The American University in Cairo

Department of Computer Science and Engineering

CSCE 4603 – Fundamentals of Computer Vision

Dr. Mohamed Moustafa	Assignment 2 [10%]	Fall 2017

Assignment released October 24th, and due by end of November 11th

Develop a program in your preferred programming language that can detect the rectangles and circles circumferences in images similar to these

- Use your phone/tablet to take photos at a ***predetermined*** distance of some mixture of coins and papers. Predetermined distance will make your life easier as the same circle/rectangle will appear in the same size in all images.

- The program output is the location of each detected circle or rectangle defined by the (x,y) position of its center and its radius (circle), or the (x,y) corners positions (rectangle). You need to draw your detected circles and rectangles on the image to verify you have detected the coins.

You are expected to deliver:

1. source code of your program. You are allowed to use OpenCV (or other helpful ready made libraries) but NOT the hough transform or boundary/contour detection functions. **[2%]**
2. short report describing your work including snapshots of your output. At least cover the following cases:
    a) image1: at least 2 coins and 1 paper note non-overlapping on a plain background **[2%]**
    b) image2: at least 2 coins and 1 paper note on a complex/noisy background **[2%]**
    c) image3: at least 5 coins and 2 paper notes with partial overlap on a plain background **[2%]**
    d) image4: at least 5 coins and 2 paper notes with partial overlap on a complex/noisy background **[2%]**

3. you have to use the same code with the same settings for ALL images (otherwise **[-1%]** per image with different settings)

4. Bonus **[1%]** in total, if your code supports calculating the amount of Egyptian pounds in all the images.