Assignment 08: Video Textures

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Difference Table

- The difference between each image and each other image was taken.
- The sum of the square of this image was stored in an array.

Difference Table

```
diffs=np.zeros((length,length),dtype=np.float32)
for i in range(length):
    for j in range(i,length):
        img1=imgs[i]
        img2=imgs[j]
        diff=(np.float32(img1)-img2)**2
        diffs[i,j]+=np.sum(diff)
        diffs[j,i]+=np.sum(diff
```

Difference Table: Blur & Diagonal

- The image is blurred diagonally with a 5x5 kernel
- Each value that is less than 30 frames away from the comparison pic is discounted

Difference Table: Blur & Diagonal

```
max_diff=np.max(diffs)
for i in range(length):
    for j in range(length):
        if np.abs(i-j)<30:
        diffs[i,j]+=max_diff
diag_kernel=np.float32([[1,0,0,0,0],
                        [0,4,0,0,0],
                        [0,0,6,0,0],
                    [0,0,0,4,0],
                    [0,0,0,0,1]])
diag_kernel/=np.sum(diag_kernel)
diffs=cv2.filter2D(diffs,-1,diag_kernel,borderType=cv2.BORDER_REFLECT)
```

Finding Start and End Frames

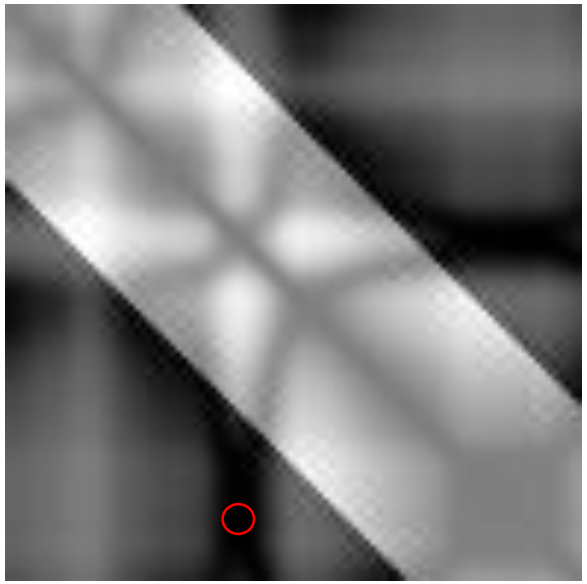
- The coordinates of the lowest value on the difference table is found.
- The resulting numbers are the start and end frames of the looping video.

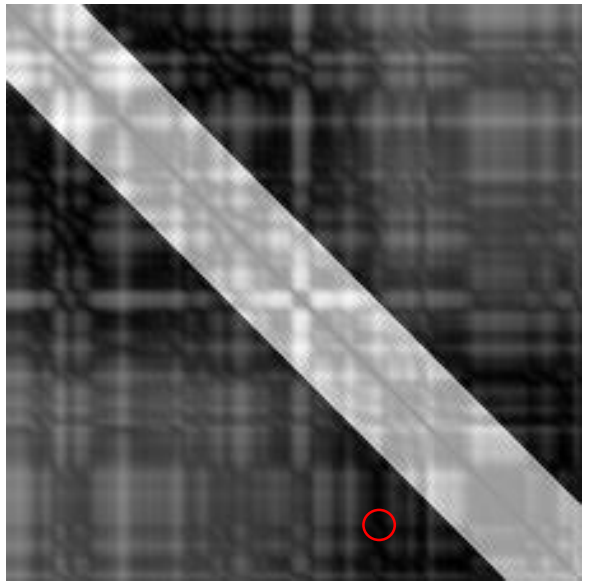
Difference Table

```
diffs=diffs[1:-1,1:-1]

coord=np.argmin(diffs)
frame1=(coord//(length-2))+1
frame2=(coord%(length-2))+1

start=min(frame1,frame2)
end=max(frame1,frame2)
```

Output

- Candle: 100 frames to 51 frames (40-90)





- Faucet: 227 frames to 57 frames (148-204)