Assignment5 / {Seams}

Graphics Programming / Tristan Goodell

Source Image

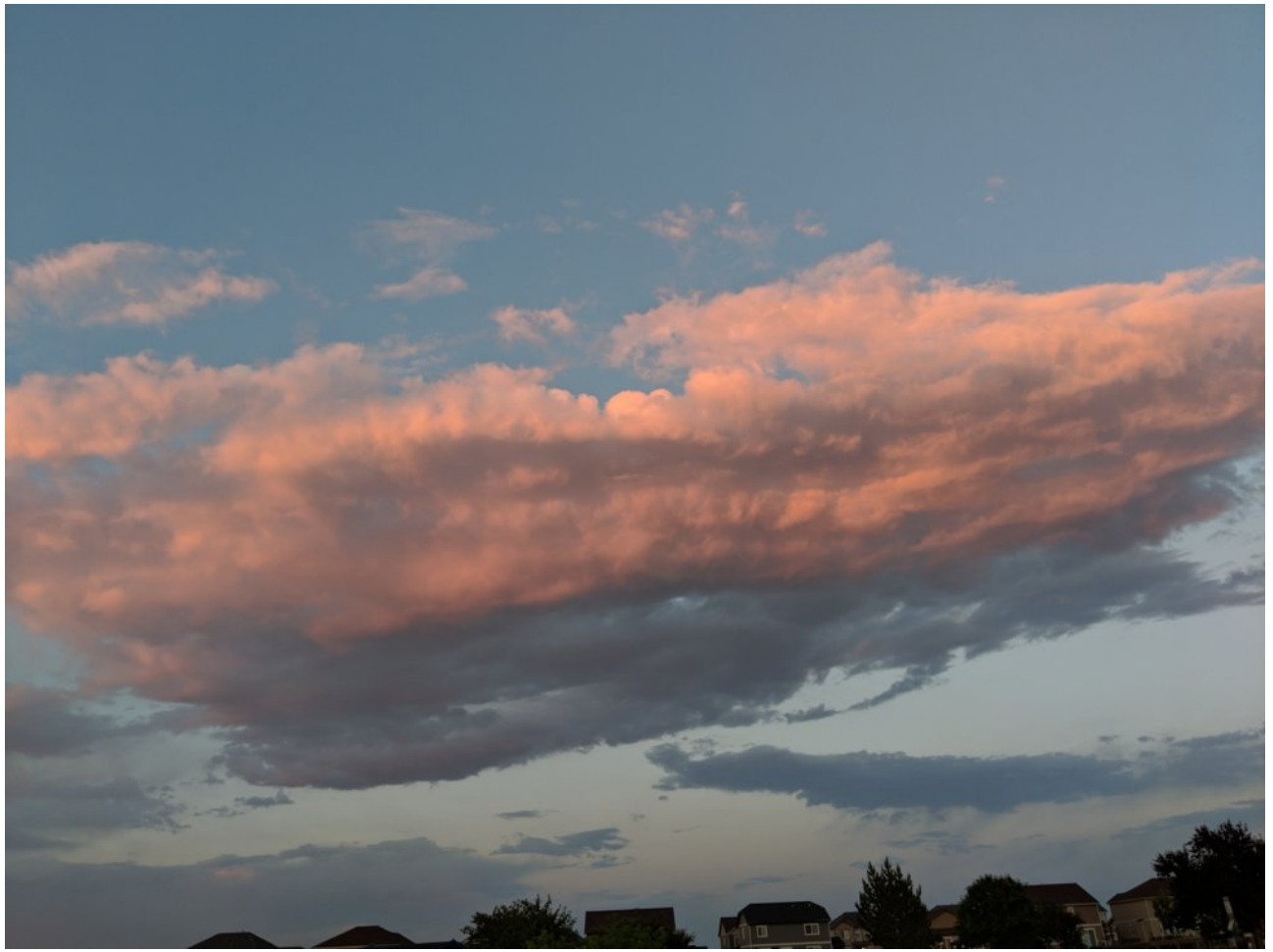


image1.jpg

Energy Map

energyMap.png

```
def getEnergyMap(img,repulseMask=None,attractMask=None):
    edges=getEdgeImage(img)
    if attractMask is not None:
        edges[attractMask==1]=-10
    kernel=np.ones(3,np.float64)
    for i in range(1,len(edges)):
        minAbove=cv2.erode(edges[i-1],kernel).T[0]
        edges[i]+=minAbove
    return edges
```

Vertical Seaming

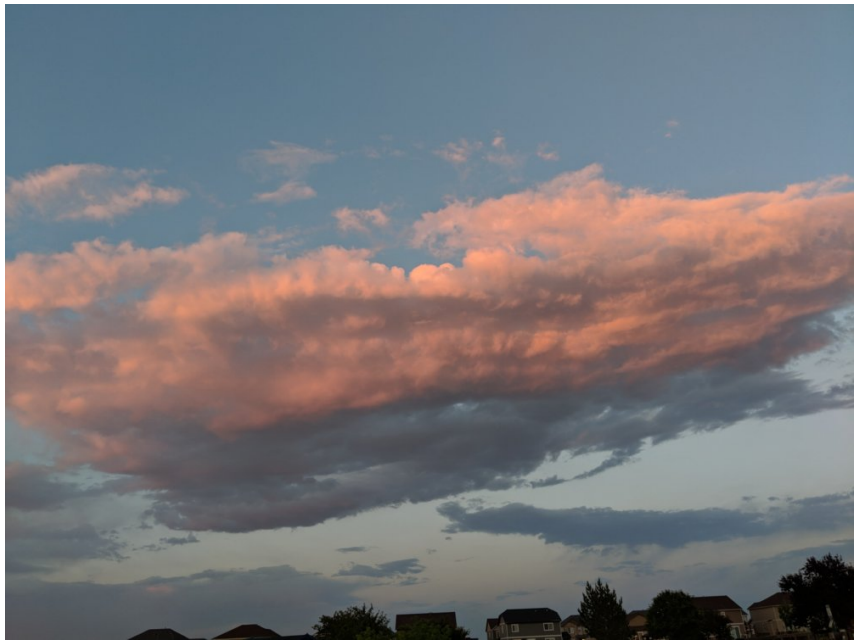
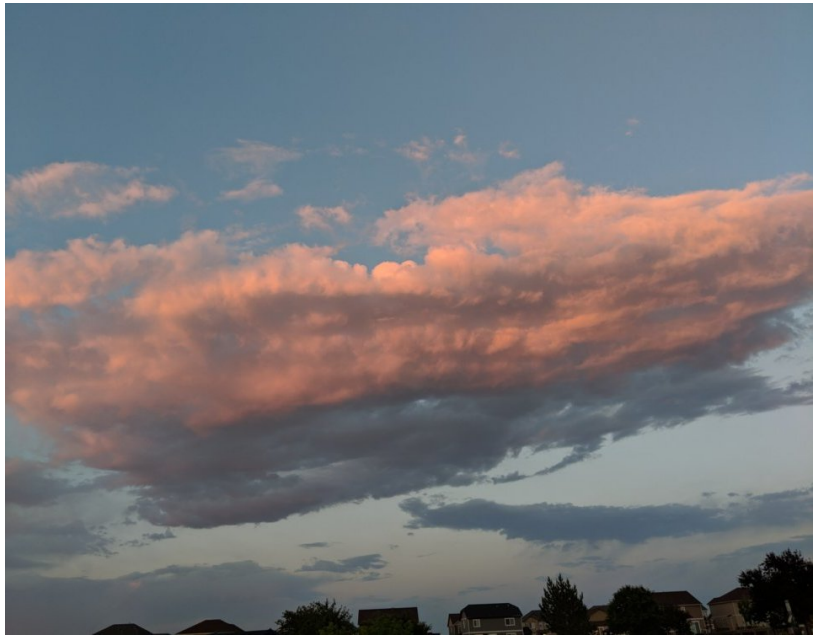
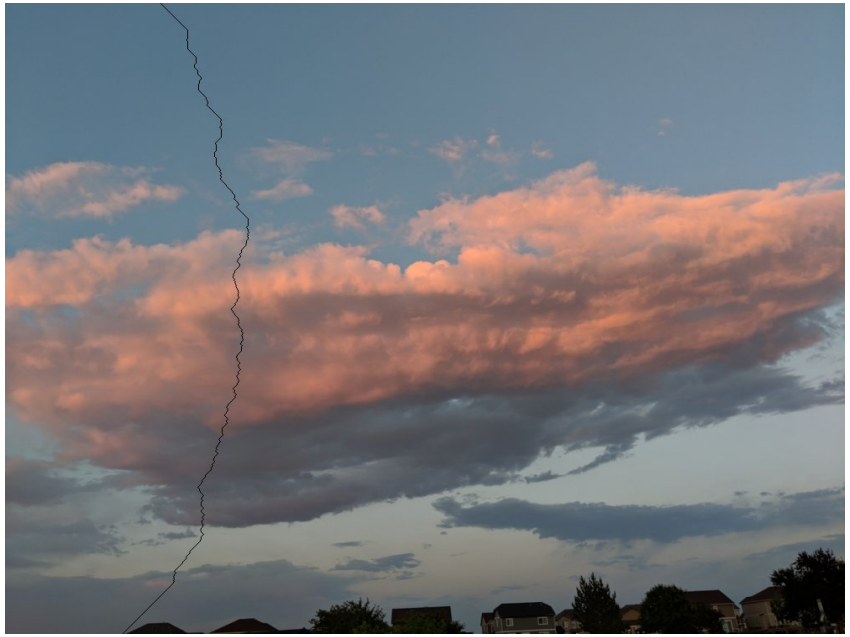


image1.jpg



seams40.png



highlightedSeam.png

Horizontal Seaming

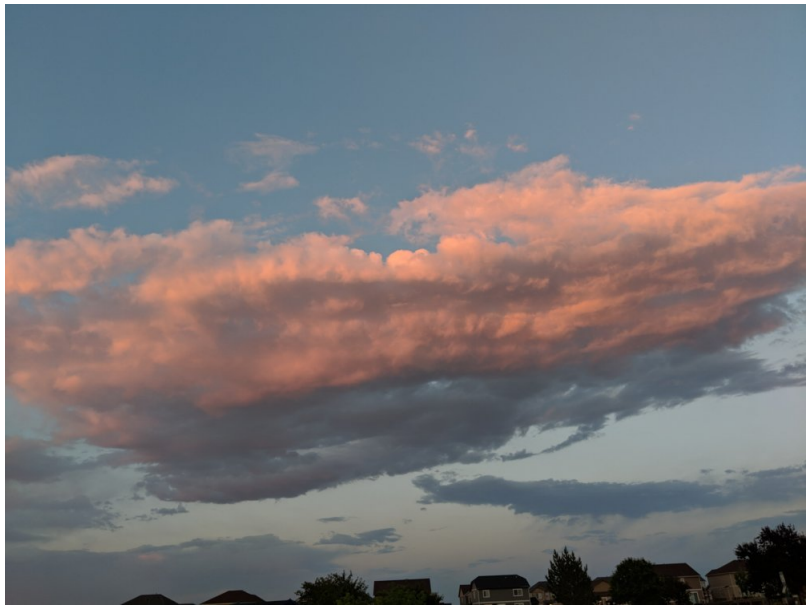
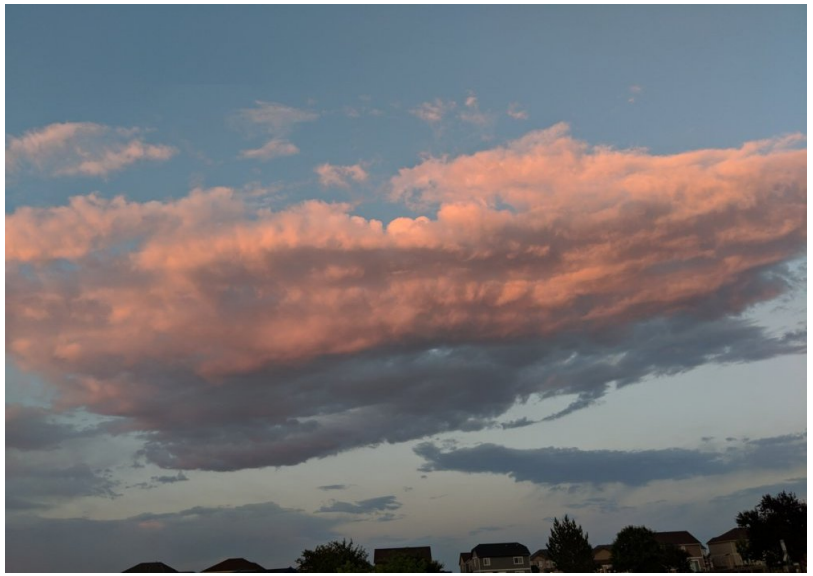
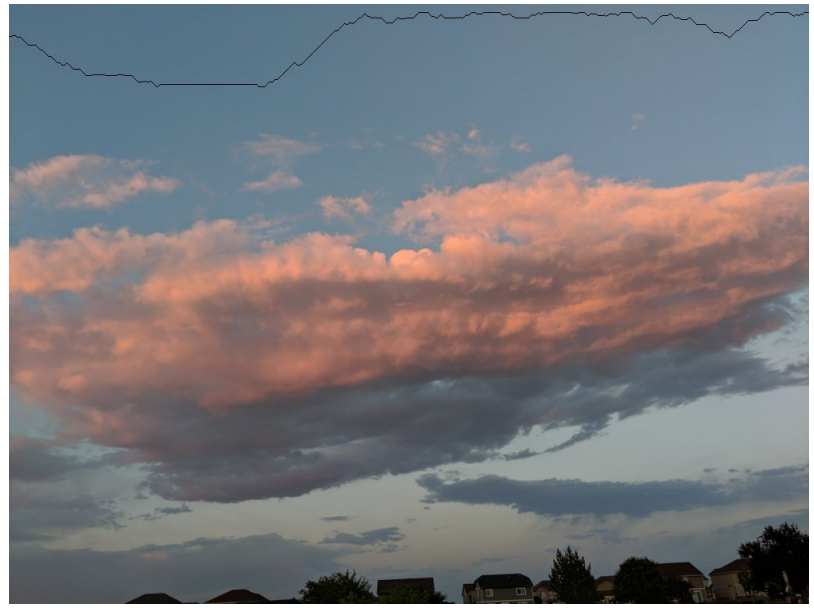


image1.jpg



horizontalSeams40.png



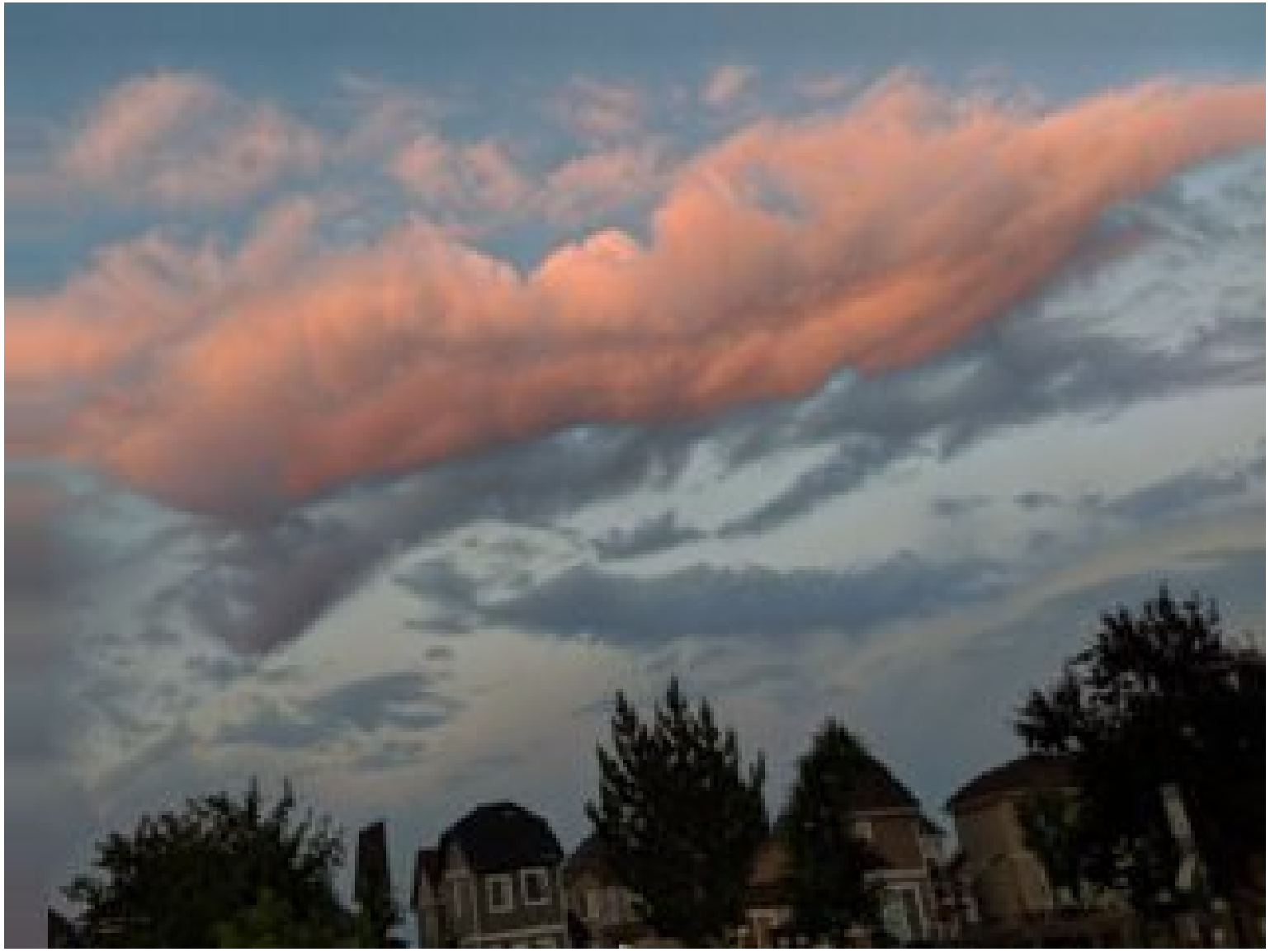
horizontalHighlightedSeam.png

Retarget

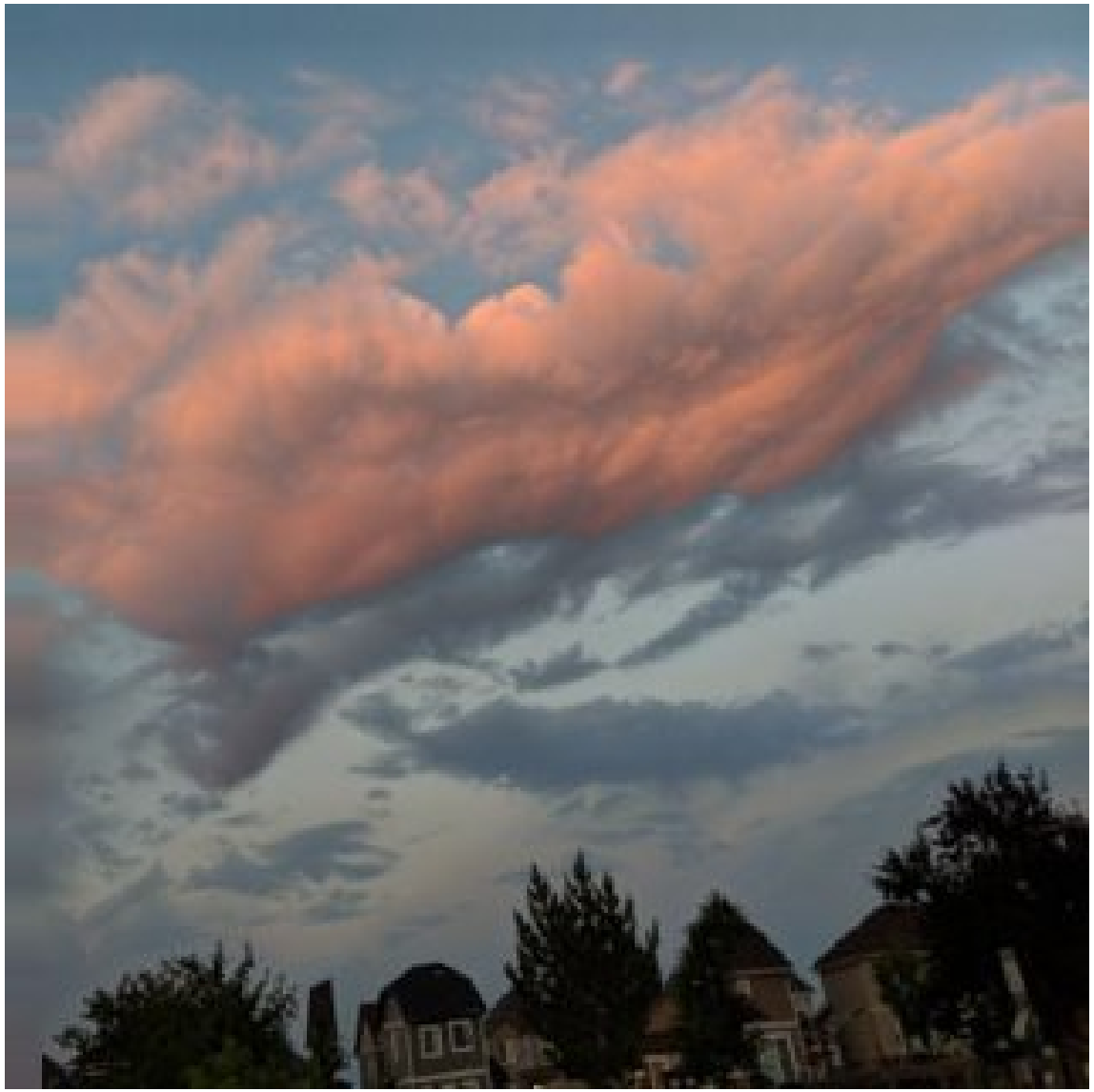
```
def retarget(img,w,h):
    seams40=reHoriz(img,w)
    seams40=reVert(seams40,h)

    return seams40

def reHoriz(img,w):
    ih, iw, = img.shape[:2]
    n = 0
    seams40 = img
    gs40 = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    attractMask = gs40 * 0
    attractMask[690:810, 100:200] = 1
    while n < np.abs(iw - w):
        seam = getSeam(gs40,
attractMask=attractMask)
        gs40 = removeSeam(gs40, seam)
        seams40 = removeSeam(seams40, seam)
        attractMask = removeSeam(attractMask, seam)
        n += 1
    return seams40
```

```
def reVert(img,h):
    ih, iw, = img.shape[:2]
    seams40 = img
    gs40 = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    gs40 = cv2.rotate(gs40, cv2.ROTATE_90_COUNTERCLOCKWISE)
    seams40 = cv2.rotate(seams40, cv2.ROTATE_90_COUNTERCLOCKWISE)
    attractMask = gs40 * 0
    attractMask[690:810, 100:200] = 1
    n = 0
    while n < np.abs(ih - h):
        seam = getSeam(gs40, attractMask=attractMask)
        gs40 = removeSeam(gs40, seam)
        seams40 = removeSeam(seams40, seam)
        attractMask = removeSeam(attractMask, seam)
        n += 1
    seams40 = cv2.rotate(seams40, cv2.ROTATE_90_CLOCKWISE)
    return seams40
```

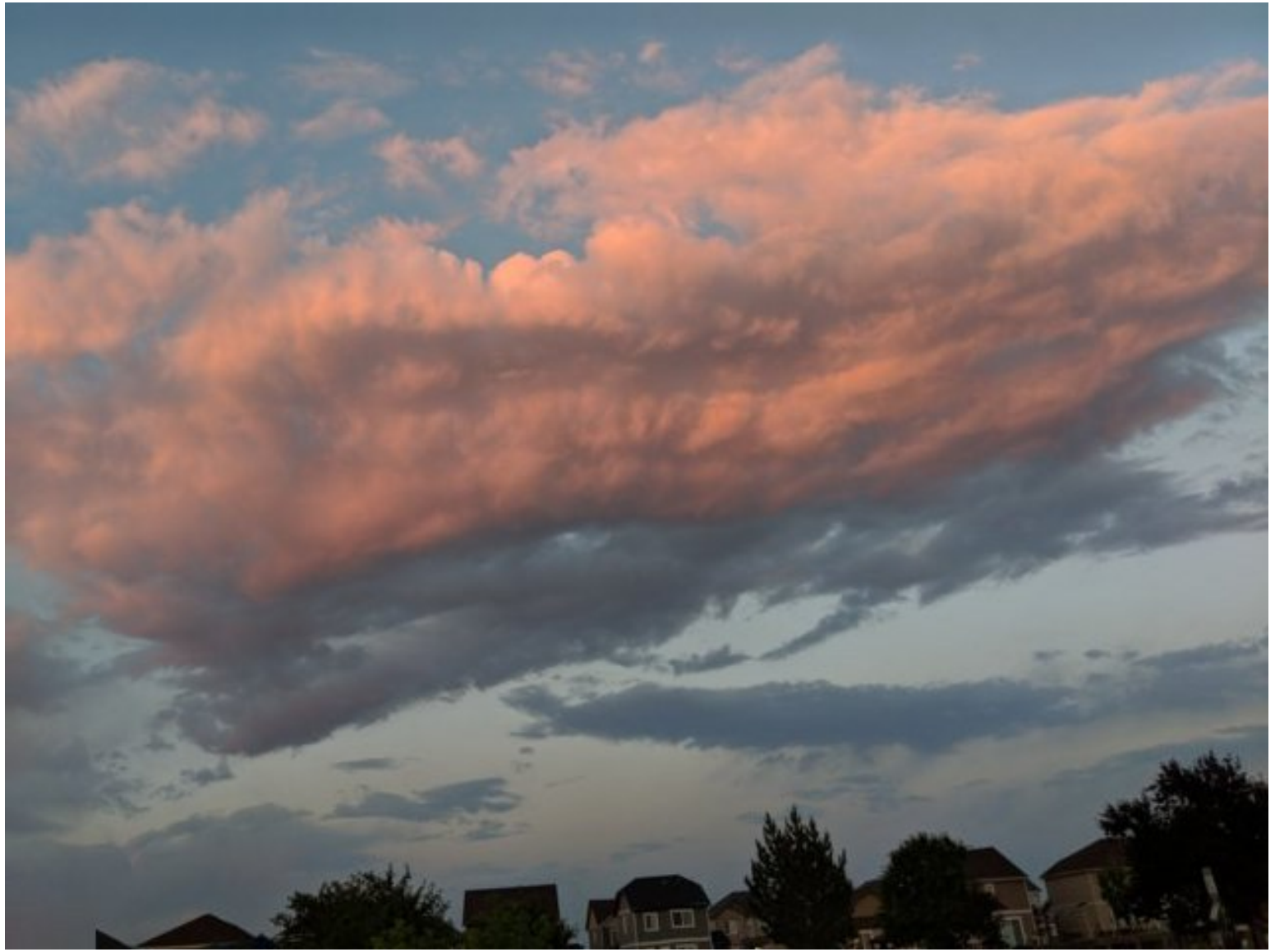
Retarget - 320x240



Retarget - 320x320



Retarget - 640x480



Retarget - 640x640