Detection of Flower Using Deep Learning Technique

Prof.V.A.Patil
Department of Electronics & Telecommunication
SVERI's College of Engineering,
Pandharpur, India

P.P.Navgire
Department of Electronics & Telecommunication
SVERI's College of Engineering,
Pandharpur, India

A.G.Bhosale
Department of Electronics & Telecommunication
SVERI's College of Engineering,
Pandharpur, India

P.N.Asabe
Department of Electronics & Telecommunication
SVERI's College of Engineering,
Pandharpur, India

1.Abstract-

we have developed a deep learning network for classification of different flowers. For this,we have used Visual2 Geometry Group`s 5 category flower data-set having 100 images of 5 categories from Oxford University.For a given RGB images in the images. For this, first the images is segmented using a segmentation method.The background will be removed and the image will have only the subject of i2nterest with no background.These segmented images are then given to the CNN as input images for training. Therefore, the proposed method is divided into two main parts; segmentation and fine-tuning the deep convolution neural network. For fine-tuning the CNN, we have used the ImageNet ILSVRC pre-trained models submitted to the competition.

2.Introduction-

Flowers are helpful as a medicine (to human and animals) The classification of flower species is an important task methods like Deformable Part Models, Histogram of Oriented Gradients and Scale invariant 8feature transform were used for feature extraction, linear classifiers and object detectors Nowadays, state-of-art performance is achieved by Convolutional Neural Networks. This can be extended as an image search solution where photo can be taken as an input instead of text in order to get more information about the subject and search accordingly for best matching results.

3.Advantages-
High shape accuracy.
Height accuracy.

Methodology-

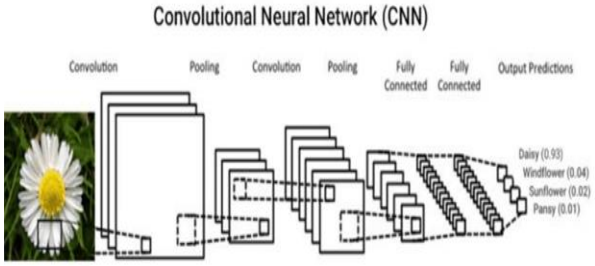

Fig1.Convoluion Nerural Nework

CNN:- Human brains interpret the context of real-world situations in a way that computers can't. Neural networks were first developed in the 1950s to address this issue. An artificial neural network is an attempt to simulate the network of neurons that make up a human brain so that the computer will be able to learn things and make decisions in a humanlike manner. ANNs are created by programming regular computers to behave as though they are interconnected brain cells.

Convolution:- To extract significant feature from input image. The convolution operation preserve the special relationship between pixels & image of input data. Convolution is a simple mathematical operation which is fundamental to many common image processing operators.8

Convolution provides a way of `multiplying together' two arrays o2f numbers, generally of d8ifferent sizes, but of the same dimensionality, to produce a third array of numbers of the same dimensionality.

Pooling:- Pooling is known as up sampling & down sampling. To reduces the dimensionally of feature map by also retain the most significant information. A pooling layer is another building block o8f a CNN. Its function is to progressively reduce the spatial size of the representation to reduce the amount of parameters and computation in the network.

Pooling layer operates on each feature map independently.Their are types of pooling

- Max pooling
- Average pooling

- Sum pooling

Fully Connected:- Fully connected layer is tradition multi layer of ANN. It is used for softmax activation function in the output layer.

Fully connected layer is implies it every neuron in the next layer the output of convolution & pooling layer represent high level feature of input images. The purpose of fully connected layer is use feature for input image. The various classes in dataset.

Fig2.flowers Dataset

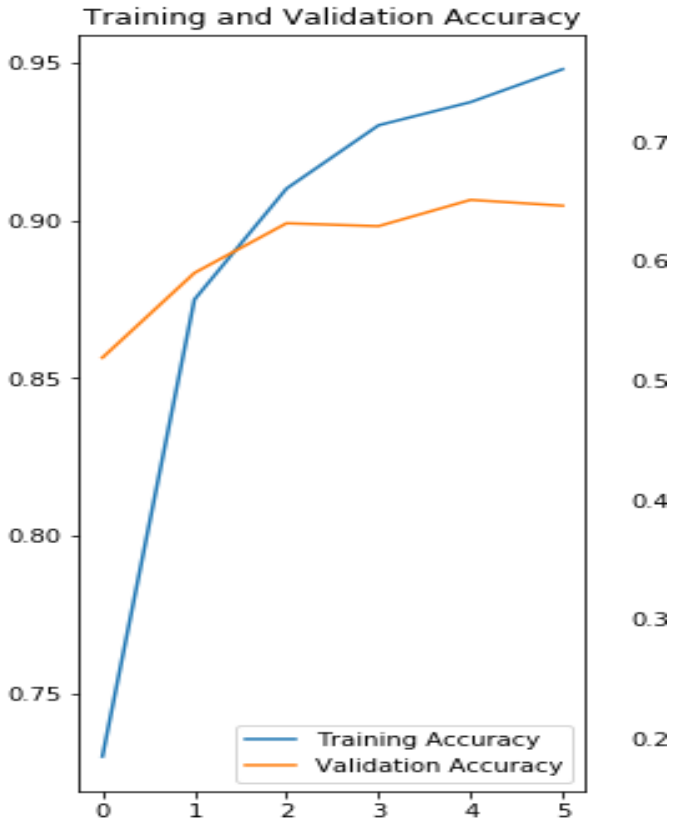

Fig3. Training Accuracy

After training the model, we can plot its accuracy to see how it is diong. The X-axis on the graph represents the number of epochs (number of times the model runs through the entire training set and updates the weights).

4.Expected result-

- The experimental results show that the similarities on shape categories effects on the category classification accuracy. The categories that has shape different from other categories, achieve the height accuracy is achieved (100%) with different feature extractions and classifiers.

- A proposed approach for flower classification is presented, it uses machine learning techniques to automatically identify flower category.

5.Output Result-

Fig4. Daisy

Fig7. Sunflower

Fig5. Dandelion

Fig8. Tulip

Fig6. Rose

Sr. No.	Flowers Name	Accuracy
1.	Daisy	0.7796553
2.	Dandelion	0.0015056
3.	Rose	7.5477683
4.	Sunflower	0.0008056
5.	Tulip	0.0030951

Chart of Flowers Accuracy

5.Conclusion-

Convolution Nerural Network is a popular deep learning technique for current visual recognition tasks. Like all deep learning technique, Convolution Neural Networks are very dependent on the size and quality of training data.

6.References-

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