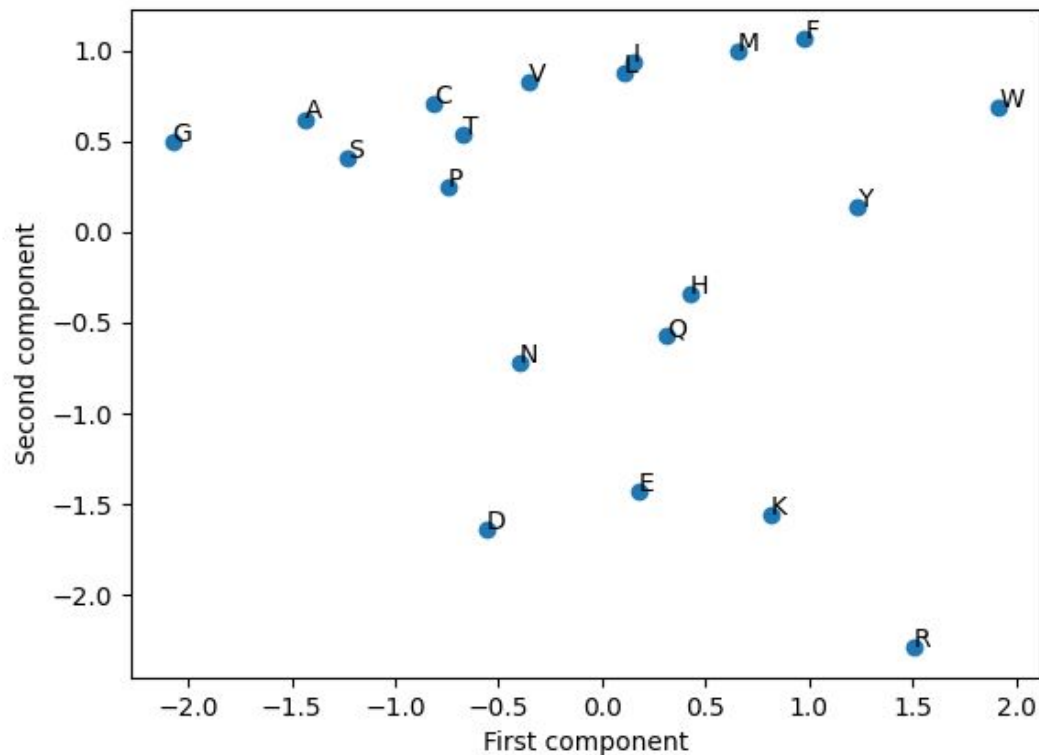


### HW 3 Report

#### **Eigenvalues and eigenvectors:**

3.573, 2.813, 0.785, 0.427, 0.278, 0.074, 0.047, 0.003

#### **Plot:**



This plot is a little different compared to the one in Fig. 2-10 in the article, but it shares a lot of similarities in terms of representing data. The article notes that in Fig. 2-10 there is a cluster of medium-sized hydrophobic residues, I, L, V, M, and F. In this plot you can notice that cluster as well. The article also notes that in Fig 2-10 the two acids, D and E, are close as well as the two amides, Q and N. The acids and the amides are close to each other on this plot as well. There are a lot more similarities like these to be found when comparing the two plots side by side.

This program started with a matrix  $x$  representing the data shown in the article in Table 2-2. By calculating the mean and standard deviation of each column in the matrix, a new matrix  $z$  is formed with normalized data. Some of the normalized data is represented in the plot. From the normalized data matrix, a new covariance matrix  $c$  is made. And from that covariance matrix, the eigenvalues are obtained.