

# **Mini Project Report**

**Team No : 6**

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## **Abstract :**

Image classification is critical and significant research problems in computer vision applications such as facial expression classification, satellite image classification, plant (fruits, flowers, leaf...) classification base on images. This paper proposes the image classification model applied for identifying the display of the online advertisement. The proposal model uses Convolutional Neural Network with two parameters (n, m) where n is a number of layers and m is number of filters in Conv layer. The proposed model is called nLmF-CNN. The suitable values of parameters (n, m) for advertisement image classification are identified by experiments. The input data of the proposed model are online captured images. The processing components of nLmF-CNN are developed as deep neural networks using ConvNetJs library. The output of the proposed model is YES/NO. YES means that the advertisements display clearly. NO means that the advertisements do not display or not clear. The experimental results 86% in our normalizing dataset showed the feasibility of a proposed model nLmF-CNN.

## **Statement Of Proposal :**

To detect blur images from a set of images using the following :-

1. Machine Learning
2. Image Classification
3. Image Processing.

## **Results on Sample Set Of Data :**

The sample set of data for blurred images has accuracy of 85 %.

The model is able to classify between blur images and sharp images successfully.

## **Expected Results :**

The expected results from the machine learning model were 80%.

The model has achieved greater accuracy than the expected accuracy i.e. 85%.

## **Algorithms And Techniques :**

We have used the following :

1. **Preprocessing of data :** The image dataset was preprocessed according to the needs of the model. The dataset contains 3 types of images : motion blurred images, defocused blurred images and sharp images. The 80 % of dataset is used for training model as train data and 20% of dataset is used for testing as test data.
2. **CNN :** Convolutional Neural Networks to build the model for classifying images as blur or sharp. We have used keras library for making the model. It is a 4 layered model which gives us the accuracy of the model depending on the epochs. We have used the following :
  - a. Conv2D , a layer to convolve the image into multiple images.
  - b. Activation is the activation function.
  - c. MaxPooling2D is used to max pool the value from the given size matrix and same is used for the next 2 layers. then, Flatten is used to flatten the dimensions of the image obtained after convolving it.
  - d. Dense is used to make this a fully connected model and is the hidden layer. Dense is the output layer contains only one neuron which decide to which category image belongs.
  - e. Dropout is used to avoid overfitting on the dataset.

- f. ImageDataGenerator that rescales the image, applies shear in some range, zooms the image and does horizontal flipping with the image. This ImageDataGenerator includes all possible orientation of the image.
- g. fit\_generator is used to fit the data into the model made above, other factors used are steps\_per\_epochs tells us about the number of times the model will execute for the training data.
- h. epochs tells us the number of times model will be trained in forward and backward pass.