IPSC Project
Progress Report

Title: Parallel Face Recognition Using Tensor SVD

Team Members:

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Deliverables:

- Implementation of face recognition using open mp
- Observing the various aspects of our implementation using other approaches like
  - k-NN
  - Multi Layer Perceptron
  - Nearest Mean
- Dimensionality reduction by using PCA (using SVD)

Technologies to be used:

- C++14
- python 3
- open MP
- Intel MKL libraries
- C++ Boost library(to be used for primitive operations)

Resources :

- Face Recognition Using Singular Value Decomposition of Facial Colour Image Database
  Reference:
  https://pdfs.semanticscholar.org/cdab/c8ec5e0629752980f8cb613a56a33efb05c7.pdf
- Face Recognition using Eigenfaces and Distance Classifiers
  Reference
  https://onionesquereality.wordpress.com/2009/02/11/face-recognition-using-eigenfaces-and-distance-classifiers-a-tutorial/
- Face Recognition Using Tensor SVD Chapter 14
  Book : Matrix Methods in Data Mining and Pattern Recognition

Github Repository :

https://github.com/chittaranjan-rath/Parallel-Face-Recognition

Probable DataSets:

- *https://facedetection.com/datasets/*
- *http://www.face-rec.org/databases/*

Assumptions:

The datasets were collected with the assumptions that the algorithm implementation is performed only for face recognition. Face detection is currently beyond the scope of project.

Testing Plan:

Various analysis criteria such as

- comparision of serial vs parallel execution
- speed up w.r.t number of threads(equal or less than number of cores)
- speed up w.r.t number of threads(may be more than number of cores)
- Observe the factors of memory bound and computation bound in algorithm
- performance (accuracy) of parallel face recognition algorithm