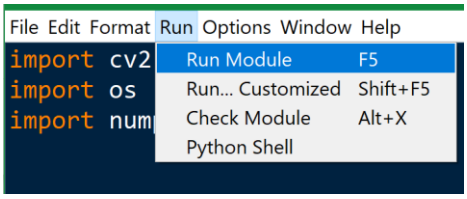
Manual Feature Labelling Code Instructions

Michael Sekatchev, 12-05-2020

1. Download annotate.py and README.md from github. annotate.py is a python script containing two functions that you can call to label PMT feature IDs in photographs.
2. Download the prerequisites before running the script:
    a. Download Python IDE (Python 3 will be required)
        - https://www.python.org/downloads/
        - pip install opencv-python
    b. Download the OpenCV library for Python (Tested with latest version, 4.2.0.34)
        - https://pypi.org/project/opencv-python/
    c. Download the numpy library for Python
        - https://pypi.org/project/numpy/
3. Create directories (names inside curly braces {} are placeholders) with the following structure:
    - {home}
        1. annotate.py
        2. {img_dir}{dataset}
            - {subset}_frames
                - Images for labelling
            - {subset}_masks
4. Run annotate.py
    - For Windows:
        a. Open annotate.py with the Python IDE
        b. Go to: Run -> Run module (or press F5)



    - For Unix (Linux or Mac OS):
        a. Open a terminal window and navigate to the folder containing annotate.py
        b. python3
        c. from annotate import annotate_img
        d. from annotate import annotate_dir

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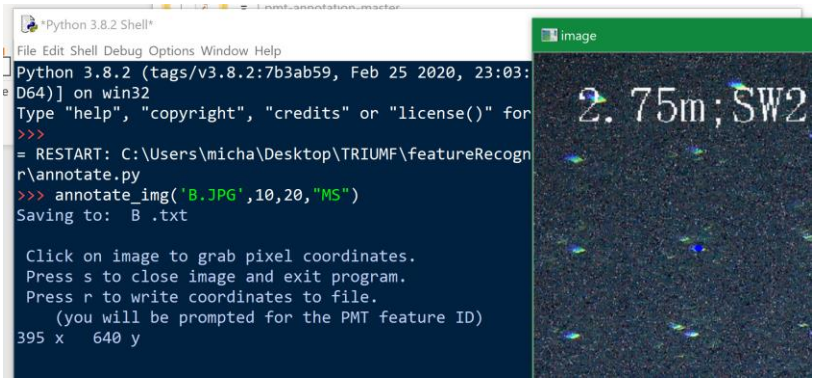
5. Run either of two functions to label images:

a. Function: annotate_img(img_path, size1, size2,)

- Inputs:
  1. img_path - name and location of the image, example "B.jpg"
  2. size1 - size of the 1st brush circle, in px
  3. size2 - size of the 2nd brush circle, in px
  4. initials - First name and last name initials of the person doing the labelling. Recorded next to every PMT feature ID line in the text file.
- outputs
  1. label.jpg - A map of all the features in binary (white on black)
  2. {image_name}.txt - A text file. Each line contains a PMT feature ID and its pixel coordinates on the image. The text file has the same name as the image.

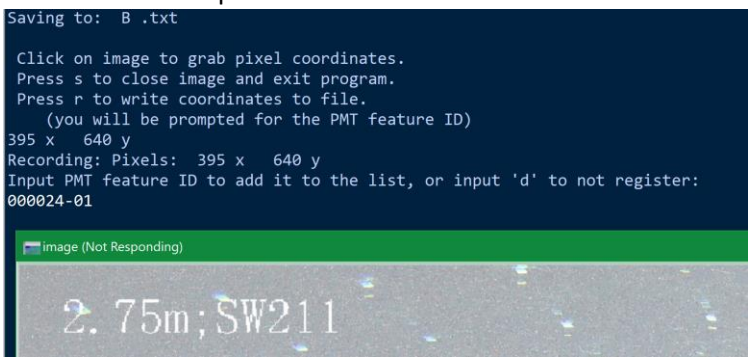
- Example
  1. If there is an imaged named “B.jpg” in the same folder as annotate.py:
     - annotate_img('B.JPG',10,20,"MS")

- **User instructions** (make sure the image window is selected):
  1. click on image to grab pixel coordinates. The coordinates will be displayed in the python console, but will not yet be written to the text file.

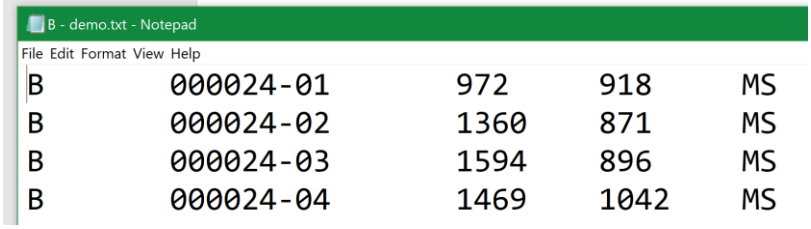


  2. When ready to save the coordinates you selected, press “**r**”. You will be prompted to input the PMT feature ID in the python console. Note: The image window may appear unresponsive on Windows until you input the PMT feature ID. Type the ID in and hit enter to save it to the file. If you don’t want to use this point anymore, input “d” as the feature

ID to return to step 1.



3. Repeat step 2 to label all the features in the image.
4. Press "**s**" to close image and exit program
5. All feature IDs have been written to a text file with the same name as the image, stored in the same location as annotate.py



Columns from left to right: Image name, PMT feature ID, x pixel coordinate, y pixel coordinate, initial.