**FaceNet Model: -**

FaceNet is a unified system for face verification, face recognition and clustering common faces. This system was developed by Google researchers that achieved state-of-the-art results on variety of face recognition datasets. This system is based on extracting Euclidean embeddings from the detected faces which is used to verify a face. This model is made on taking into consideration two different deep convolutional network architecture. First architecture is based on Zeiler and Fergus Model which uses multiple interleaved layers of convolutions, non-linear activations, local response normalizations, max pooling layers and an additional several 1x1xd convolutional layers. Second architecture is based on Inception Model of Szegedy et al. This model can take input from a range of dimensions, i.e. 96x96 pixels to 224x224 pixels, also supports RGB or Grayscale images. The output is a 128 byte 1 dimensional embedding vector. The unique features of the face are all boiled-down into a 1x128 dimensional vector. This network consists of a batch input followed by a deep architecture and a L2 normalization, which generates the embedding, which is followed by a triplet loss function during training. Triplet Loss function basically reduces the distance between an anchor and a positive identity(similar face) and increases the distance between an anchor and a negative identity(not so similar face). The first architecture has in total of 140 million parameters and 1.6 billion FLOPS. The second architecture has in total of 7.5 million parameter and 1.6 billion FLOPS. This architecture was built to run on mobile CPUs. FaceNet model accuracy is of 99.63% on Labelled Faces in the Wild (LFW) dataset and 95.12% on YouTube Faces DB. FaceNet is the best face recognition model till date as compared to Facebook’s DeepFace Model.