

EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRE

MODEL BUILDING

INITIALIZING THE MODEL

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Project Name	Project-Emerging methods for early detection of forest fire

INITIALILIZING THE MODEL:

keras has 2 ways to define a neural network:

- Sequential
- Function API

The Sequential class is used to define linear initializations of network layers which then, collectively, constitute a model. In our example below, we will use the Sequential constructor to create a model, which will then have layers added to it using the add () method.

Now, will initialize our model.

11/7/22, 12:35 AM

Untitled4.pyth - Colaboratory

▼ Importing Keras libraries

```
import keras
```

▼ Importing ImageDataGenerator from Keras

```
from keras.preprocessing.image import ImageDataGenerator
```

```
• Importing Keras libraries

[1] import keras

• Importing ImageDataGenerator from Keras

[13] from matplotlib import pyplot as plt
      from keras.preprocessing.image import ImageDataGenerator

• Defining the Parameters

train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)

<keras.preprocessing.image.ImageDataGenerator at 0x7fb7448a1360>
```

APPLYING ImageDataGenerator to train dataset:

`flow_from_directory ()` method for Train folder.

```
• Defining the Parameters

[11] train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)
      test_datagen=ImageDataGenerator(rescale=1./255)

      <keras.preprocessing.image.ImageDataGenerator at 0x7fb7448a1360>

• Applying ImageDataGenerator functionality to train dataset

[16] from google.colab import drive
      drive.mount('/content/drive')

      Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount('/content/drive', force_remount=True).

[17] x_train=train_datagen.flow_from_directory('/content/drive/MyDrive/196 PROJECT1/dataset/DATA SET/archive/Dataset/Dataset/train_set',target_size=(128,128),batch_size=32,class_mode='binary')

      Found 416 images belonging to 2 classes.
```

APPLYING ImageDataGenerator to test dataset:

Applying the `flow_from_directory ()` method for test folder.

```
• Applying ImageDataGenerator functionality to test dataset

x_test=test_datagen.flow_from_directory('/content/drive/MyDrive/196 PROJECT1/dataset/DATA SET/archive/Dataset/Dataset/test_set',target_size=(128,128),batch_size=32,class_mode='binary')

      Found 121 images belonging to 2 classes.
```

IMPORTING MODEL BUILDING LIBRARIES:

▼ Importing Model Building Libraries

```
#to define the linear Initialisation import sequential
from keras.models import Sequential
#to add layers import Dense
from keras.layers import Dense
#to create Convolutional kernel import convolution2D
from keras.layers import Convolution2D
#import Maxpooling layer
from keras.layers import MaxPooling2D
#import flatten layer
from keras.layers import Flatten
import warnings
warnings.filterwarnings('ignore')
```

INITIALIZING THE MODEL:

▼ Initializing the model

```
model=Sequential()
```