A

Dissertation

On

A Novel approach for Face Recognition using Extended BBO

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Submitted By

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CERTIFICATE

This is to certify that the dissertation titled **"A Novel approach for Face Recognition using Extended BBO"** is a bonafide record of work done at **Delhi Technological University** by **Kanishka Bansal, Roll No. 2K12/CSE/09** for partial fulfillment of the requirements for degree of Master of Technology in Computer Science & Engineering. This project was carried out under my supervision and has not been submitted elsewhere, either in part or full, for the award of any other degree or diploma to the best of our knowledge and belief.

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Abstract

Face recognition has become a popular area of research in computer vision and one of the most successful applications of image analysis and understanding**.** We always have to extract optimal features from images to recognize an image as to achieve high accuracy as well as to be efficient. In this thesis an efficient and optimized face recognition algorithm based on Extended Species Abundance Model of Biogeography is presented.

We have used Principal Component Analysis (PCA) for the face recognition technique to extract the most important features of the image as all the features, that construct an image are not that essential to recognize image. These extracted features are minimum features which are required to recognize an image from the database.

Initially we apply Gabor Kernel to smoothen the images so as to give as input to PCA. Gabor Kernel helps in proper alignment of images.

After this we extract important features present in the images through PCA. Than we apply extended BBO to train database, to collect most desirable features extracted from PCA, to make face recognition an efficient process.

Then in recognizing phase of face recognition process we again apply BBO based on Extended Species Abundance Model of Biogeography on training database to recognize an input image, which accelerate the recognizing process.

Performance analysis is performed on Olivetti research Laboratory (ORL) face database. Results show that face recognition algorithm based on BBO with Extended Species Abundance Model Of Biogeography generates better results than original PCA technique with gabor kernel as well as with PSO and original BBO.

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