

[FALL 2019] COGNITIVE COMPUTING – HOMEWORK 1

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Release Date:	09/10/2019.
Due Date:	09/17/2019. 12pm (noon)
Cheating Policy:	If you are caught cheating, you will get an F.
Submission:	Please submit (1) code, (2) output image output.png” to NTU CEIBA or email (not registered), name your zip file with your student ID . i.e. d06944009.zip

In this homework, you are required to implement an edge detector with **Python 3**. You can use any library or package to finish this homework. **You are encouraged to discuss with classmates, but copying is strictly prohibited.**

Read the image ‘leaf.jpg’ into python, you can use include, but not limited to `skimage.io.imread()` or `PIL.Image.read()`

1. (60%) Detect *canny edges* in this image mark the edges with “black color”. Further **highlight the (external) contour** (樹葉外緣) with “brown color”. Hint: The rgb values: `rgb(165,42,42)` for (R, G, B). Please draw the edges and highlighted contour over the colorful leaf.

You can use `skimage.feature.canny()`, `cv2.canny()` , or implement it by yourself if you are interested in. However, You CANNOT directly apply a contour detection function such as `skimage.measure.find_contours`.

2. (25%) Write your school ID in the **lower-right corner** of the image with **font Arial** and **size 12**. You can use `PIL.ImageDraw` and `PIL.ImageFont` modules.
3. (15%) Save the output image (combining both 1 & 2) as “output.png”
4. DO implement them solely with python (and proper libraries) and DO NOT use Photoshop or other image editing tools.

Note. Canny edge is commonly used for edge detection. You can refer the following for more information:
https://en.wikipedia.org/wiki/Canny_edge_detector