

paoulcgls

May 7, 2024

[15]: `pip install --upgrade keras`

```
Requirement already satisfied: keras in c:\users\sai viswa\anaconda3\lib\site-
packages (3.3.3)
Requirement already satisfied: absl-py in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (2.1.0)
Requirement already satisfied: numpy in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (1.26.4)
Requirement already satisfied: rich in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (13.3.5)
Requirement already satisfied: namex in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (0.0.8)
Requirement already satisfied: h5py in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (3.11.0)
Requirement already satisfied: optree in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras) (0.11.0)
Requirement already satisfied: ml-dtypes in c:\users\sai
viswa\anaconda3\lib\site-packages (from keras) (0.3.2)
Requirement already satisfied: typing-extensions>=4.0.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from optree->keras) (4.9.0)
Requirement already satisfied: markdown-it-py<3.0.0,>=2.2.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from rich->keras) (2.2.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from rich->keras) (2.15.1)
Requirement already satisfied: mdurl~=0.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from markdown-it-
py<3.0.0,>=2.2.0->rich->keras) (0.1.0)
Note: you may need to restart the kernel to use updated packages.
```

[16]: `pip install tensorflow`

```
Requirement already satisfied: tensorflow in c:\users\sai
viswa\anaconda3\lib\site-packages (2.16.1)Note: you may need to restart the
kernel to use updated packages.
```

```
Requirement already satisfied: tensorflow-intel==2.16.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow) (2.16.1)
Requirement already satisfied: absl-py>=1.0.0 in c:\users\sai
```

viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(2.1.0)

Requirement already satisfied: astunparse>=1.6.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(1.6.3)

Requirement already satisfied: flatbuffers>=23.5.26 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(24.3.25)

Requirement already satisfied: gast!=0.5.0,!0.5.1,!0.5.2,>=0.2.1 in
c:\users\sai viswa\anaconda3\lib\site-packages (from tensorflow-
intel==2.16.1->tensorflow) (0.5.4)

Requirement already satisfied: google-pasta>=0.1.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(0.2.0)

Requirement already satisfied: h5py>=3.10.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(3.11.0)

Requirement already satisfied: libclang>=13.0.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(18.1.1)

Requirement already satisfied: ml-dtypes~=0.3.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(0.3.2)

Requirement already satisfied: opt-einsum>=2.3.2 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(3.3.0)

Requirement already satisfied: packaging in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(23.1)

Requirement already satisfied:
protobuf!=4.21.0,!4.21.1,!4.21.2,!4.21.3,!4.21.4,!4.21.5,<5.0.0dev,>=3.20.3
in c:\users\sai viswa\anaconda3\lib\site-packages (from tensorflow-
intel==2.16.1->tensorflow) (3.20.3)

Requirement already satisfied: requests<3,>=2.21.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(2.31.0)

Requirement already satisfied: setuptools in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(68.2.2)

Requirement already satisfied: six>=1.12.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(1.16.0)

Requirement already satisfied: termcolor>=1.1.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(2.4.0)

Requirement already satisfied: typing-extensions>=3.6.6 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(4.9.0)

Requirement already satisfied: wrapt>=1.11.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(1.14.1)

Requirement already satisfied: grpcio<2.0,>=1.24.3 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(1.63.0)

Requirement already satisfied: tensorboard<2.17,>=2.16 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(2.16.2)

Requirement already satisfied: keras>=3.0.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(3.3.3)

Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in
c:\users\sai viswa\anaconda3\lib\site-packages (from tensorflow-
intel==2.16.1->tensorflow) (0.31.0)

Requirement already satisfied: numpy<2.0.0,>=1.23.5 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorflow-intel==2.16.1->tensorflow)
(1.26.4)

Requirement already satisfied: wheel<1.0,>=0.23.0 in c:\users\sai
viswa\anaconda3\lib\site-packages (from astunparse>=1.6.0->tensorflow-
intel==2.16.1->tensorflow) (0.41.2)

Requirement already satisfied: rich in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras>=3.0.0->tensorflow-intel==2.16.1->tensorflow) (13.3.5)

Requirement already satisfied: namex in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras>=3.0.0->tensorflow-intel==2.16.1->tensorflow) (0.0.8)

Requirement already satisfied: optree in c:\users\sai viswa\anaconda3\lib\site-
packages (from keras>=3.0.0->tensorflow-intel==2.16.1->tensorflow) (0.11.0)

Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\sai
viswa\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorflow-
intel==2.16.1->tensorflow) (2.0.4)

Requirement already satisfied: idna<4,>=2.5 in c:\users\sai
viswa\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorflow-
intel==2.16.1->tensorflow) (2.10)

Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorflow-
intel==2.16.1->tensorflow) (2.0.7)

Requirement already satisfied: certifi>=2017.4.17 in c:\users\sai
viswa\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorflow-
intel==2.16.1->tensorflow) (2024.2.2)

Requirement already satisfied: markdown>=2.6.8 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorboard<2.17,>=2.16->tensorflow-
intel==2.16.1->tensorflow) (3.4.1)

Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0 in
c:\users\sai viswa\anaconda3\lib\site-packages (from
tensorboard<2.17,>=2.16->tensorflow-intel==2.16.1->tensorflow) (0.7.2)

Requirement already satisfied: werkzeug>=1.0.1 in c:\users\sai
viswa\anaconda3\lib\site-packages (from tensorboard<2.17,>=2.16->tensorflow-
intel==2.16.1->tensorflow) (2.2.3)

Requirement already satisfied: MarkupSafe>=2.1.1 in c:\users\sai
 viswa\anaconda3\lib\site-packages (from
 werkzeug>=1.0.1->tensorboard<2.17,>=2.16->tensorflow-intel==2.16.1->tensorflow)
 (2.1.3)

Requirement already satisfied: markdown-it-py<3.0.0,>=2.2.0 in c:\users\sai
 viswa\anaconda3\lib\site-packages (from rich->keras>=3.0.0->tensorflow-
 intel==2.16.1->tensorflow) (2.2.0)

Requirement already satisfied: pygments<3.0.0,>=2.13.0 in c:\users\sai
 viswa\anaconda3\lib\site-packages (from rich->keras>=3.0.0->tensorflow-
 intel==2.16.1->tensorflow) (2.15.1)

Requirement already satisfied: mdurl~=0.1 in c:\users\sai
 viswa\anaconda3\lib\site-packages (from markdown-it-
 py<3.0.0,>=2.2.0->rich->keras>=3.0.0->tensorflow-intel==2.16.1->tensorflow)
 (0.1.0)

```
[17]: import tensorflow as tf
```

```
[34]: from tensorflow.keras.preprocessing.image import ImageDataGenerator,
      ↳ array_to_img, img_to_array, load_img
```

```
datagen = ImageDataGenerator(
    rotation_range=40,
    width_shift_range=0.2,
    height_shift_range=0.2,
    shear_range=0.2,
    zoom_range=0.2,
    horizontal_flip=True,
    fill_mode='nearest')    #constant, nearest, reflect, wrap
```

```
[35]: img = load_img(r"D:\Data Agumentation\Dodge Challenger.jpeg")
      img
```

```
[35]:
```



```
[36]: x = img_to_array(img) # this is a Numpy array with shape (3, 150, 150)
x = x.reshape((1,) + x.shape) # this is a Numpy array with shape (1, 3, 150, 150)

# the .flow() command below generates batches of randomly transformed images
# and saves the results to the `preview/` directory
i = 0
for batch in datagen.flow(x, batch_size=1,
                          save_to_dir=r"D:\Data Agumentation\nearest pics",
                          save_prefix='Car', save_format='png'):
    i += 1
    if i > 30: #it will print only 30 images
        break # otherwise the generator would loop indefinitely
```

```
[ ]:
```