

IMAGE SEARCH ENGINE

Prof. Jyoti Rao^{*1}, Seema Jadhav^{*2}, Komal Lalwani^{*3},

Rutuja Khatape^{*4}, Neha Swami^{*5}

^{*1}Assistant Professor, Dept. Of Computer Engineering Dr. D. Y. Patil Institute Of Technology,
Pimpri, Pune 411018 India.

^{*2,3,4,5}Dept. Of Computer Engineering Dr. D. Y. Patil Institute Of Technology,
Pimpri, Pune 411018 India.

ABSTRACT

Image search engine is a process of providing similar images from input image which is based on neural networks CNN of deep learning which is task described in this paper. Image search is a task which represents easy way of understanding images. The aim of image search engine is to automatically gives similar images with computer vision and natural language process. So, it's a challenge appear from the require of converting between more than one distinct, but usually paired. Our goal is to serve the helps vision to the people. This paper discusses how efficiently describes the vision of image search technique with help of neural networks.

I. INTRODUCTION

Capturing the information from the image and understanding what actually it wants to explain is basic functionality of human being. Before several decades ago there is one question arise in mind is "Can Machine Think?". And the concepts AI and ML tried to find out the answer for the same. Similarly, as like human being is machine is able to understand itself and generate the for the given image. Based on the concepts of AI, ML and Deep Learning this process of extracting information from image is done. Providing ability to work and behaving like human neurons is the fundamental task of deep learning and functioning can be done using ANN, CNN, RNN.

Image search is a new technology which combines LSTM with the computer vision powers of a convolutional network. In general, image search aims to describe a related image respectively. In this project the concept of neural networks is used. The image is given as input for processing then machine itself understand what image is trying to explain. This is done by the convolutional network. It internally generates description for image. For the human understandable format CNN captures information from query image. And based on query image similar images are shown. Layers of CNN takes previous output of layers as input to it. These sentences extract the exact and understandable information for machine learning, this information is given as input to searching. The image search engine by using provided image find out the related images for the same.

II. LITERATURE REVIEW

Image search is an interesting problem which used to describe and proposed solution whichever image is given. Using machine learning algorithms and techniques this have been put forwarded by researches with the help of neural networks. The image search problem lies in two sections of natural language processing and computer vision.

To translate the skills into artificial intelligence we need to train the model to learn the relationship between words and visual objects. The model should able to recognize everything which is the ultimate goal of computer vision. The model should also able to generate description internally for query image which is studied in natural language processing.

To train the model we have used different datasets from various sources. Dataset for images generation have different types of images which helps in training model. Made use of dataset of images and the respective related images, they describe and extract the feature. The standard model introduces image search based on trained dataset and perform the evaluation.

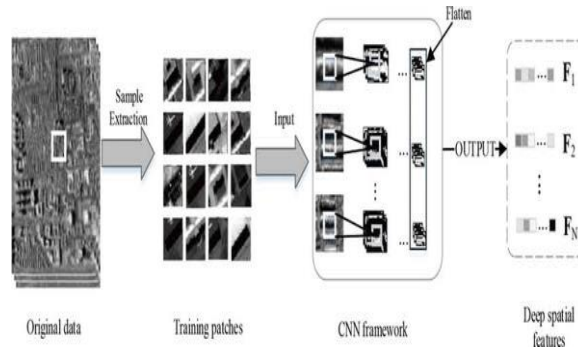
III. METHODOLOGY

Image search engine is concept of extracting information from image and producing output with it's similar images. This is done by using the VGG16 model and neural network and RNN mainly LSTM. Internally

generated caption of image is used for searching as a result of this search operation it provides us a required outcome. Search engine using internal captioning is built in three steps.

1. Feature Extraction from the image by CNN

Whenever input for any processing is in image or in visual format CNN is used for the same. CNN is made with multiple layers and, every layer performs multiple blocks and which works as filtering function to obtain more informative image. CNN has blocks like convolutional layers, pooling layers and fully connected layer. Every layer uses the input output one layer as input of another layer. The first two layers of CNN mainly performs the feature extraction and last layer fully connected layer converts the extracted features into final output like classification. The very first layer of CNN, convolutional layer plays vital role which contains the stack of mathematical operation, like convolution which is a special type of linear operation. CNN model stores the data in matrix format, pooling layer gives the more perfect and clearer image by using max pooling. Fully connected layer is structure agnostic layer which connects neurons of multiple layers to another neurons.

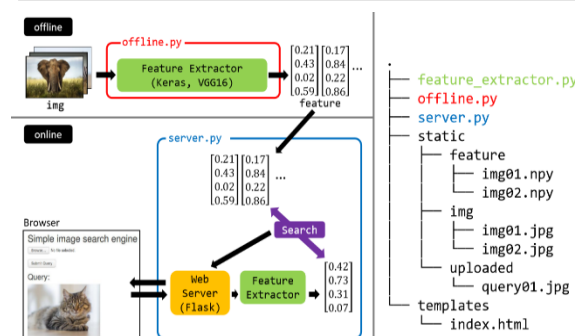
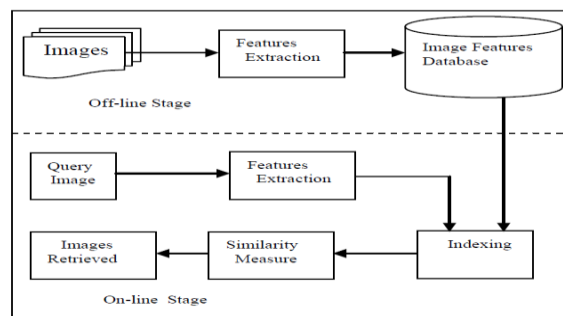


2. Search engine for Image search

The extracted image is used as input for searching. Web application is used as graphical interface to give input to application and with the help of html webpage. Link to search from images is given into html file using link tag and other attributes of html. And after uploading image, it searches for related images and shows the similar images in output.

IV. ARCHITECTURE

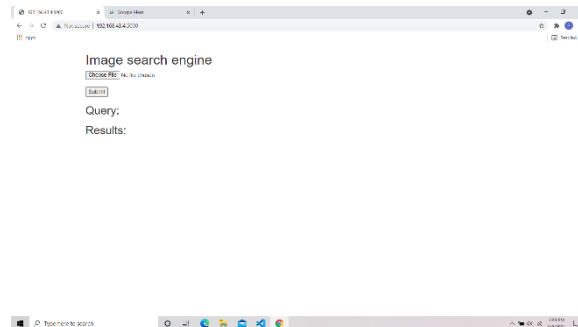
Search engine takes input from graphical user interface the model takes input as image then the operation of feature extraction is performed on image and similar function is done at server side. Database is also extracting the information from image when database matches feature from query image and the database image it displays the results.



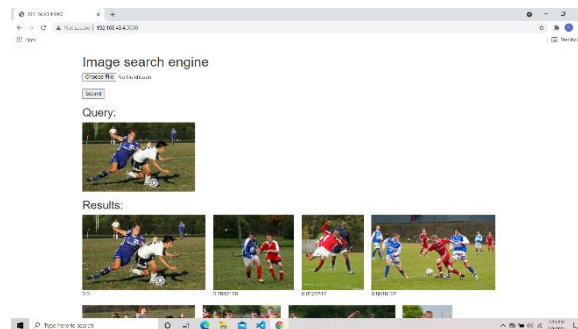
V. LIMITATIONS

The image search engine using cannot be used without internet.

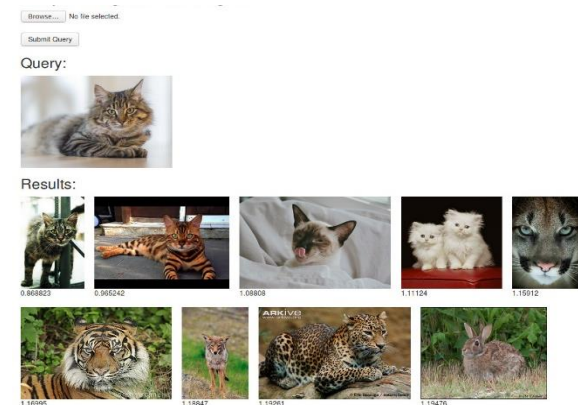
VI. RESULTS



This is the graphical user interface (GUI) of Image Search Engine which ask user for image input which they want to retrieve.



The output of Image Search Engine which retrieve the related images of query image. Here is one example of query image in which some players are playing the football and it can be seen in the results the similar images.



Another example which has query image of cat and generation of similar images

VII. CONCLUSION

There are various search engines are available by using which we can obtain various results as per the demand. This project is introducing the concept of image search engine. Image search engine is takes image as input then process the same with the help of neural networks and generate the relevant images from the images. It is search engine featured by Artificial intelligence and Machine Learning and deep learning which has a subset of neural networks. As webpage is given as graphical interface searching can be done by using the same. Image search engine using internal captioning can be used to search the things, it is also used to scan a business cards.

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VIII. REFERENCES

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