

AUGUMENT_DATA.py

TEAM ID	PNT2022TMID52124
PROJECT NAME	Digital Naturalist - AI Enabled Tool For Biodiversity Researchers

```
from
keras.preproces
sing.image
import
ImageDataGenera
tor

import cv2
from os import listdir
import time
def hms_string(sec_elapsed):
    h = int(sec_elapsed / (60 * 60))
    m = int((sec_elapsed % (60 * 60))
/ 60)
    s = sec_elapsed % 60
    return f"{h}:{m}:{round(s,1)}"
def augment_data(file_dir,
n_generated_samples, save_to_dir):
    data_gen =
```

```
ImageDataGenerator(rotation_range=30,  
  
width_shift_range=0.1,  
  
height_shift_range=0.15,  
  
shear_range=0.25,  
  
zoom_range = 0.2,  
  
horizontal_flip=True,  
  
vertical_flip=False,  
  
fill_mode='nearest',  
  
brightness_range=(0.5,1.2)  
  
)
```

```
for filename in listdir(file_dir):  
    image = cv2.imread(file_dir +  
    '/' + filename)  
    image =  
image.reshape((1,)+image.shape)  
    save_prefix = 'aug_' +  
filename[:-4]
```

```
i=0
for batch in
data_gen.flow(x=image, batch_size=1,
save_to_dir=save_to_dir,

save_prefix=save_prefix,
save_format='jpg'):
    i += 1
    if i >
n_generated_samples:
        break

start_time = time.time()
augmented_data_path =
'C:/Users/0xluk/OneDrive/Documents/Dig
ital Naturalist/Augumented Dataset'
augment_data(file_dir='C:/Users/0xluk/
OneDrive/Documents/Digital
Naturalist/Digital
Naturalist/Bird/Great Indian Bustard
Bird', n_generated_samples=8,
save_to_dir=augmented_data_path+'/Bird
/GIB_AUG')
augment_data(file_dir='C:/Users/0xluk/
OneDrive/Documents/Digital
Naturalist/Digital
```

```
Naturalist/Bird/Spoon Billed Sandpiper
Bird', n_generated_samples=8,
save_to_dir=augmented_data_path+'/Bird
/SPS_AUG')
augment_data(file_dir='C:/Users/0xluk/
OneDrive/Documents/Digital
Naturalist/Digital
Naturalist/Flower/Corpse Flower',
n_generated_samples=8,
save_to_dir=augmented_data_path+'/Flow
er/Corpse_AUG')
augment_data(file_dir='C:/Users/0xluk/
OneDrive/Documents/Digital
Naturalist/Digital
Naturalist/Flower/Lady Slipper Orchid
Flower', n_generated_samples=8,
save_to_dir=augmented_data_path+'/Flow
er/LS_Orchid_AUG')
augment_data(file_dir='C:/Users/0xluk/
OneDrive/Documents/Digital
Naturalist/Digital
Naturalist/Mammal/Pangolin Mammal',
n_generated_samples=8,
save_to_dir=augmented_data_path+'/Mamm
al/LS_Pangolin_AUG')
augment_data(file_dir='C:/Users/0xluk/
```

```
OneDrive/Documents/Digital  
Naturalist/Digital  
Naturalist/Mammal/Senenca White Deer  
Mammal', n_generated_samples=8,  
save_to_dir=augmented_data_path+'/Mamm  
al/SW_Deer_AUG')  
end_time = time.time()  
execution_time = (end_time -  
start_time)  
print("Elapsed Time :  
"+str(execution_time))
```

