

2. PCA

- a. The first eigenvalue is an order of magnitude greater than the second one. The second eigenvalue is more than double the third eigenvalue. The subsequent eigenvalues have less of a difference between them.

Eigenvalue
1664046.51618529
657086.550674943
251991.091648128
242480.848633852
150292.201893571

- b. The following image was obtained by averaging the 1<sup>st</sup> and 2<sup>nd</sup> entries in the 2-D space after performing pca, and then changing the coordinates such that they represent a point in the original 30000 dimensional space. The following image was then obtained:

