

EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

MODEL BUILDING CONFIGURING THE LEARNING PROCESS

Date	06 November 2022
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Project Name	Emerging Methods for Early Detection of Forest Fires

Importing The ImageDataGenerator Library

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

Define the parameters/arguments for ImageDataGenerator class

```
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)
```

Applying ImageDataGenerator functionality to trainset

```
x_test=test_datagen.flow_from_directory(r'/content/drive/MyDrive/Colab
Notebooks/Dataset/trainset', target_size=(128,128),batch_size=32,
class_mode='binary') Found 117 images belonging to 2 classes.
```

Applying ImageDataGenerator functionality to testset

```
x_test=test_datagen.flow_from_directory(r'/content/drive/MyDrive/Colab
Notebooks/Dataset/testset', target_size=(128,128),batch_size=32, class_mode='binary')
Found 117 images belonging to 2 classes.
```

Import model building libraries

```
#To define Linear initialisation import Sequential from
keras.models import Sequential
#To add layers import Dense from keras.layers
import Dense
#To create Convolution 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

```
model=Sequential()
```

Add CNN Layer

```
model.add(Convolution2D(32, (3,3),input_shape=(128,128,3),activation='relu'))
#add maxpooling layer
model.add(MaxPooling2D(pool_size=(2,2)))
#add flatten layer model.add(Flatten())
```

Add Dense Layer

```
#add hidden layer
model.add(Dense(150,activation='relu'))
#add output layer
model.add(Dense(1,activation='sigmoid'))
```

Configure the learning process

```
model.compile(loss='binary_crossentropy',optimizer="adam",metrics=["accuracy"])
```