

Visionary Course – Energy AI

Week 15

June 10, 2022



Week 15a



Set x, y coordinates of photo using python code

0. Description of 'set_coordinate_0607.py'

```
import os
import shutil
import random

# captured images
path = './apex'
# output images
output_path = './apex_output'

# image x coordinate = folder x coordinate +/- random number in rand_range
# image y coordinate = folder y coordinate +/- random number in rand_range
rand_range = 5

# create a folder for output files
if os.path.exists(output_path):
    shutil.rmtree(output_path)
os.makedirs(output_path, exist_ok=True)

for folder in os.scandir(path):
    if (os.path.isdir(folder)) and ('_' in folder.name) and ('.' not in folder.name):
        # obtain the x and y coordinates
        folder splitted = str(folder.name).split('_')
        x_coordinate = int(folder splitted[0])
        y_coordinate = int(folder splitted[1])

        files = os.listdir(folder)
        for file in files:
            if os.path.isfile(os.path.join(folder, file)):

                file splitted = str(file).split('_')
                # random integer is added to the coordinates
                rand_value = random.randint(-rand_range, rand_range)
                new_file = str(x_coordinate+rand_value) + '_' + str(y_coordinate+rand_value) + '_' + file splitted[2]

                print('convert', file, 'to', new_file)
                shutil.copy(os.path.join(folder, file), os.path.join(output_path, new_file))
```

x, y will be extracted from path and converted x, y saved to output_path

Read folder 'x_y' format and extract x, y value

Per each folder, read file once at a time and rename with converted x, y

Save file to output_path

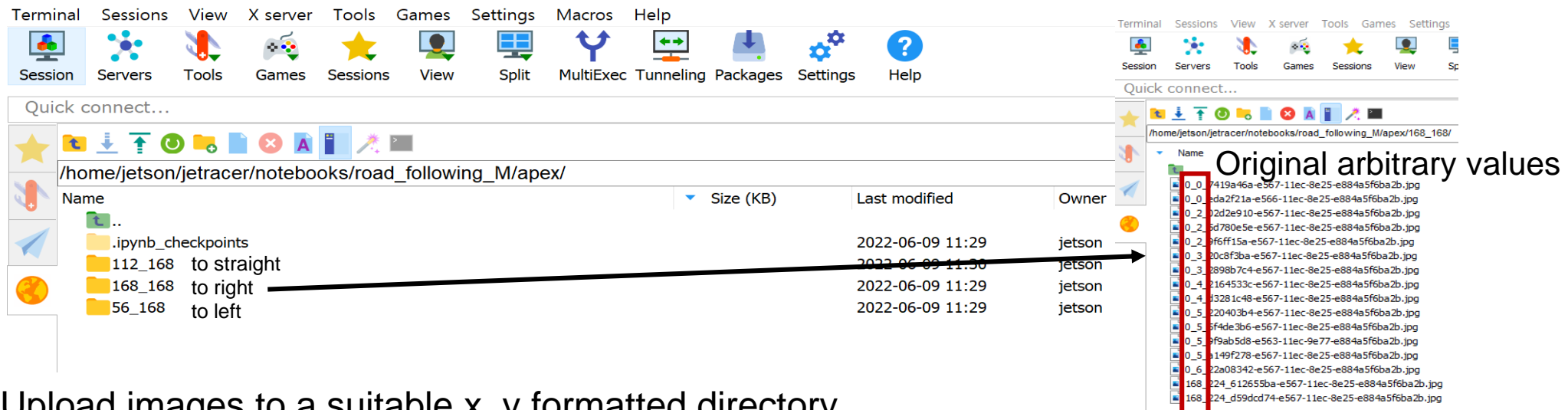
Make directories and upload images

1. Execute MobaXterm and login to jetson
2. Go to the target dataset directory (ex. /home/jetson/jetracer/notebooks/road_following_M)
3. Upload set_coordinate_0607.py file to the directory and make directory 'apex'



File	Size (KB)	Last modified	Owner
..			
.ipynb_checkpoints		2022-06-07 10:06	jetson
apex		2022-06-08 16:19	jetson
set_coordinate_0607.py	1	2022-06-08 16:19	jetson

4. Go to 'apex', and make directories of 'x_y' format (set x, y that you target to move)



Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

/home/jetson/jetracer/notebooks/road_following_M/apex/

Name	Size (KB)	Last modified	Owner
..			
.ipynb_checkpoints			
112_168 to straight		2022-06-09 11:29	jetson
168_168 to right		2022-06-09 11:29	jetson
56_168 to left		2022-06-09 11:29	jetson

Quick connect...

/home/jetson/jetracer/notebooks/road_following_M/apex/168_168/

Original arbitrary values

0_0_7419a46a-e567-11ec-8e25-e884a5f6ba2b.jpg
0_0_eda2f21a-e566-11ec-8e25-e884a5f6ba2b.jpg
0_2_02d2e910-e567-11ec-8e25-e884a5f6ba2b.jpg
0_2_5d780e5e-e567-11ec-8e25-e884a5f6ba2b.jpg
0_2_9f6ff15a-e567-11ec-8e25-e884a5f6ba2b.jpg
0_3_30c8f3ba-e567-11ec-8e25-e884a5f6ba2b.jpg
0_3_2898b7c4-e567-11ec-8e25-e884a5f6ba2b.jpg
0_4_2164533c-e567-11ec-8e25-e884a5f6ba2b.jpg
0_4_43281c48-e567-11ec-8e25-e884a5f6ba2b.jpg
0_5_220403b4-e567-11ec-8e25-e884a5f6ba2b.jpg
0_5_5f4de3b6-e567-11ec-8e25-e884a5f6ba2b.jpg
0_5_5f9ab5d8-e563-11ec-9e77-e884a5f6ba2b.jpg
0_5_149f278-e567-11ec-8e25-e884a5f6ba2b.jpg
0_6_22a08342-e567-11ec-8e25-e884a5f6ba2b.jpg
168_224_612655ba-e567-11ec-8e25-e884a5f6ba2b.jpg
168_224_d59dcd74-e567-11ec-8e25-e884a5f6ba2b.jpg

5. Upload images to a suitable x_y formatted directory

Execute python and check converted files

6. To execute coordinate change, go to the directory in terminal

```
jetson@jetson-desktop:~$ cd /home/jetson/jetracer/notebooks/road_following_M/  
jetson@jetson-desktop:~/jettracer/notebooks/road_following_M$
```

7. Run the file set_coordinate_0607.py

```
jetson@jetson-desktop:~/jettracer/notebooks/road_following_M$ python3 set_coordinate_0607.py
```

```
convert 0_0_7419a46a-e567-11ec-8e25-e884a5f6ba2b.jpg to 172_172_7419a46a-e567-11ec-8e25-e884a5f6ba2b.jpg  
convert 0_2_5d780e5e-e567-11ec-8e25-e884a5f6ba2b.jpg to 170_170_5d780e5e-e567-11ec-8e25-e884a5f6ba2b.jpg  
convert 168_224_612655ba-e567-11ec-8e25-e884a5f6ba2b.jpg to 163_163_612655ba-e567-11ec-8e25-e884a5f6ba2b.jpg
```

→ Log shows conversion

The screenshot shows a file manager window with the following structure:

- Terminal
- Sessions
- View
- X server
- Tools
- Games
- Settings
- Macros
- Help

Quick connect...

/home/jetson/jetracer/notebooks/road_following_M/

Name	Size (KB)	Last modified	Owner
apex		2022-06-09 11:30	jetson
apex_output		2022-06-09 11:38	jetson
set_coordinate_0607.py	1	2022-06-09 11:37	jetson

Remove it or change the directory's name

Change the directory's name to 'apex'

Converted values

Name	Converted values
107_163_	dc226b0-e567-11ec-8e25-e884a5f6ba2b.jpg
107_163_	47d4028-e567-11ec-8e25-e884a5f6ba2b.jpg
108_164_	ab4da44-e567-11ec-8e25-e884a5f6ba2b.jpg
108_164_	6bf5b14-e568-11ec-8e25-e884a5f6ba2b.jpg
108_164_	4273f50-e568-11ec-8e25-e884a5f6ba2b.jpg
108_164_	c5ed4bc-e567-11ec-8e25-e884a5f6ba2b.jpg
108_164_	d99b496-e567-11ec-8e25-e884a5f6ba2b.jpg
109_165_	069ef54-e567-11ec-8e25-e884a5f6ba2b.jpg
109_165_	f915300-e566-11ec-8e25-e884a5f6ba2b.jpg
109_165_	dff3b96-e567-11ec-8e25-e884a5f6ba2b.jpg
110_166_	db72c7c-e568-11ec-8e25-e884a5f6ba2b.jpg
110_166_	7fd4e88-e567-11ec-8e25-e884a5f6ba2b.jpg
110_166_	5527b4a-e567-11ec-8e25-e884a5f6ba2b.jpg
171_171_	5f4de3b6-e567-11ec-8e25-e884a5f6ba2b.jpg
172_172_	7419a46a-e567-11ec-8e25-e884a5f6ba2b.jpg
173_173_	9164533c-e567-11ec-8e25-e884a5f6ba2b.jpg

8. Change the output directory's name from "apex_output" to 'apex'