15000036
Medical Image Computing

Observations:
Specific observations:
Ellipses:
It has been observed that the dimensionality of Vt after performing the singular value decomposition was 2 by 2. This I felt was particularly a low number of eigen vectors for our dataset's SVD. This may be due to the fact that in the dataset of ellipses most of the variation happened only along 2 normal directions.
Ellipses were 2 of the 3 cases where In the intermediate steps the determinant was -1.
The algorithms converged just after the first step.

Hands:
The Eigen matrix was 56 by 56. This implies that the dataset had a very good variation.
Looking at the modes of variation it was evident that they correspond to the thinness and thickness of hand in one mode and the orientation of the little finger in the other.
The algorithms converged just after 1 iteration and also to be noted is that the determinant of U*Vt was 1 which was convenient.

Bones:
Bones dataset seems to be already somewhat correctly oriented hence I did not observe much variation in the same even after performing the alignment correction algorithm.Can not technically comment on the mode of variation as I could not recognize the bone due to lack of medical knowledge.

Common Observation:
In all the aforementioned cases, almost 90% of the energy was in the first mode of variation and this is evident from the plot of the eigen vector.
In All cases the algorithm converged in just 2 steps.
A good estimate of the mean was any element in the dataset as long as it is not considerably bad as it may lead to slower convergence or even worse oscillations.