SEAM CARVING – GRAPHICS PROGRAMMING ASSIGNMENT 05

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IMAGE USED

ENERGY MAP

- Vertical and Horizontal edge detection kernels used on image
- Results were combined using a Pythagorean combination technique because it is a natural and distributive way to combine two transformed images
- Code:

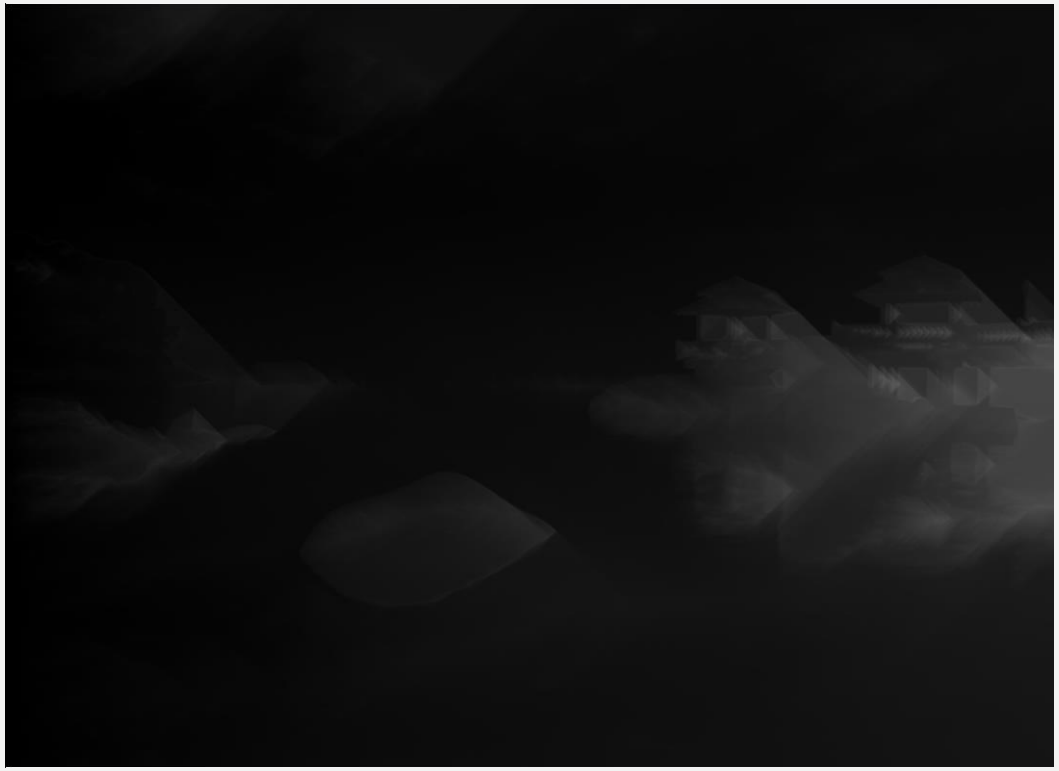
```
Iy=cv2.filter2D(img*1.0,-1,edge_kernel)
Ix=cv2.filter2D(img*1.0, 1,edge_kernel.T)
I=(Ix*Ix+Iy*Iy)**.5
```

pic_1_a.png

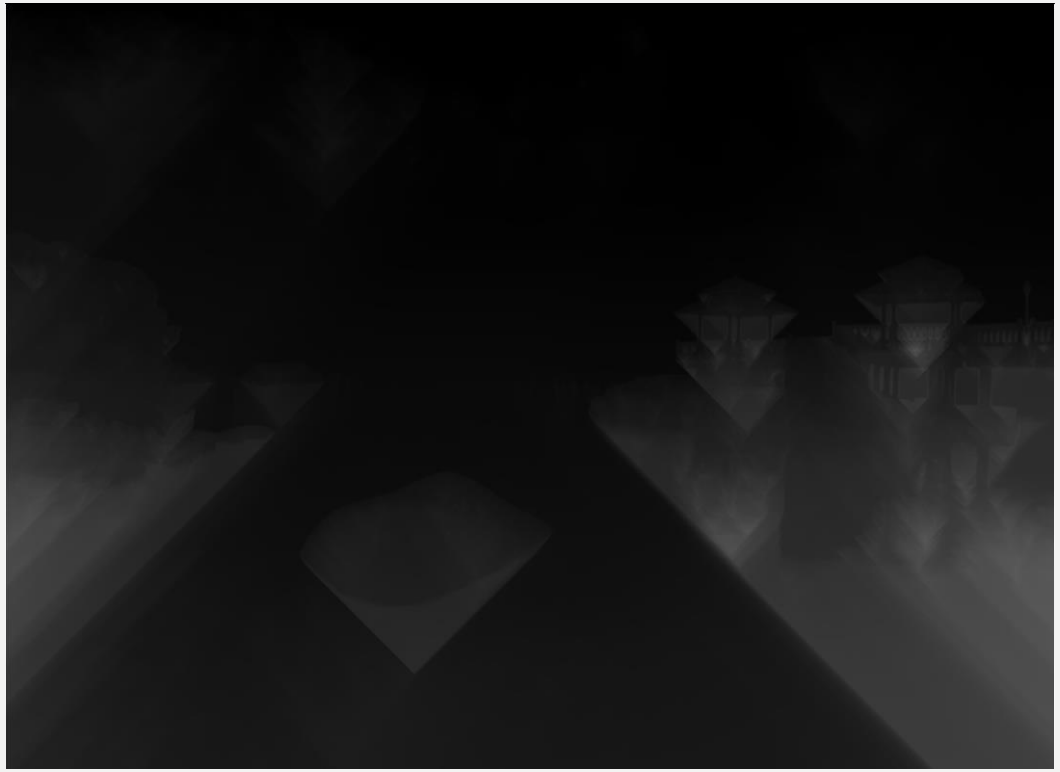
DYNAMIC PROGRAMMING

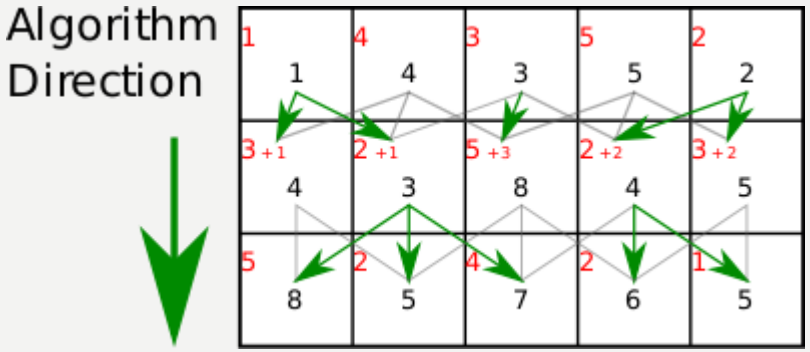
- Dynamic Programming was used to find the values to place optimal seams vertically and horizontally

pic_1_b_hor.png



pic_1_b.png

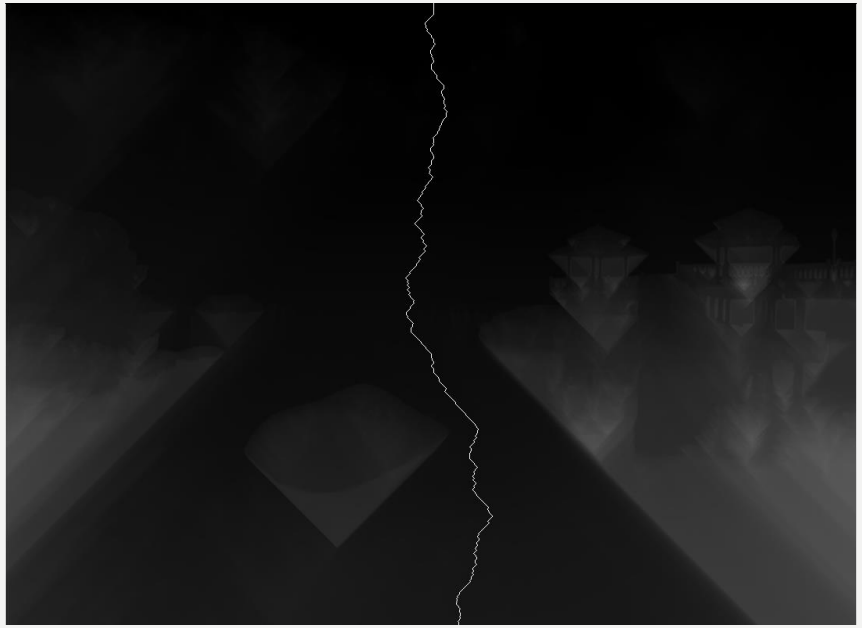




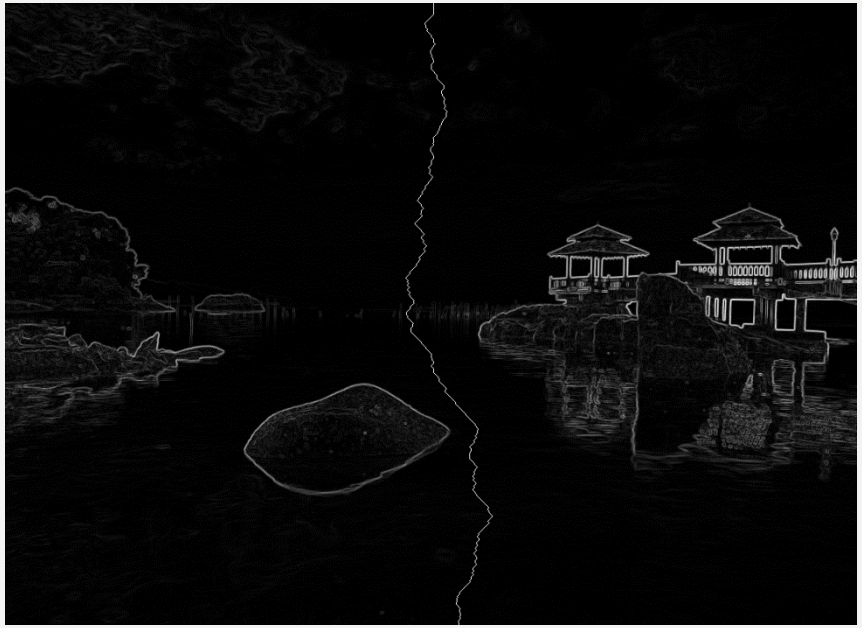
FIRST VERTICAL SEAM

- Vertical seam found using smallest values in the dynamic maps

pic_1_c_0.png



pic_1_c_2.png



pic_1_c_1.png

REMOVED VERTICAL SEAMS

- 1 and 50 vertical seams were removed:

pic_1_d.png

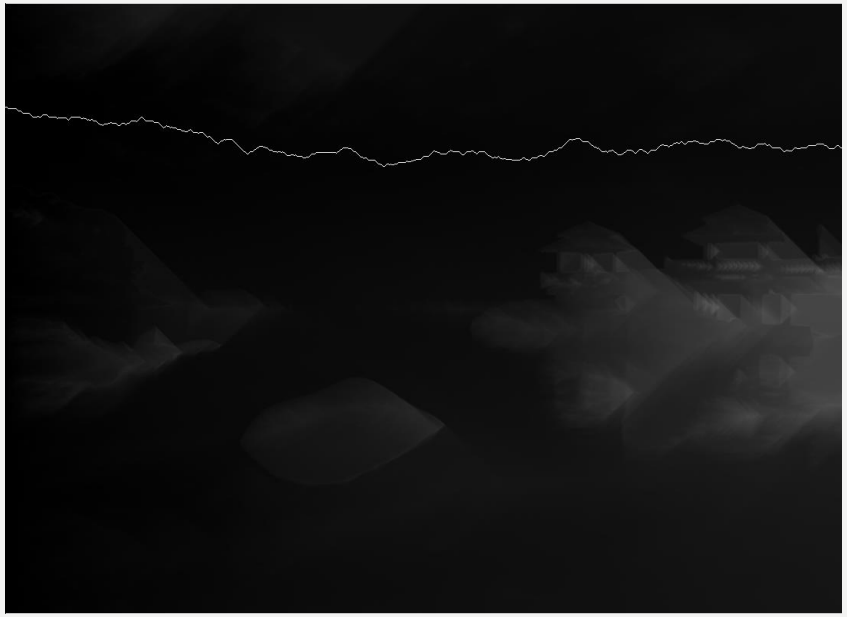
pic_1_e.png

FIRST HORIZONTAL SEAM

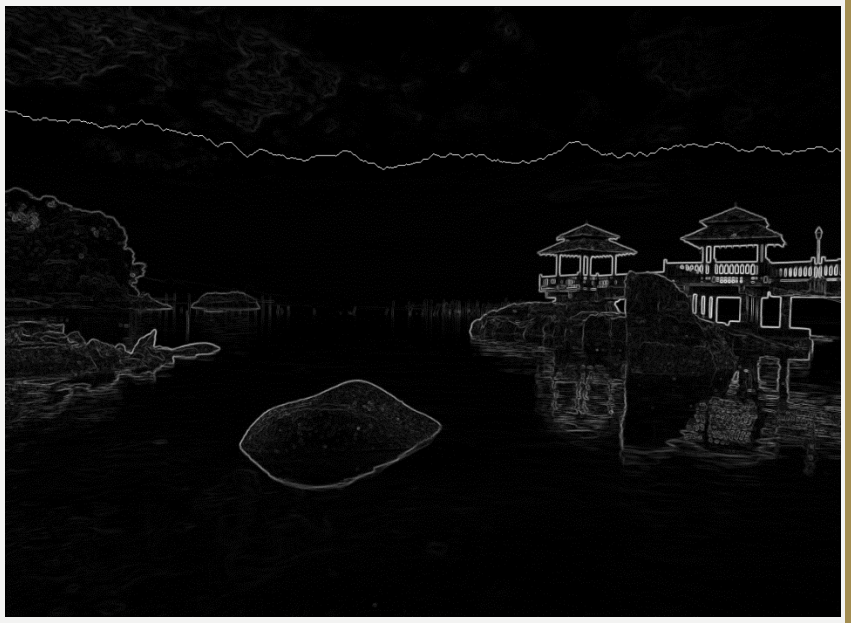
- Horizontal seam found using smallest values in the dynamic maps

pic_2_a_0.png

pic_2_a_2.png



pic_2_a_1.png



REMOVED HORIZONTAL SEAMS

- 50 horizontal seams were removed:

original

pic_2_b.png

RETARGETED IMAGES

- Repeated seam removals were used the change the dimensions of the image
- Image started from a dimension of 1090x795

pic_3_b_0.png (320x240)

pic_3_b_1.png (320x320)

pic_3_b_2.png (640x480)

pic_3_b_3.png (640x640)