**PAPER: Learning Deep Features for Scene Recognition Using Places Database:**

**INTRODUCTION:**

The following paper aims to introduce a new scene-centric Database which is named as Places which will contain more than 7 million pictures of scenes. This Database has been introduced by using the concept of Convolutional Neural Networks (CNN) which is a landmark when it comes to Scene recognition. Using CNN several features for scene recognition will be discovered and the results will be implemented on several scene-centric databases. The result displayed will show the differences between the internal representation of object centric and scene centric networks.

The human brain understands the world in a single glance, that means the brain only takes milliseconds to recognize the environment around it and it then further it visualize it. The human brain does the visualization by sampling the look and feel of the world several times per second, and our neural architecture remembering the visuals by registering newer inputs. Besides the dense variety of images in our brain one of the most important properties is how the brain organizes the images at the hierarchical layers increasing the processing complexity which has inspired the CNN.

The paper aims to show that object-centric and scene-centric neural networks differ in their internal representation in their respective field of CNN units.

**BUILDING THE PLACES DATABASE:**

The database suggested by the paper contains 15 scene categories with few 100 images per class. The places database has inherited the same list of categories as the sun database in terms of images. To generate the image URL, common English adjectives are combined with each scene and later are sent to the search engines like google images and Bing. Adding adjectives to the queries allows broader search of images, additionally it increases the diversity of visual appearance. The duplicate URLs are deleted and the images with the raw URL are kept. Till date more than 40 million images have been downloaded. The images with the raw URL are further sent to Amazon mechanical Turk for further two rounds of annotation. For any search query only one image is shown in the center as per the search query.

**EXPIRIMENTAL RESULTS**

When the places database was compared with other databases mainly with SUN, ImageNet using AMT, both the measures used the same experimental interface which was selecting the pair of images with the most similar images. This lead to an observation that different annotations were consistent in deciding whether one pair of images were similar to other pair of images. The only difference while estimating the density of the database is how the image pairs are generated as for the pairs were randomly sampled into every database.

BENEFITS

* More narrow and refined search
* Real time search of images
* Faster and efficient execution of the search results

**CONCLUSION:**

Deep convocational neural networks are designed to benefit and inculcate information from massive chunks of data. The paper attempts to introduce a new benchmark with millions of labeled images with the help of the places database that attempts to represent places and scenes from the real world. The search takes places considering features like density and diversity of images.