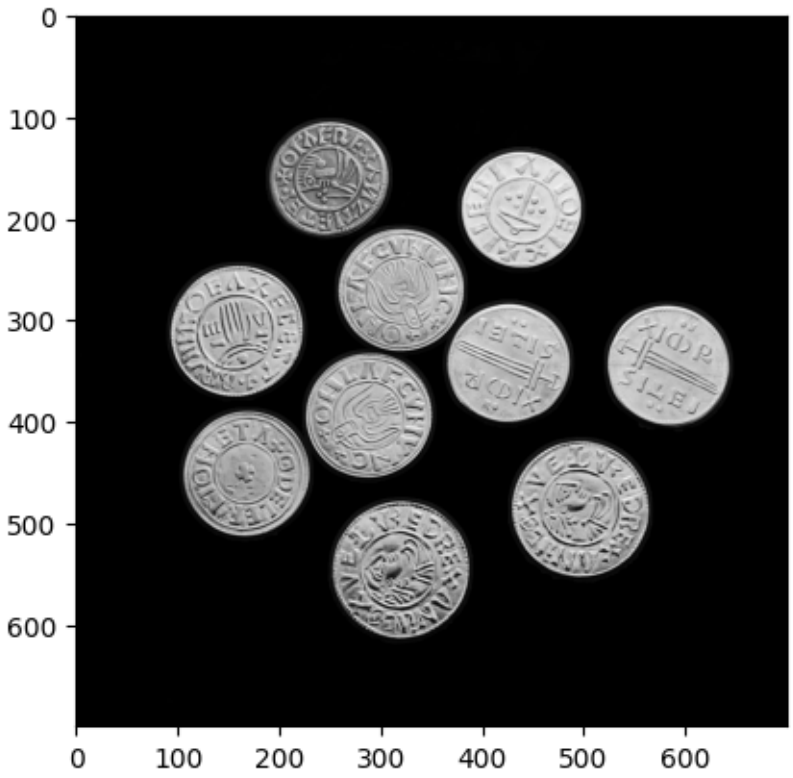
task-7-02-coin-houghcircle

February 2, 2024

Task 7.1 | 65011428 Papinwich Asnapetch

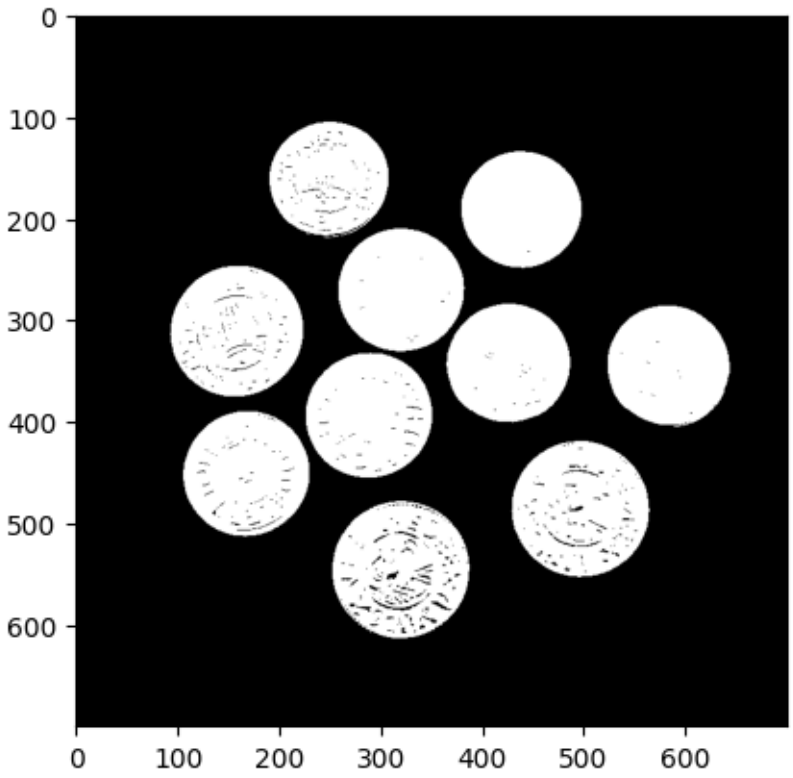
[1]:
```
import cv2
from matplotlib import pyplot as plt
import numpy as np
```

[2]:
```
# Load Image
img = cv2.imread('coins.jpg')
img = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

plt.imshow(img, cmap='gray')

def imgDisplay(localImg):
    plt.figure(figsize= (11, 11))

    plt.subplot(1, 2, 1)
    plt.imshow(img, cmap= 'gray')

    plt.subplot(1, 2, 2)
    plt.imshow(localImg, cmap= 'gray')

    plt.show()
```



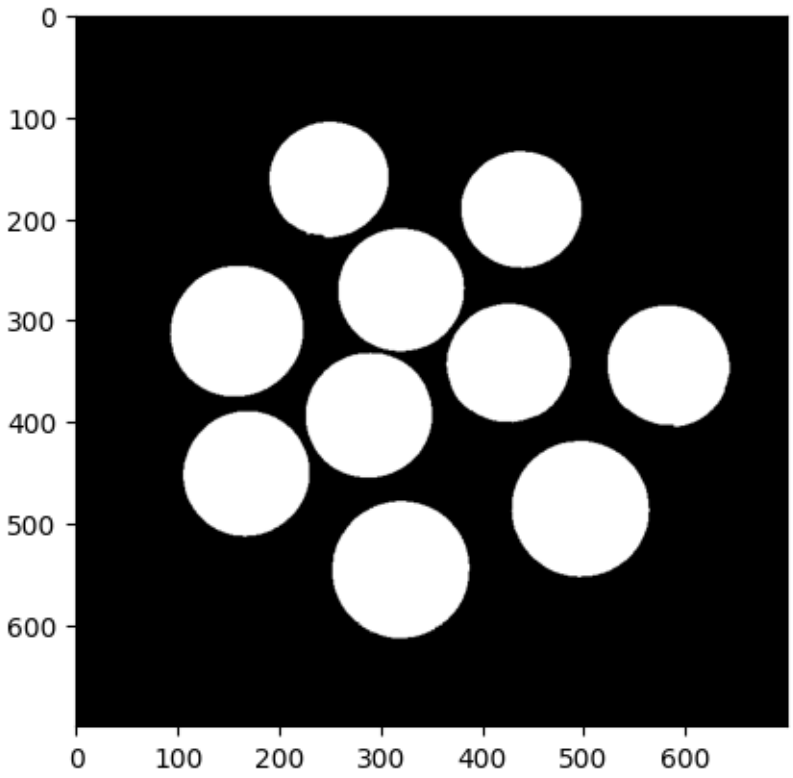
[3]:
```
# Apply threshold
ret, img_thresh = cv2.threshold(img, 45, 255, cv2.THRESH_BINARY)

plt.imshow(img_thresh, cmap= 'gray')
```

[3]: <matplotlib.image.AxesImage at 0x21bef286400>



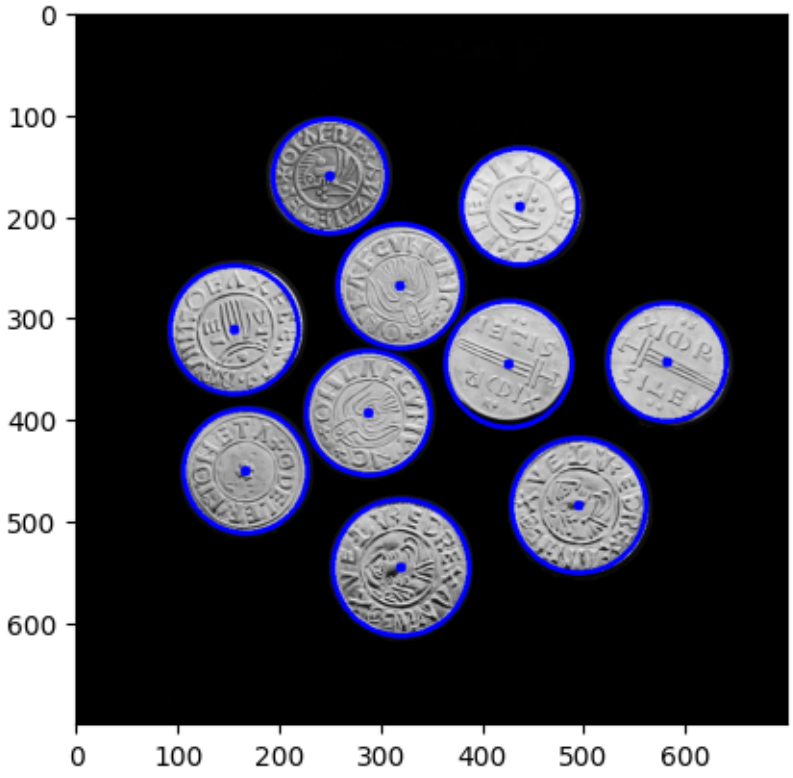
[4]:
```
# Reduce noise
img_res = cv2.morphologyEx(img_thresh, cv2.MORPH_CLOSE, np.ones((3,3)),␣
 ↪iterations= 2)

plt.imshow(img_res, cmap= 'gray')
```

[4]: <matplotlib.image.AxesImage at 0x21bed117bb0>



[7]:
```
# Get circles
circles = cv2.HoughCircles(img_res, cv2.HOUGH_GRADIENT,
                           dp= 0.8, minDist= 30,
                           param1= 10, param2= 8,
                           minRadius= 50, maxRadius= 80)


img_rgb = cv2.cvtColor(img, cv2.COLOR_GRAY2RGB)
for x, y, r in circles[0]:
    cv2.circle(img_rgb, (int(x), int(y)), int(r), (0, 0, 255), thickness= 3)
    cv2.circle(img_rgb, (int(x), int(y)), 5, (0, 0, 255), thickness= -1)

plt.imshow(img_rgb)
```

[7]:
```
<matplotlib.image.AxesImage at 0x21bed130760>
```


0
100
200
300
400
500
600
0
100
200
300
400
500
600