

**DECLARATION BY THE CANDIDATE**  
**JULY 2014**

Date: \_\_\_\_\_

I hereby declare that the work presented in this thesis entitled “**Alignment Free Occluded Face Recognition Using Sparse**” has been carried out by me under the guidance of **Mr. Ajai Kumar Gautam**, Assistant Professor, Department of Electronics & Communication Engineering, Delhi Technological University, Delhi and hereby submitted for the partial fulfillment for the award of degree of Master of Technology in Signal Processing & Digital Design at Electronics & Communication Engineering Department, Delhi Technological University, Delhi.

I further undertake that the work embodied in this thesis has not been submitted for the award of any other degree elsewhere.

**Pankaj Kumar**  
2K12/SPD/12  
M.Tech (SPDD)

**CERTIFICATE**

It is to certify that the above statement made by the candidate is true to the best of my knowledge and belief.

Ajai Gautam  
Assistant Professor  
Electronics and Communication Department  
Delhi Technological University, Delhi-110042

Dated:

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**Pankaj Kumar**

2K12/SPD/12 M.Tech (SPDD)

## **ABSTRACT**

*It is not possible to take picture in same pose and also not a person may have same facial expression. Illumination variation generally causes performance degradation in a face recognition systems under actual environments. Moreover, there may always not possible to full picture of face due to some occlusion some object or by any other person. Therefore, we propose a face recognition system using sparse representation classifier method on efficient facial feature to develop real time face recognition system. In the proposed approach, image is subdivided then LBP and Gabor is applied to face images to find out the features and then sparse representation is applied to recognize the face. The individual matching scores obtained from two sub-images are then integrated using a weighted-summation operation, and the fused-score is utilized to classify the unknown user. Performance evaluation of the proposed system was performed using an extended Yale face database B which consists of 2,414 face images for 38 subjects representing 64 illumination conditions under the frontal pose.*

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## List of Abbreviations Used

<b>LBP</b>	Local Binary Pattern
<b>SRC</b>	Sparse Representation Classifier
<b>GTP</b>	Gabor Ternary Pattern
<b>NN</b>	Nearest Neighbor
<b>LoG</b>	Laplacian of Gaussian
<b>DoG</b>	Differentiation of Gaussian
<b>SIFT</b>	Scale Invariant Feature Transform
<b>SCI</b>	Sparsity Concentration Index
<b>PCA</b>	Principal Component Analysis
<b>NS</b>	Nearest Subspace
<b>NFL</b>	Nearest Feature Line
<b>CMC</b>	Commutative Matching Curve
<b>ROC</b>	Receiver Characteristic Curve