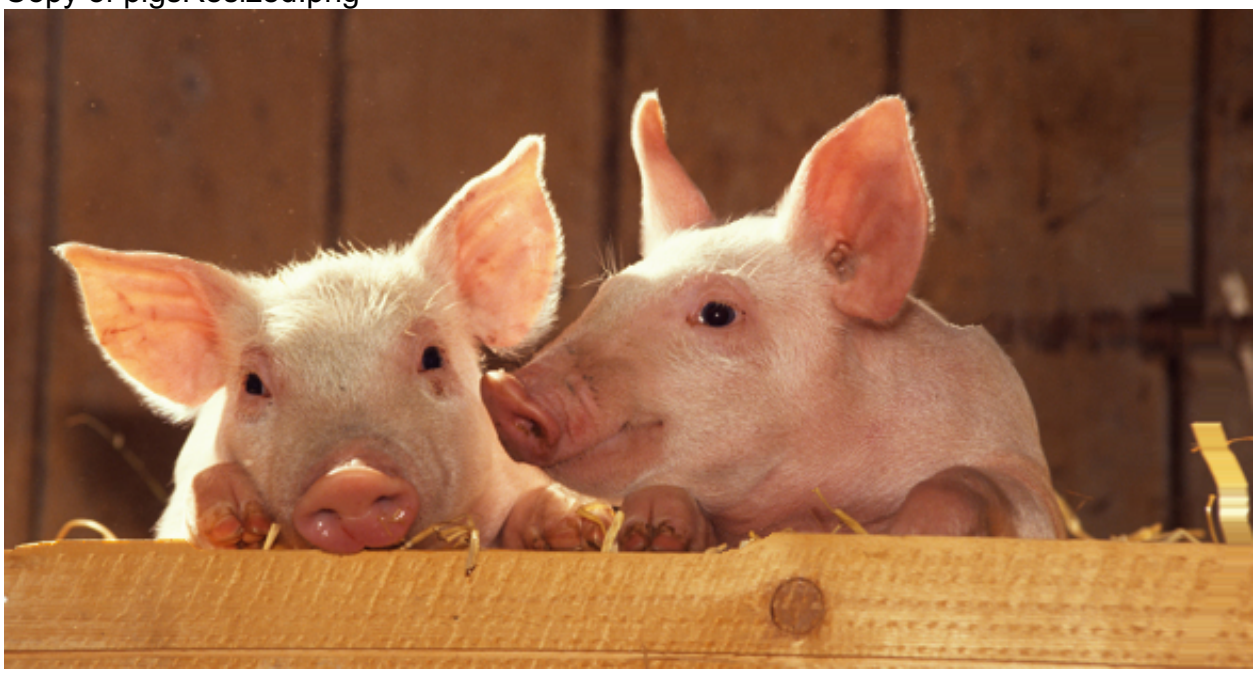
Copy of faceResized.jpg

Generated Example 1

Using image pigs.png
W = [1, -2, 1]
Inserted 10 vertical seams
Removed 15 horizontal seams
Mask of 1's.
Mask Weight was 100.

Total Cost: 1.3900e+05

Copy of pigsResized.png



Generated Example 2

Vertical seams removed: 10
Horizontal seams added: 10
Zero mask and zero mask weight used

Total Cost: -4.6895e+05

Copy of couplesResized.png

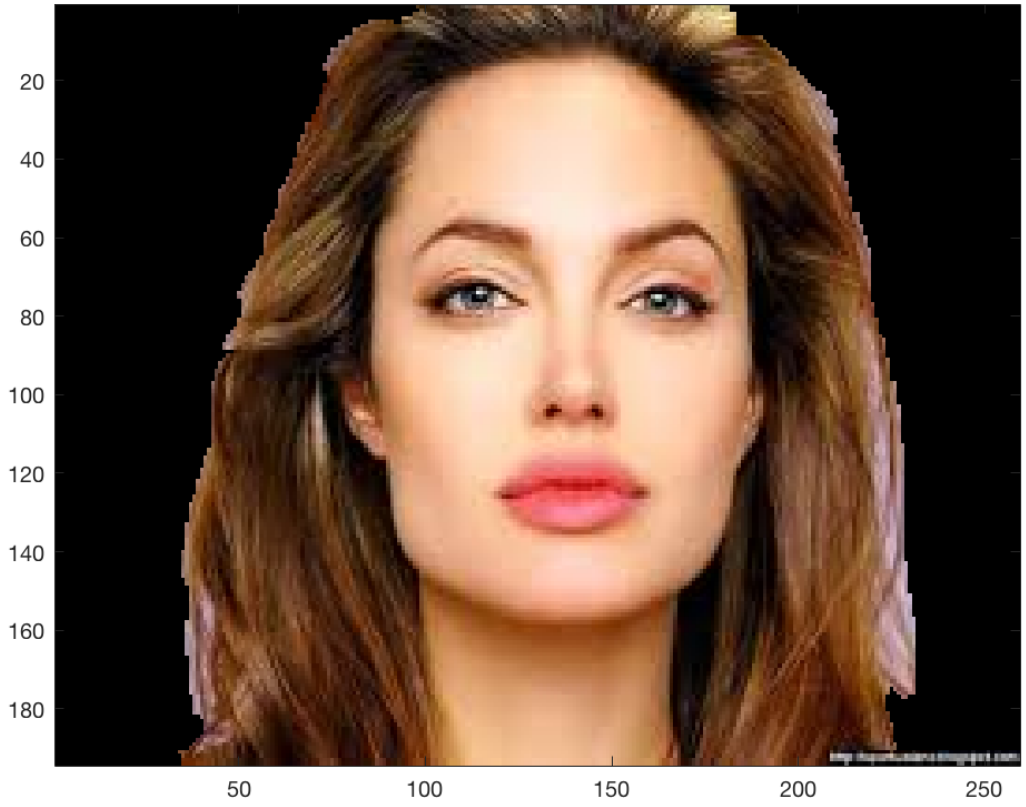
Problem 5(a)

Refer to segmentGC.m for the code to this problem.
Do note, that kmeans clustering was not implemented due to time constraints.

Problem 5(b)

Face image results

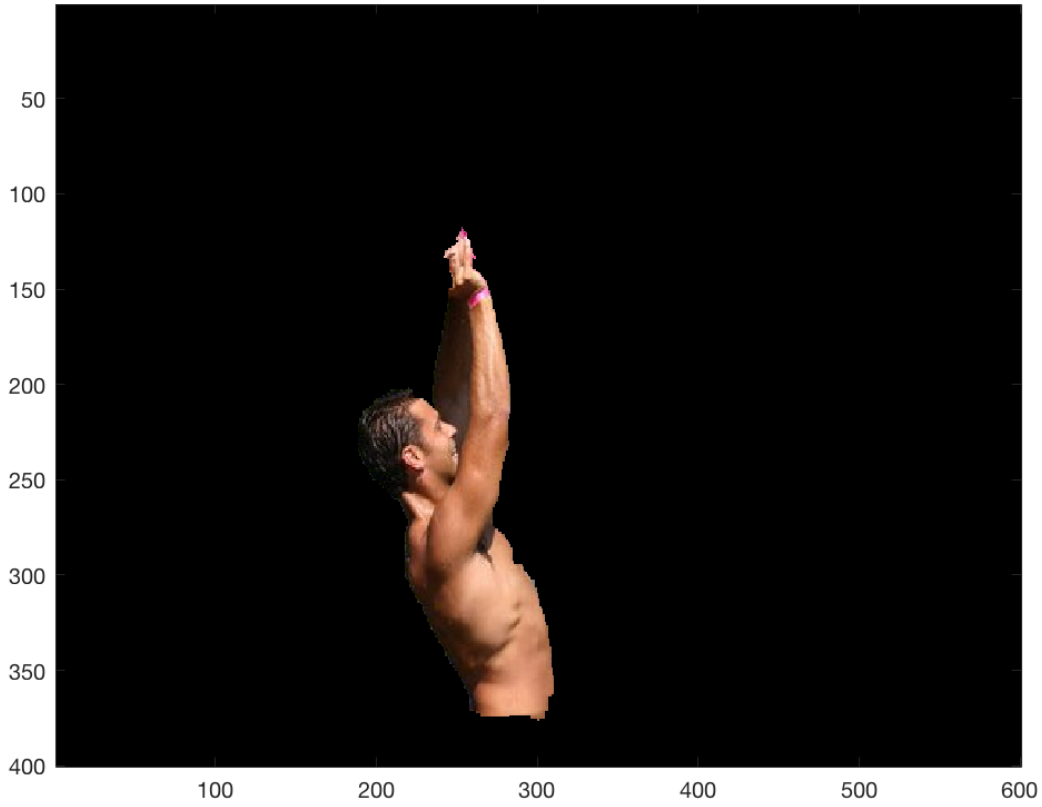
Copy of “faceL.png”



Final energy = 2.2495e+03

Lift image results

Copy of “liftL.png”



Final energy = 8.5632e+03