ASSIGNMENT - 4

QUESTION - III

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To identify whether the person in the given probe image is actually present in the database or not, the following steps can be followed. The results are pretty good for a straightforward method.

1. Perform the normal testing steps as done for the given probe image. That is, find the closest match using sum of squared differences of the eigen coefficients.
2. Check the SSD of the nearest match.
3. Fix a parameter named **threshold,** if
    a. SSD >= threshold and if the probe image subject is actually one of the training subjects (sub <= 32), then we have a **false negative** - meaning it is saying that the image doesn't match to any subject but in reality there is one.
    b. SSD < threshold and if the probe image subject is actually not used for training (sub > 32), then we have a **false positive** - meaning it says that the subject exists in the database but in reality it doesn't.

Using the above algorithm and the following values of the parameters,

- K = 170
- threshold = 42000

Tuning of parameter 'threshold' : Tuned it manually. On decreasing the value of threshold, false positives decrease and false negatives increase and on increasing threshold, false positives increase and false negatives decrease. So an optimum parameter was chosen which minimizes both to a good extent.

False Positives = **4** out of **32**

False Negatives = **21** out of **128**