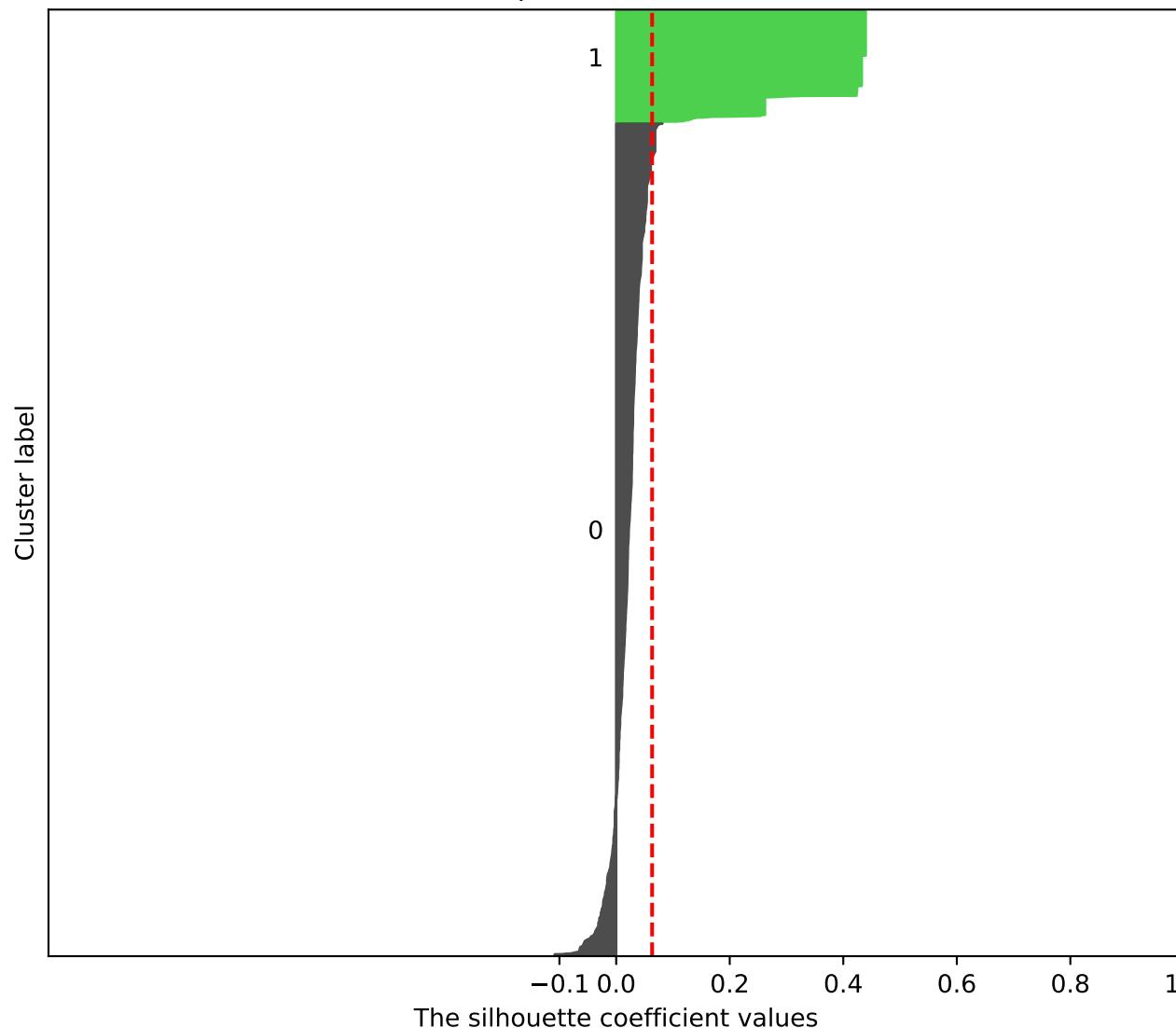
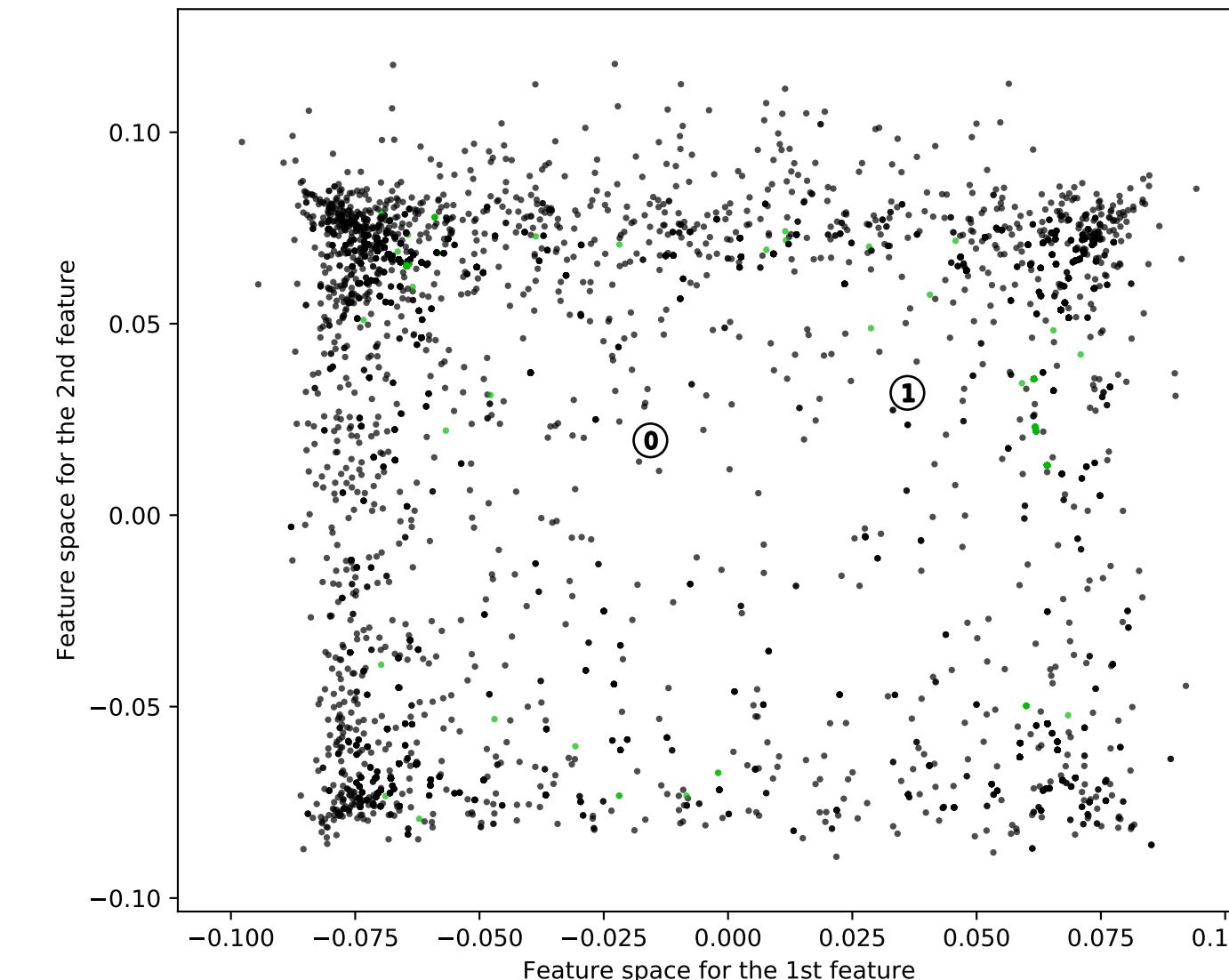


Silhouette analysis for KMeans clustering on sample data with n_clusters = 2 with Average Silhouette of: 0.06325177103281021

The silhouette plot for the various clusters.

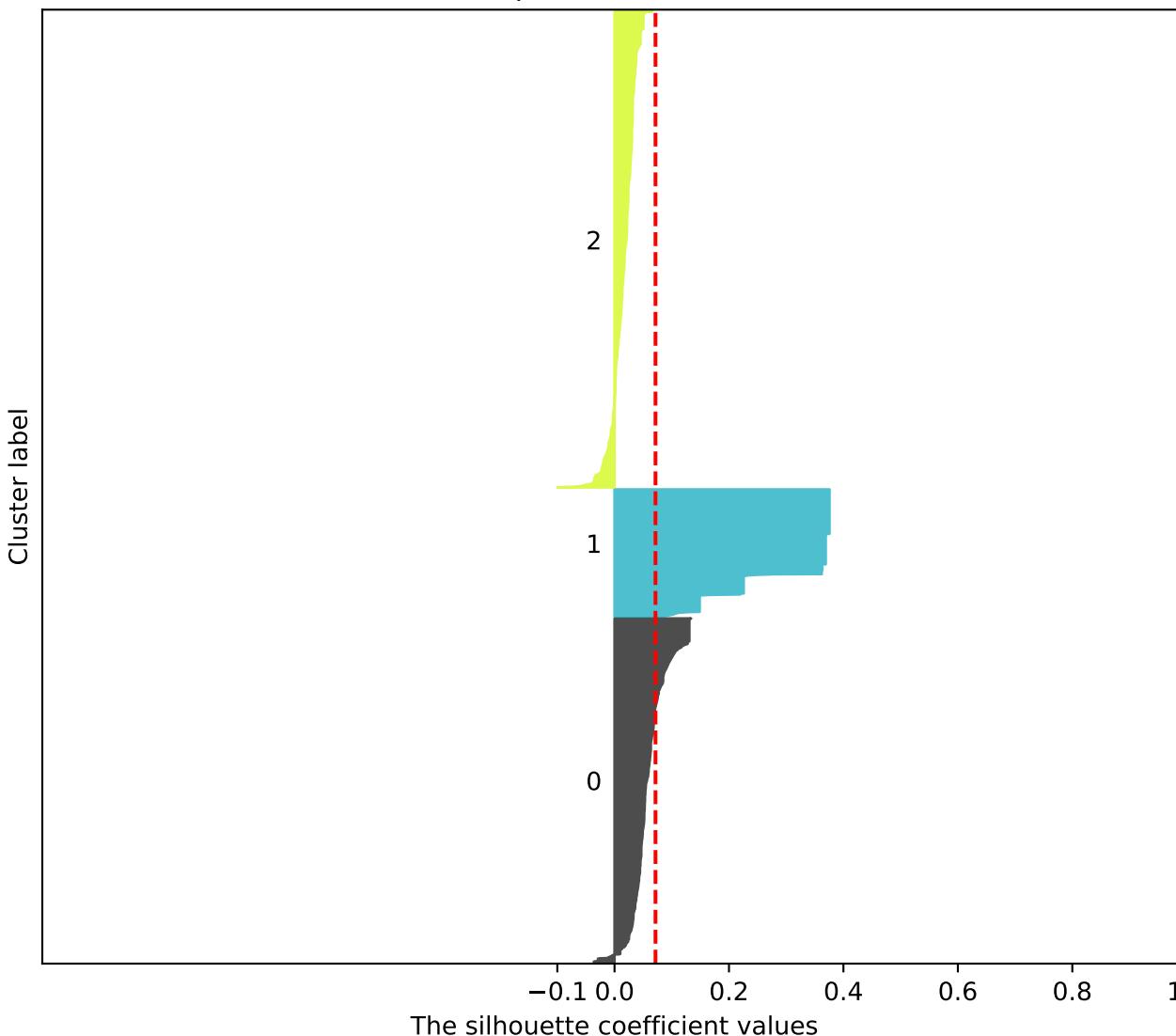


The visualization of the clustered data.

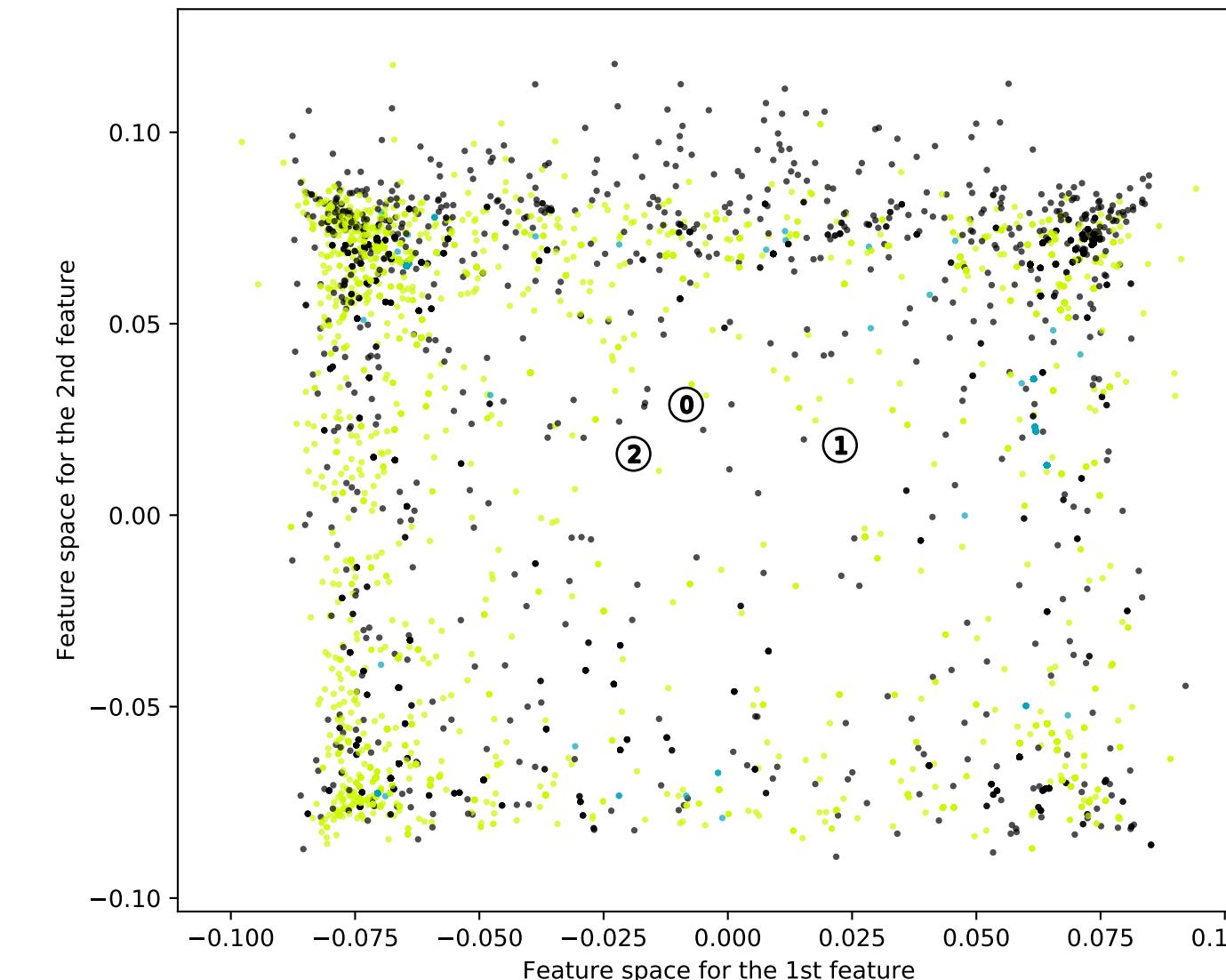


Silhouette analysis for KMeans clustering on sample data with n_clusters = 3 with Average Silhouette of: 0.07157662510871887

The silhouette plot for the various clusters.

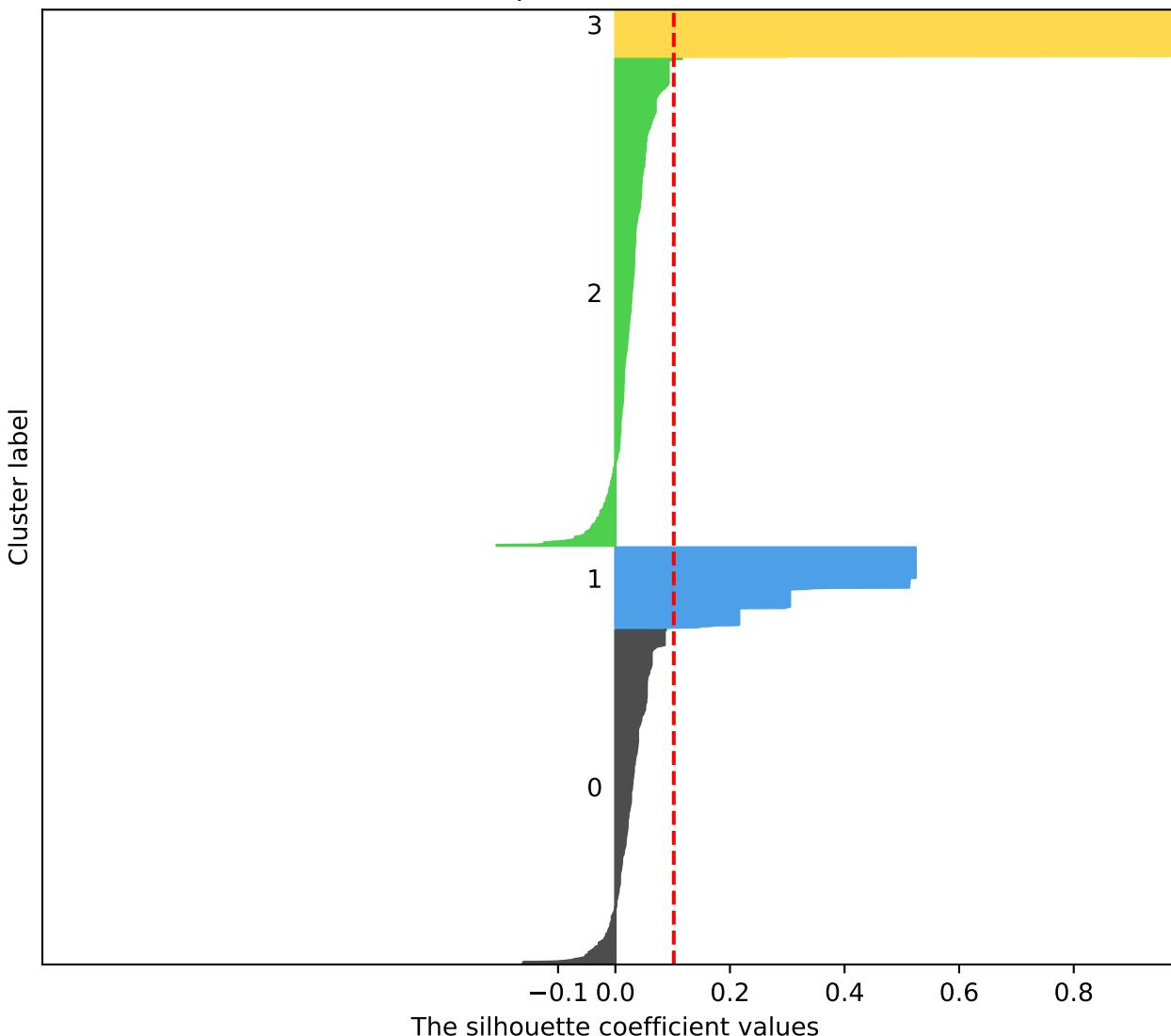


The visualization of the clustered data.

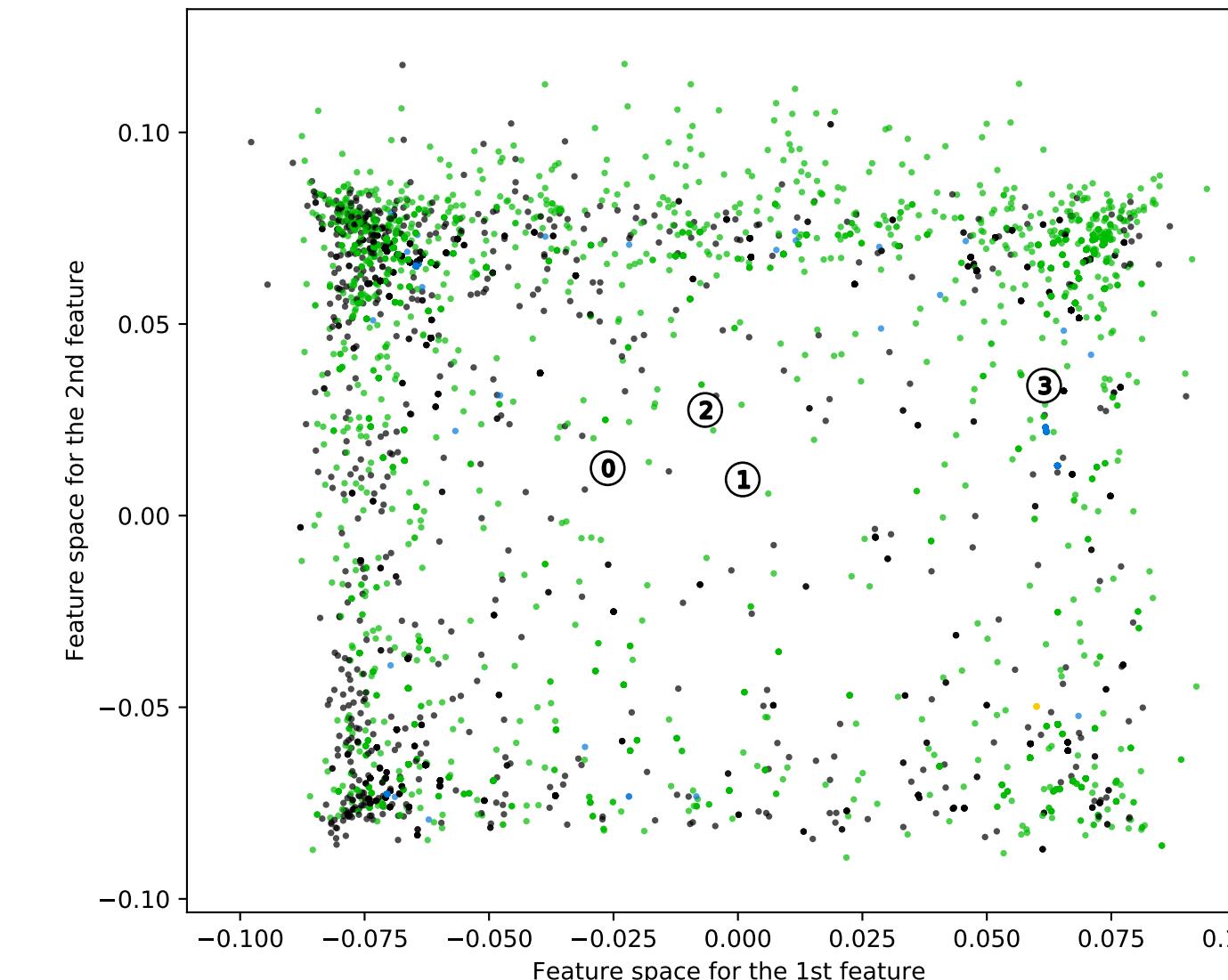


Silhouette analysis for KMeans clustering on sample data with n_clusters = 4 with Average Silhouette of: 0.10196059197187424

The silhouette plot for the various clusters.

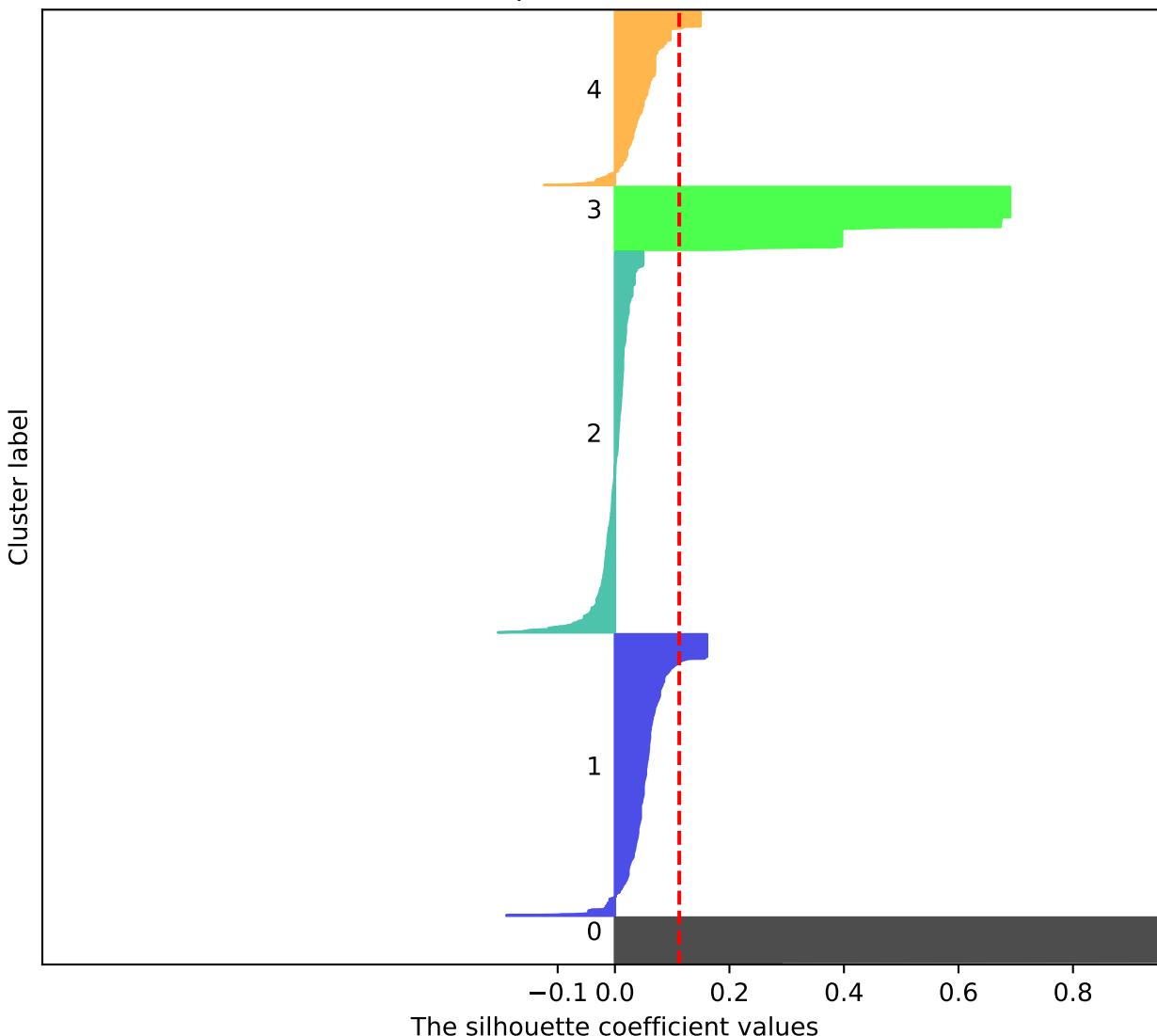


The visualization of the clustered data.

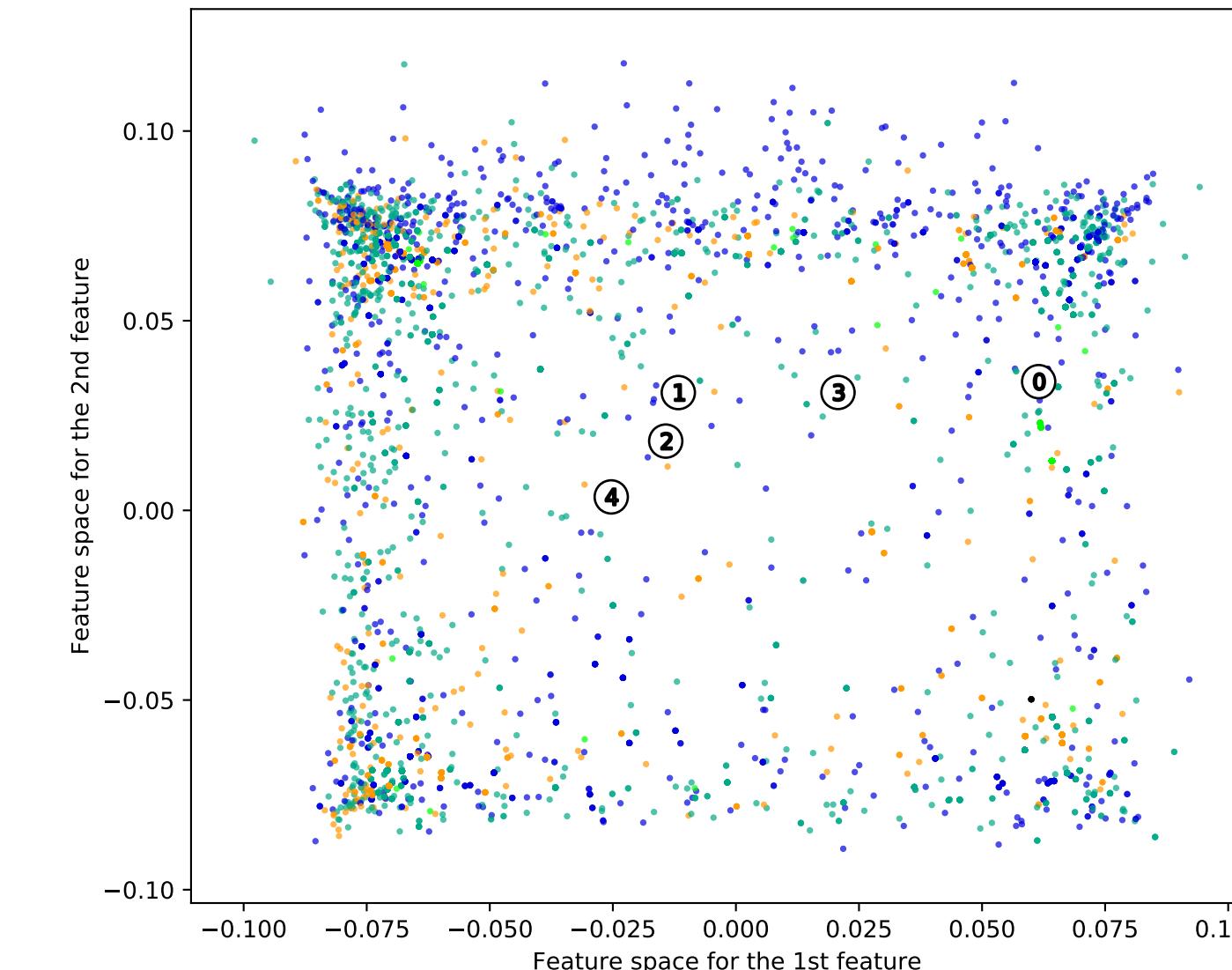


Silhouette analysis for KMeans clustering on sample data with n_clusters = 5 with Average Silhouette of: 0.11240724474191666

The silhouette plot for the various clusters.

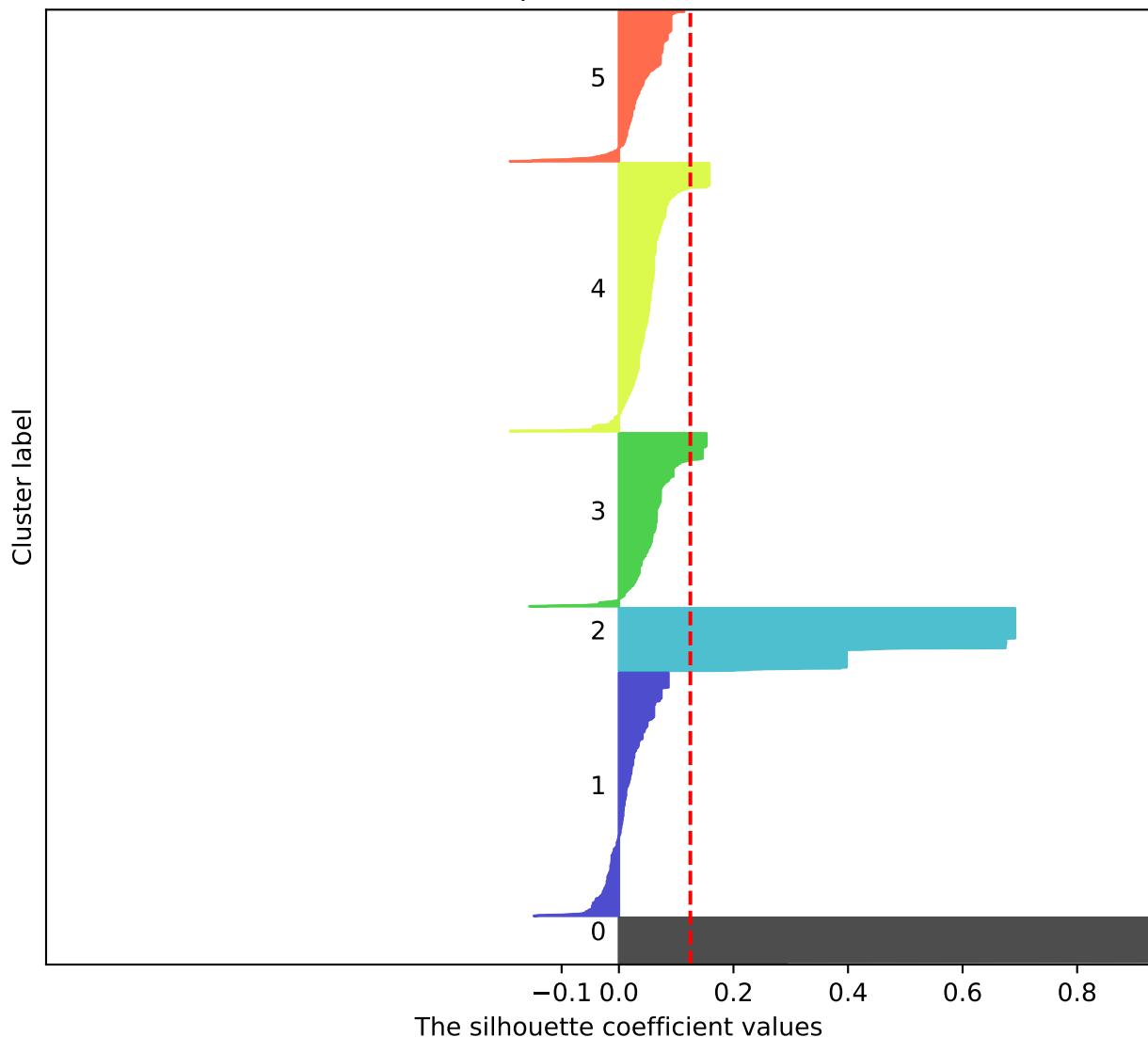


The visualization of the clustered data.

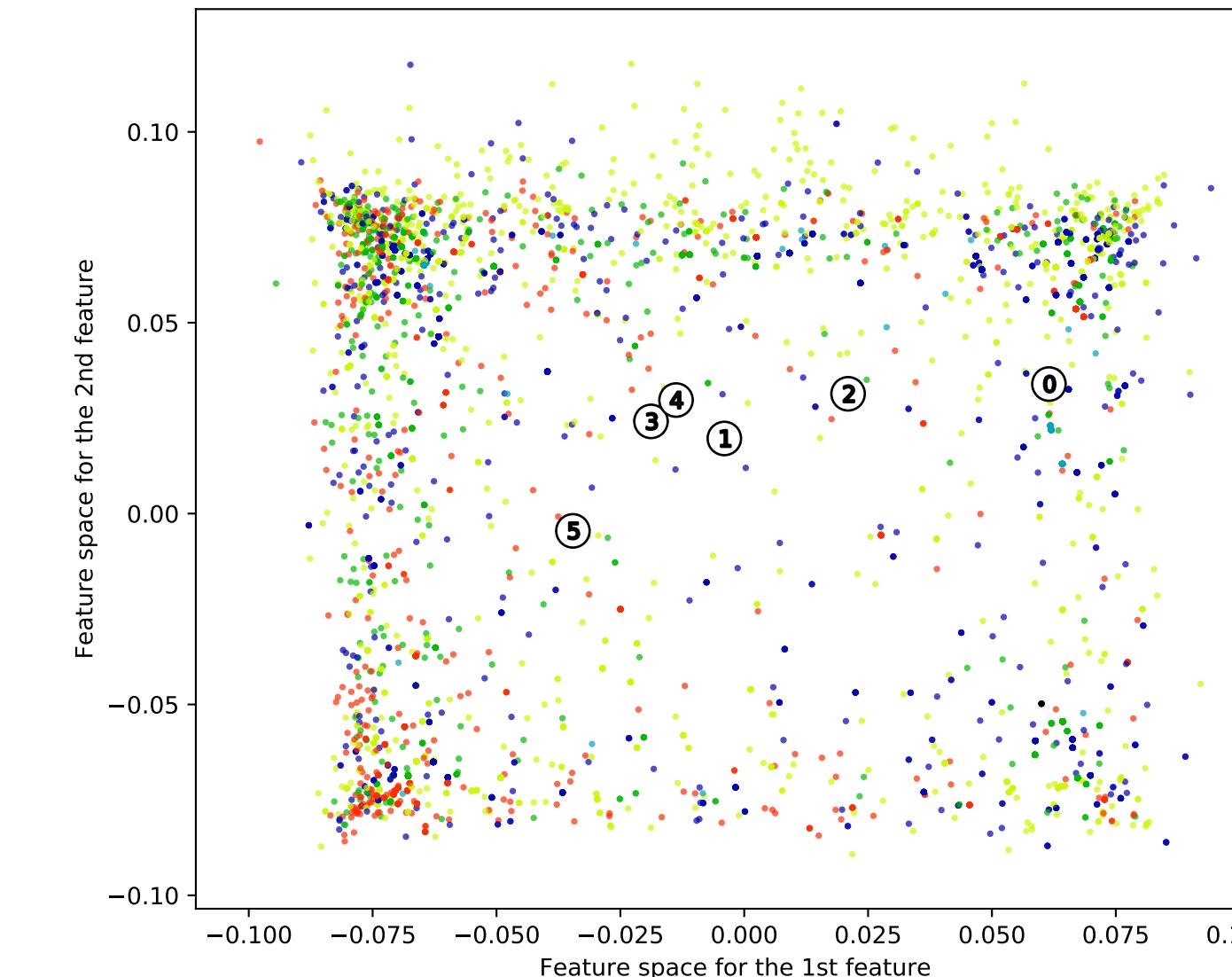


Silhouette analysis for KMeans clustering on sample data with n_clusters = 6 with Average Silhouette of: 0.1246887743473053

The silhouette plot for the various clusters.

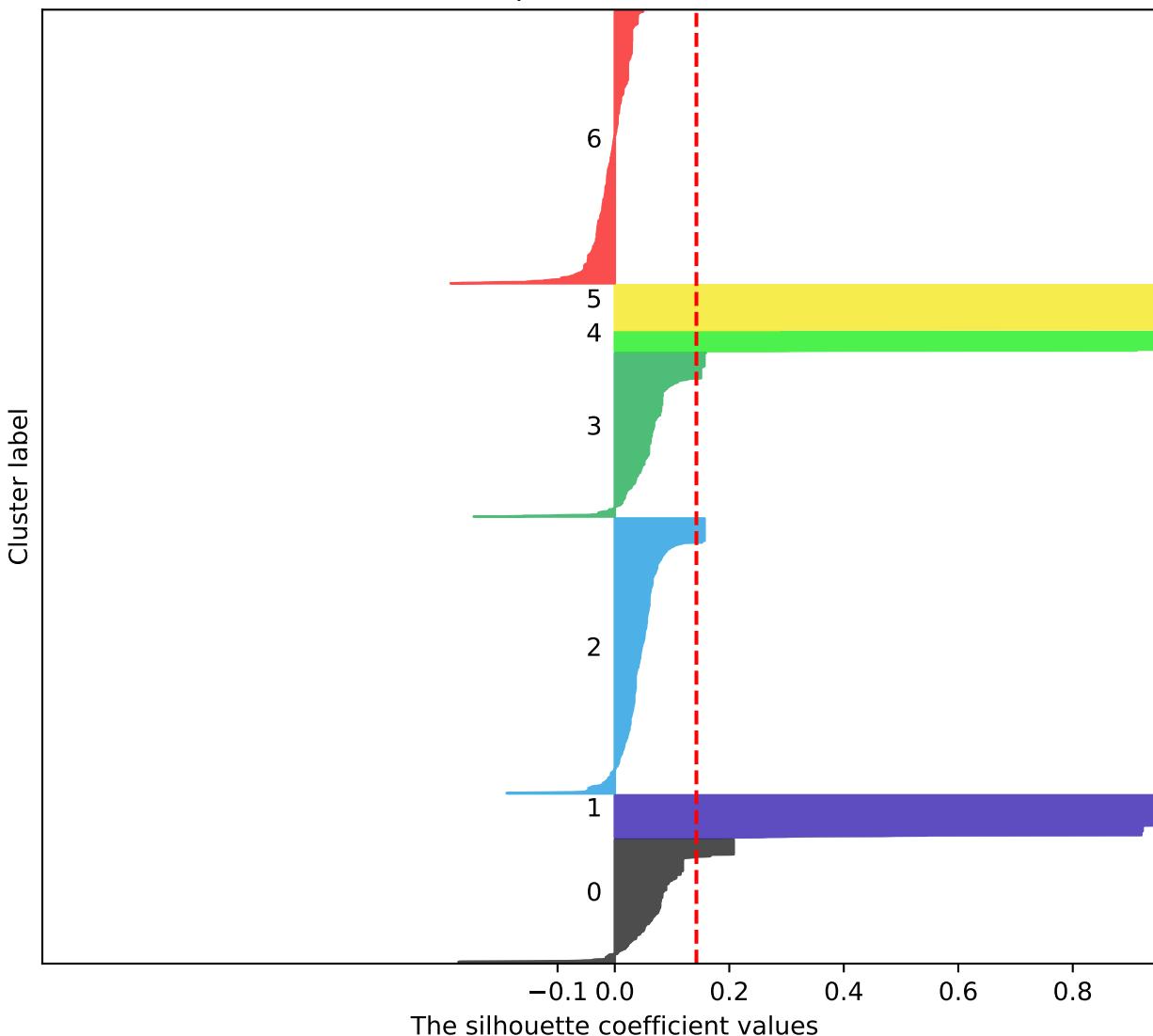


The visualization of the clustered data.

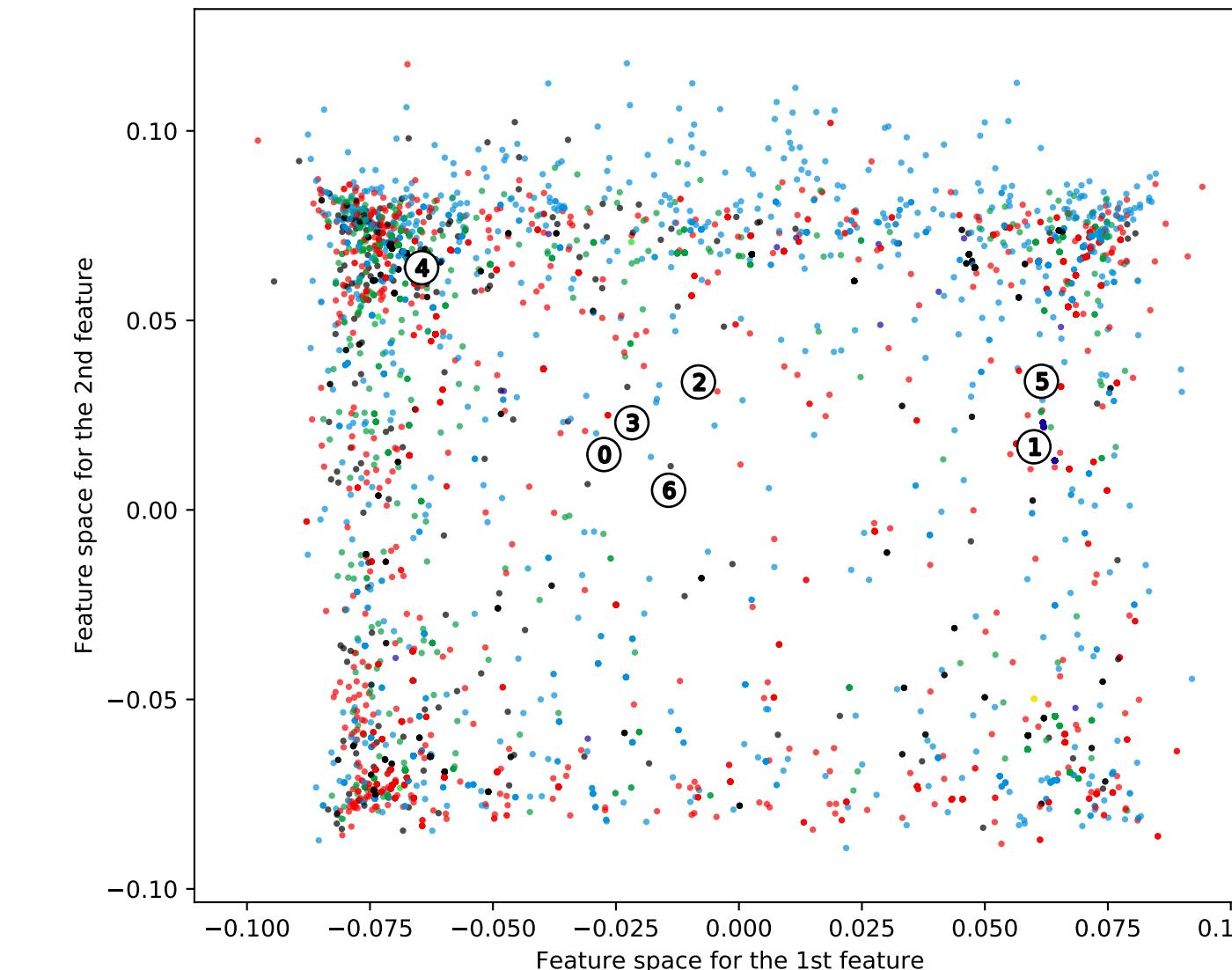


Silhouette analysis for KMeans clustering on sample data with n_clusters = 7 with Average Silhouette of: 0.14255647361278534

The silhouette plot for the various clusters.

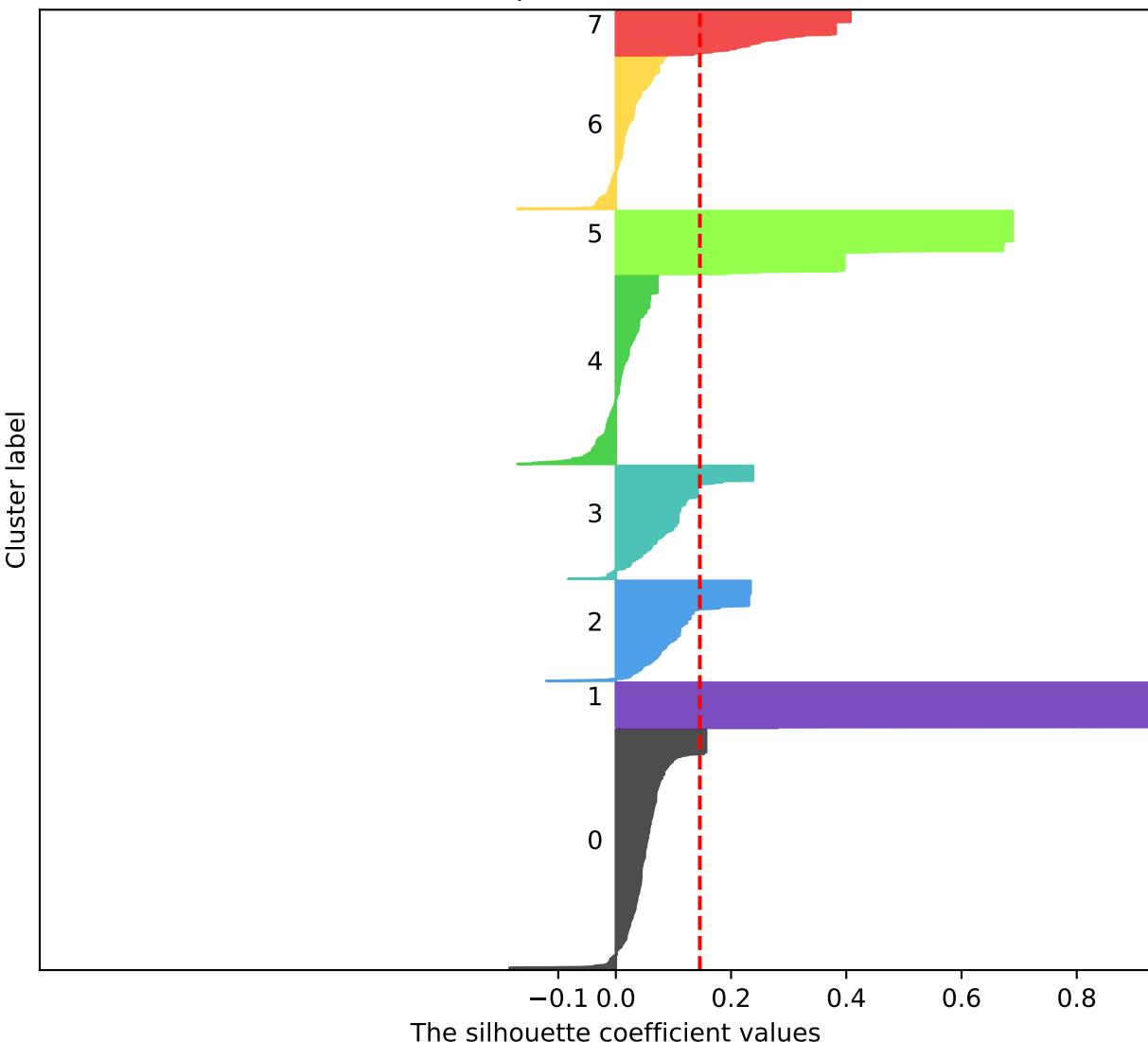


The visualization of the clustered data.

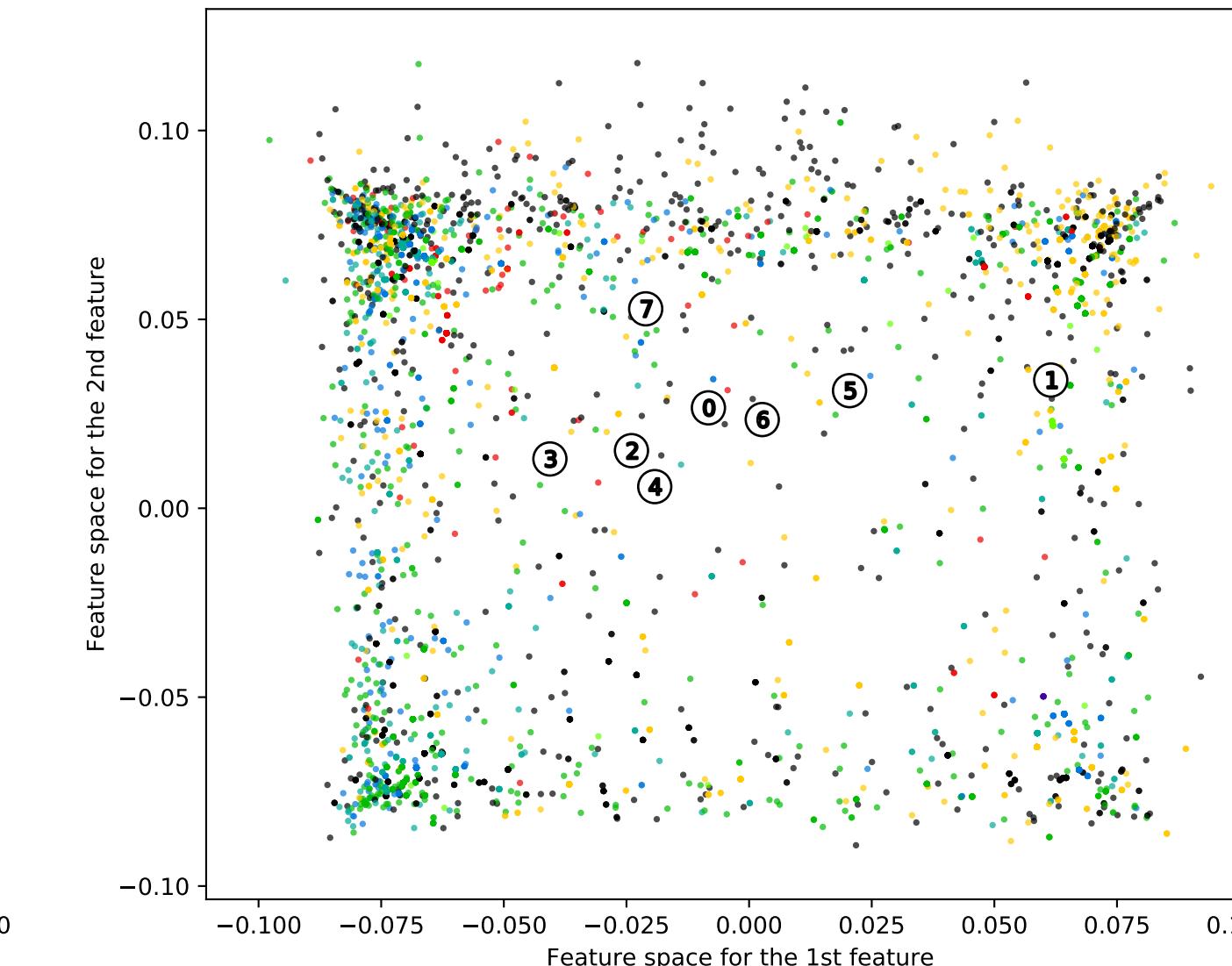


Silhouette analysis for KMeans clustering on sample data with n_clusters = 8 with Average Silhouette of: 0.1458136886358261

The silhouette plot for the various clusters.

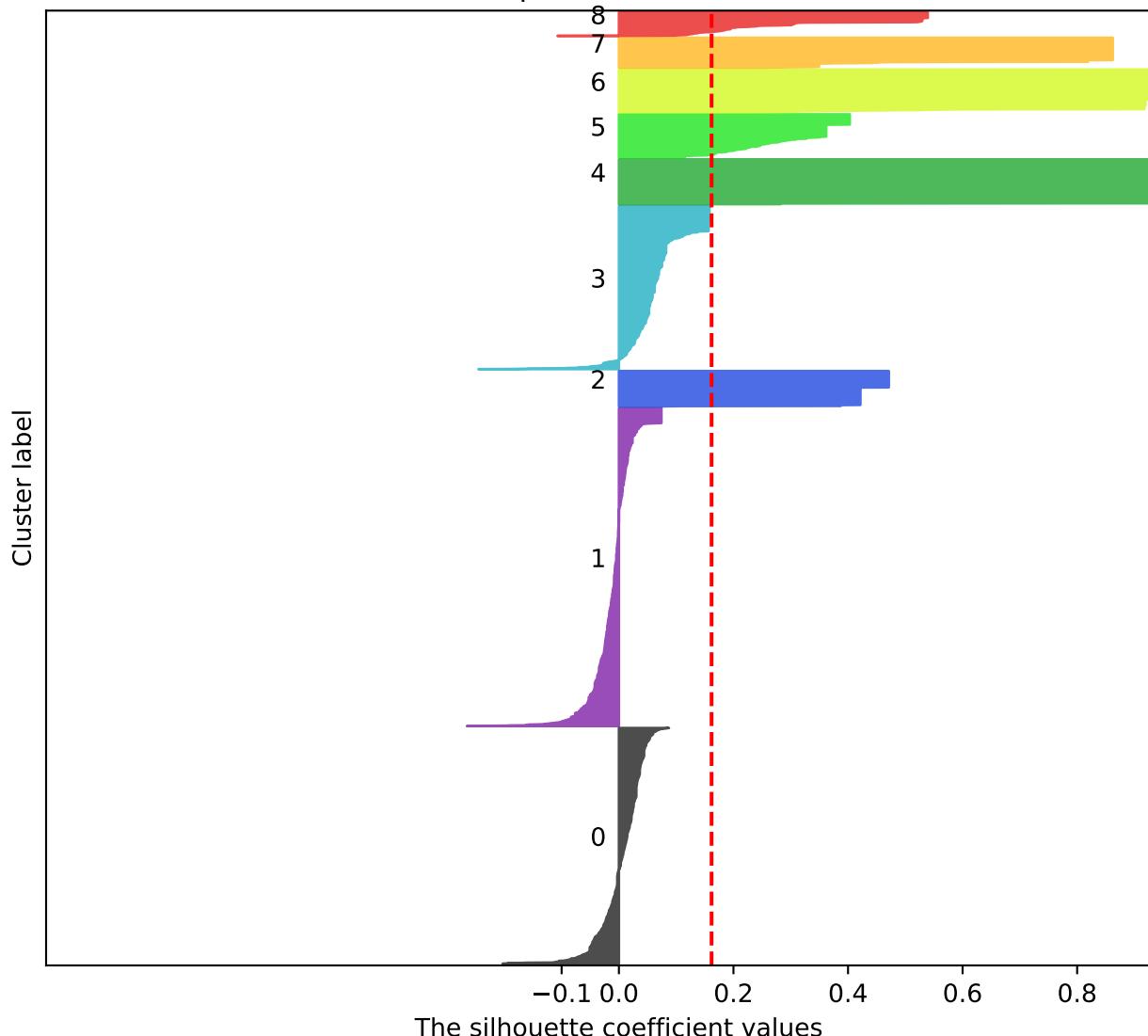


The visualization of the clustered data.

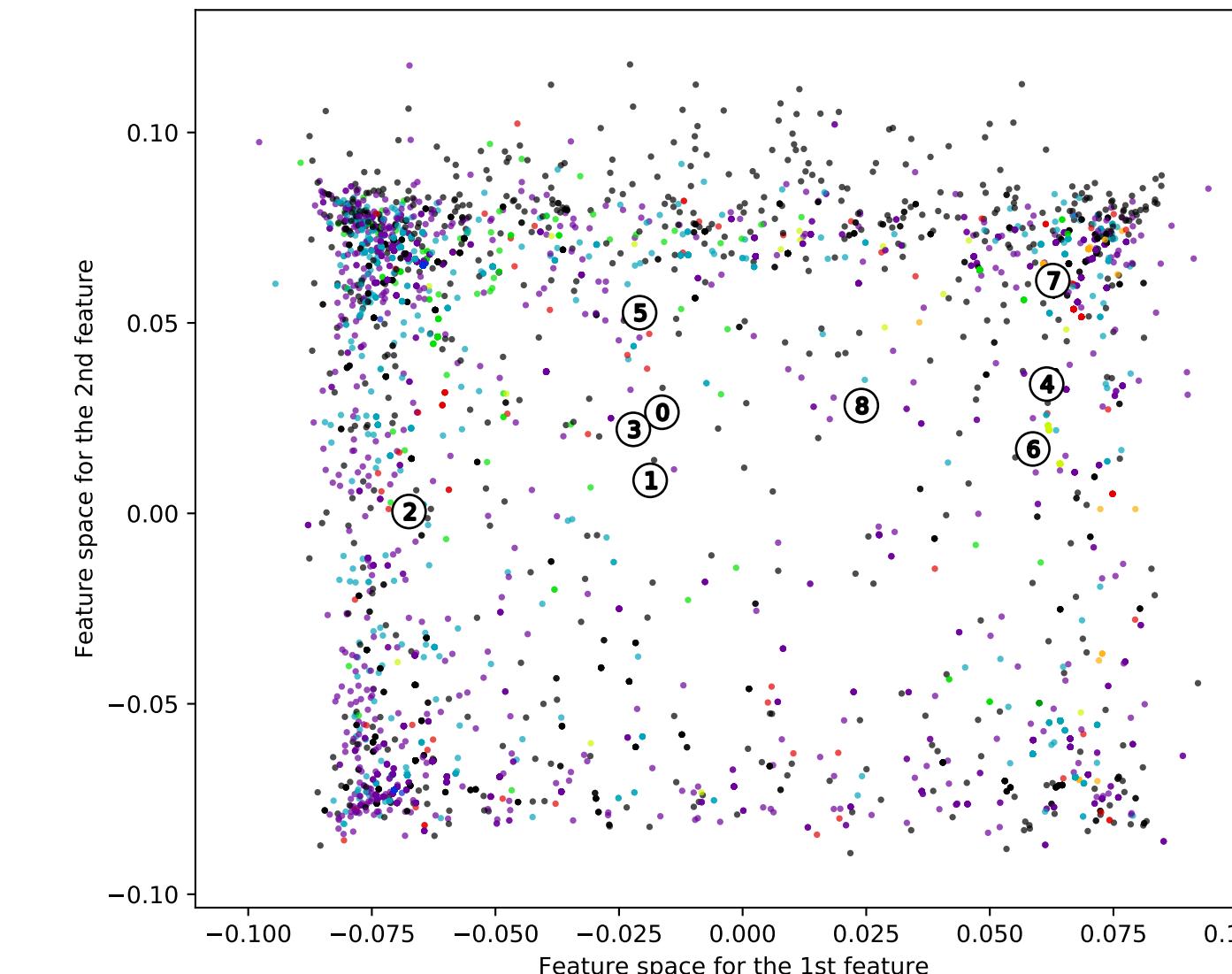


Silhouette analysis for KMeans clustering on sample data with n_clusters = 9 with Average Silhouette of: 0.16178923845291138

The silhouette plot for the various clusters.

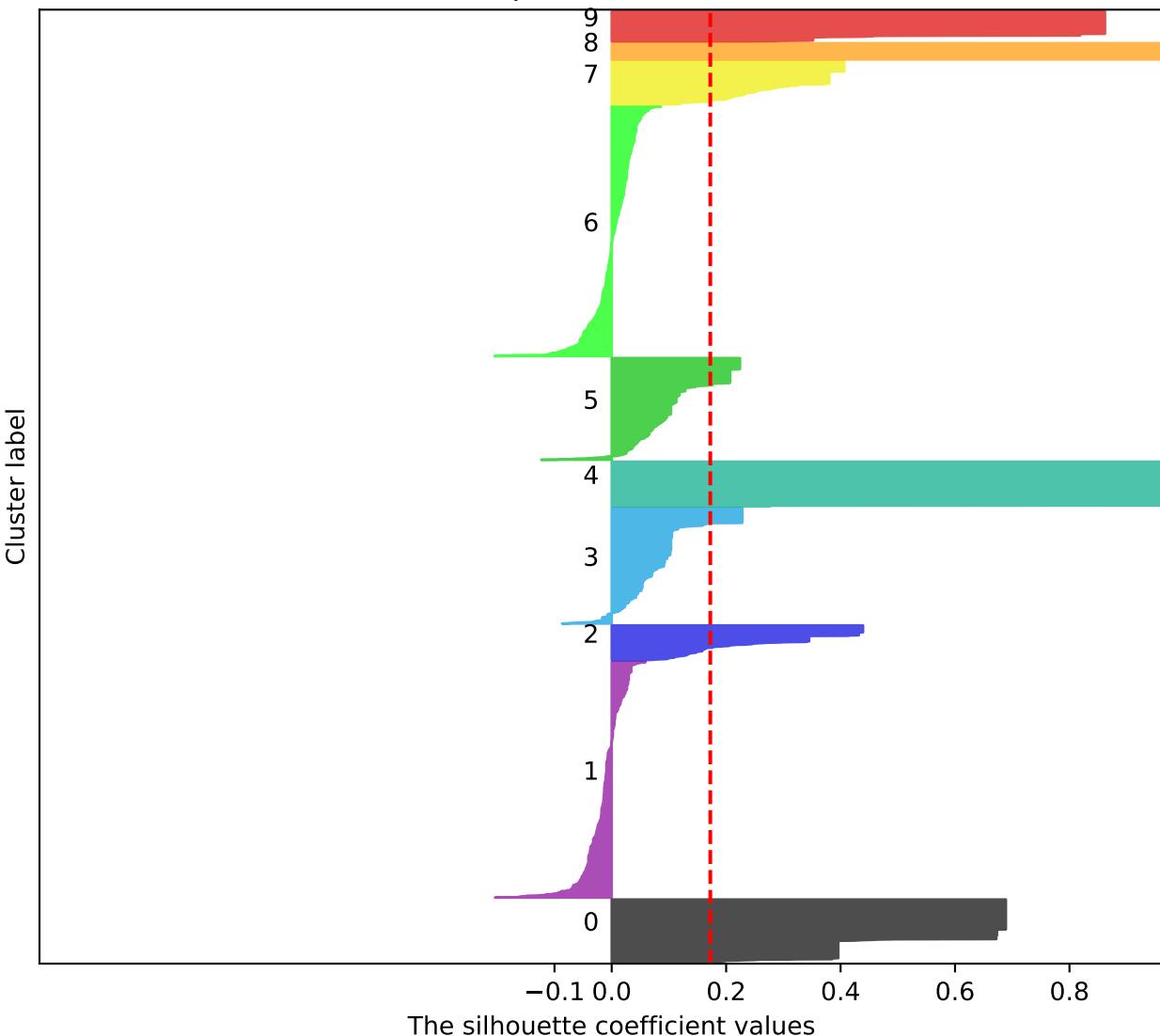


The visualization of the clustered data.

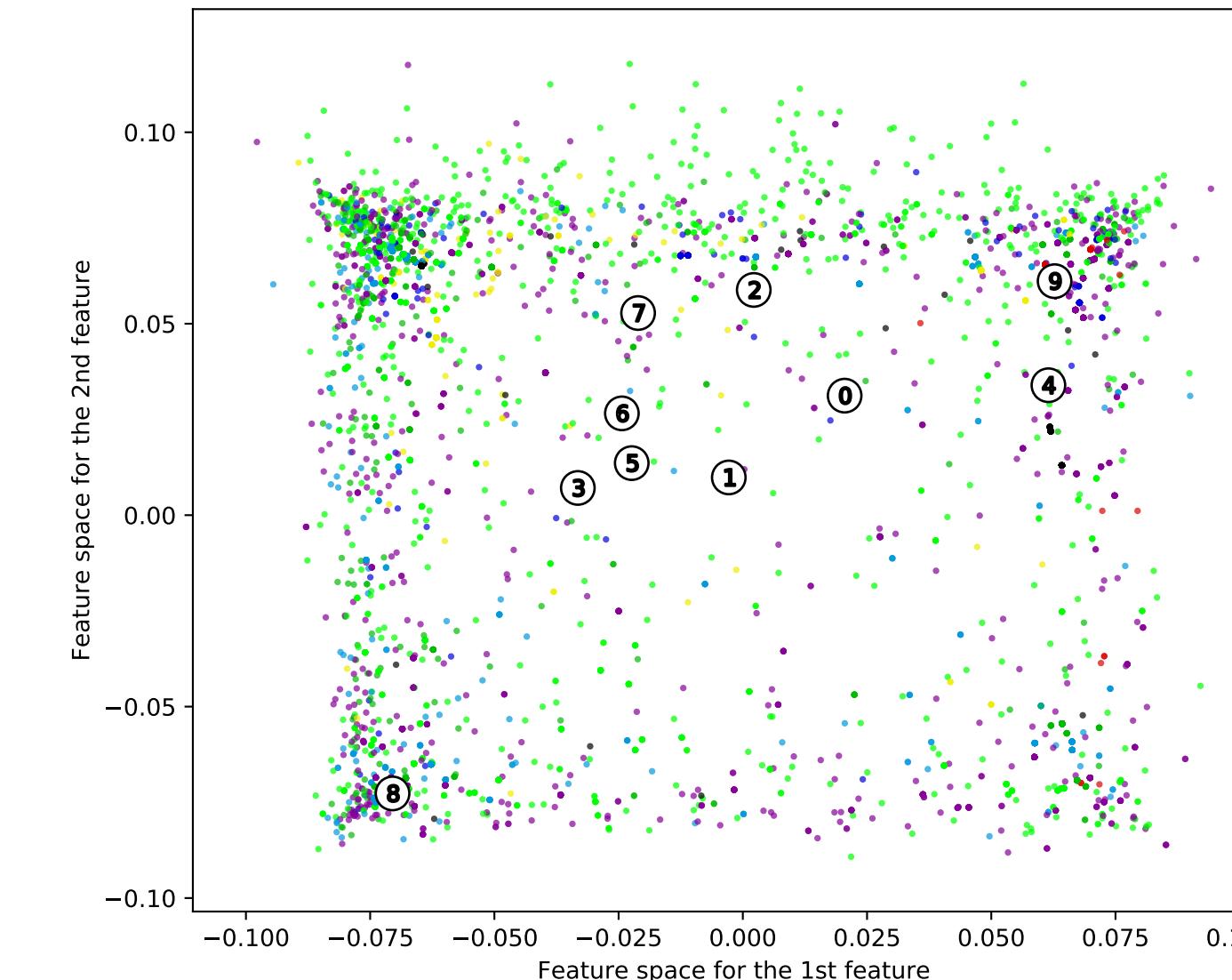


Silhouette analysis for KMeans clustering on sample data with n_clusters = 10 with Average Silhouette of: 0.17229554057121277

The silhouette plot for the various clusters.

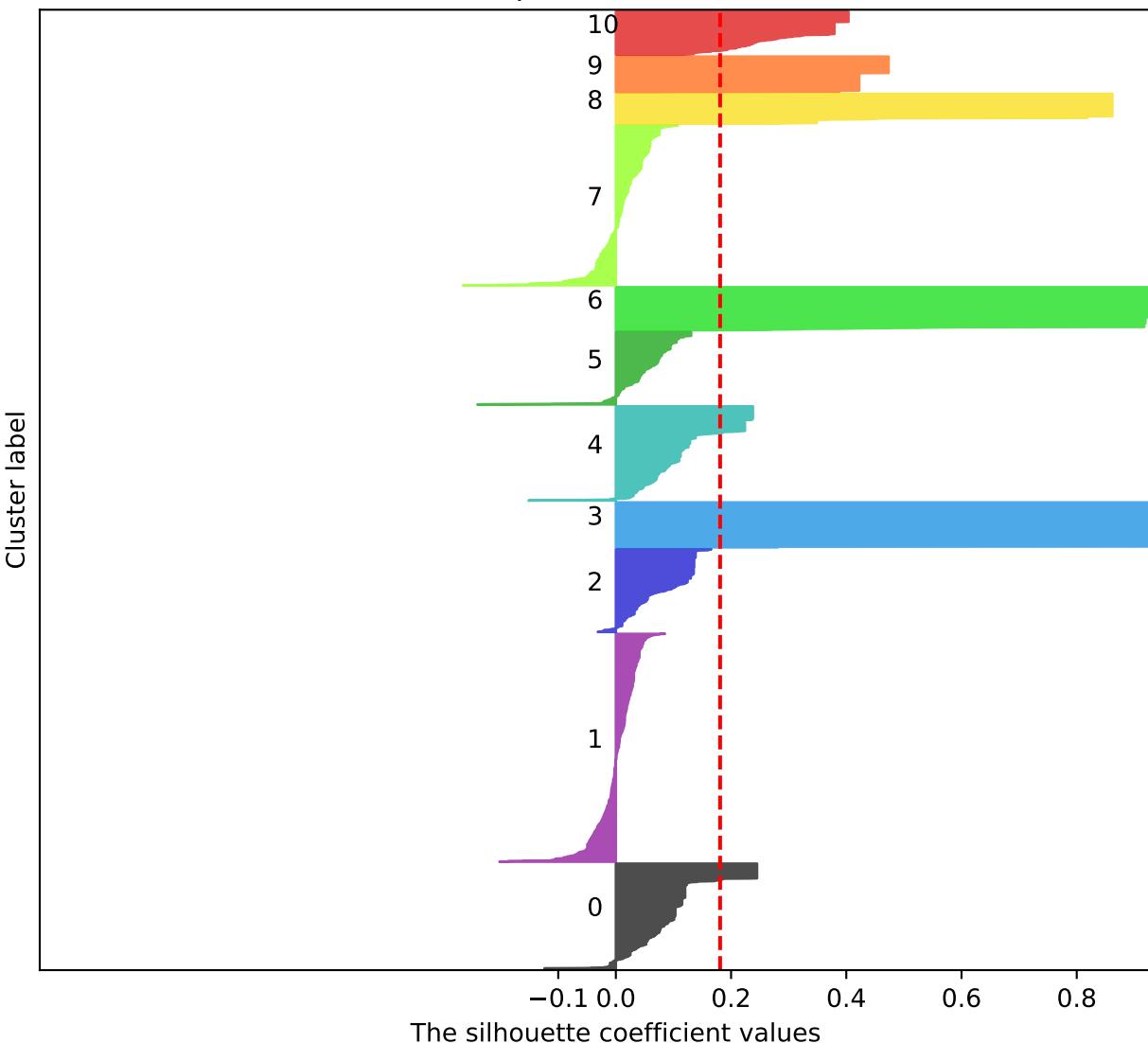


The visualization of the clustered data.

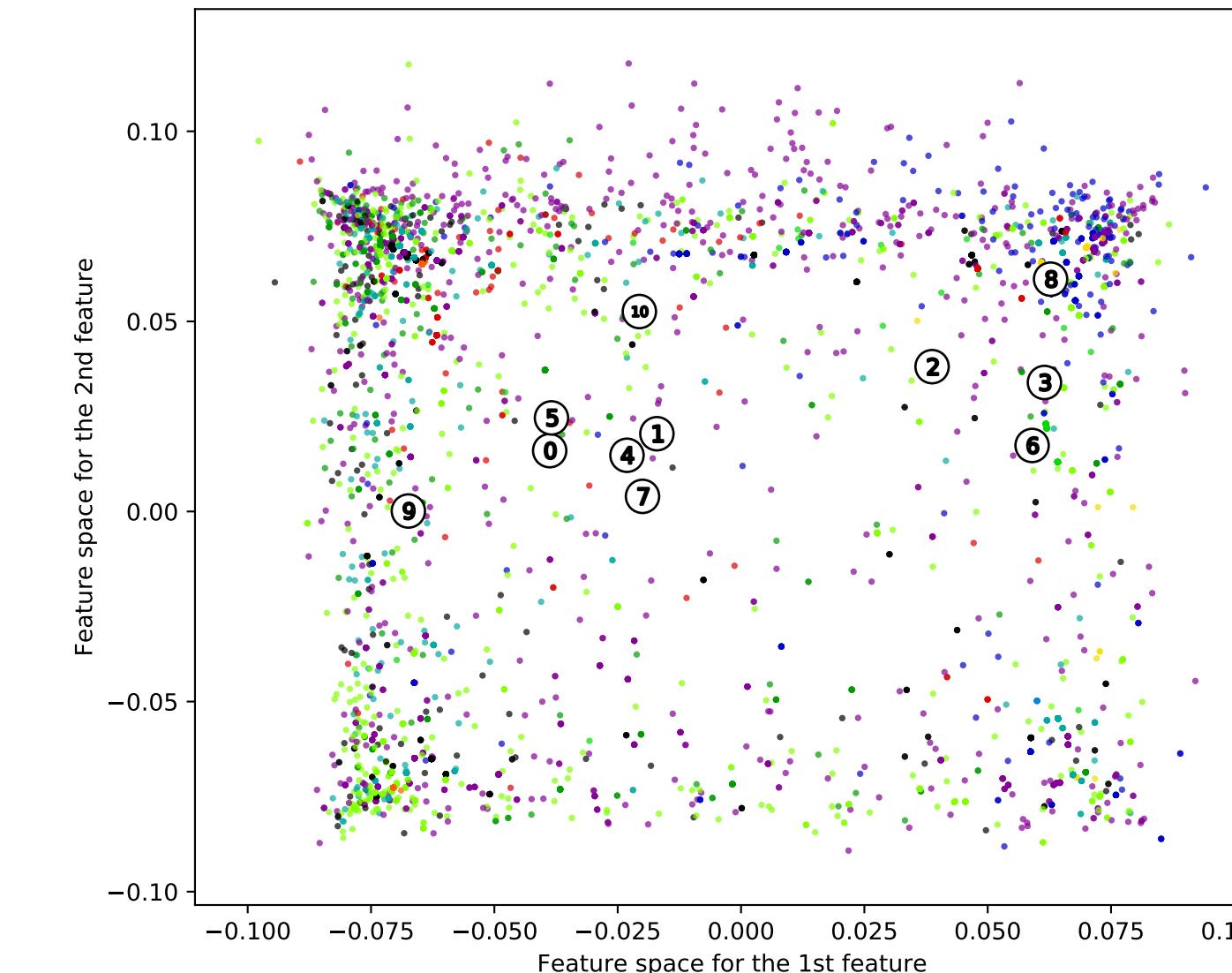


Silhouette analysis for KMeans clustering on sample data with n_clusters = 11 with Average Silhouette of: 0.18098650872707367

The silhouette plot for the various clusters.

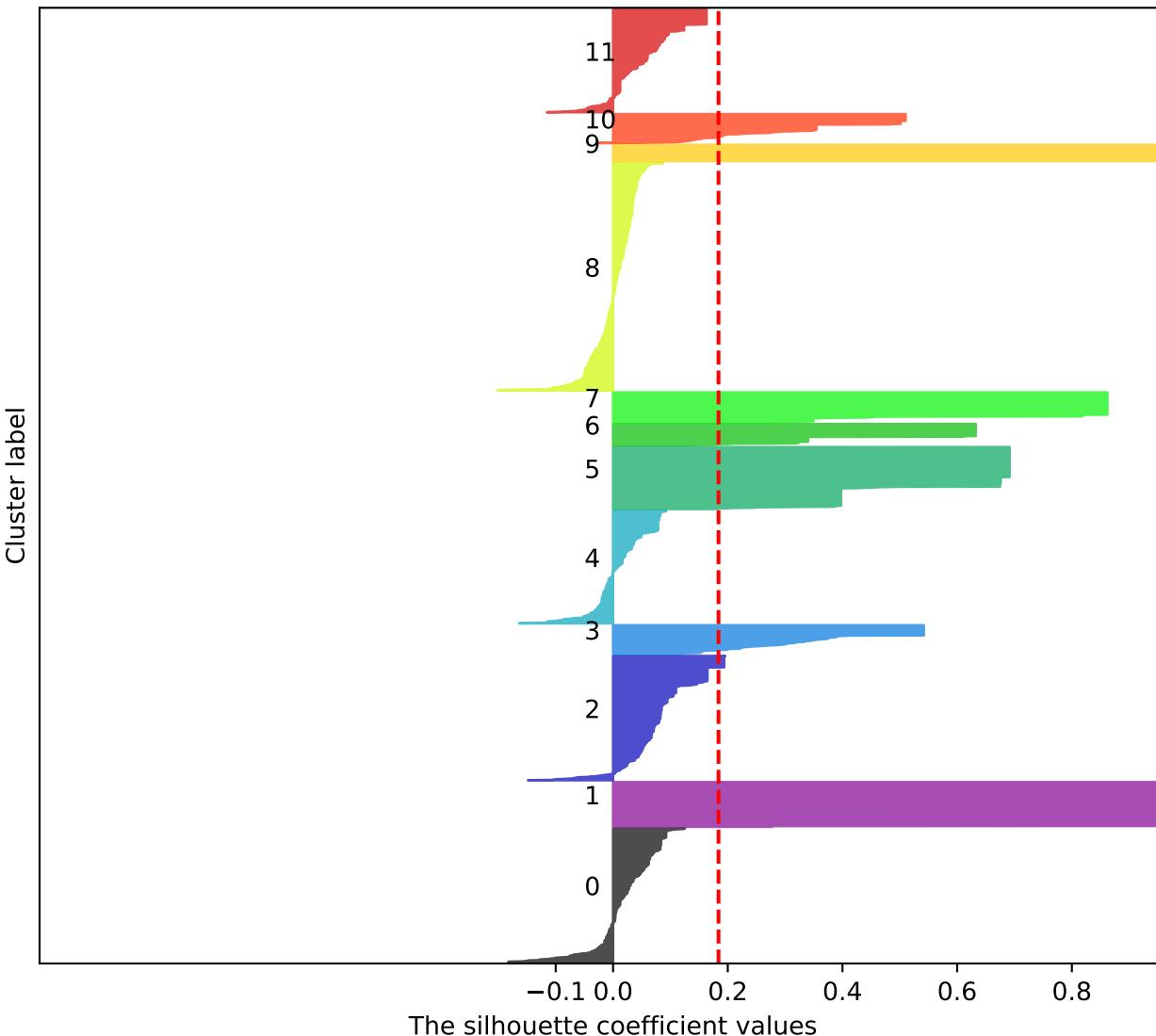


The visualization of the clustered data.

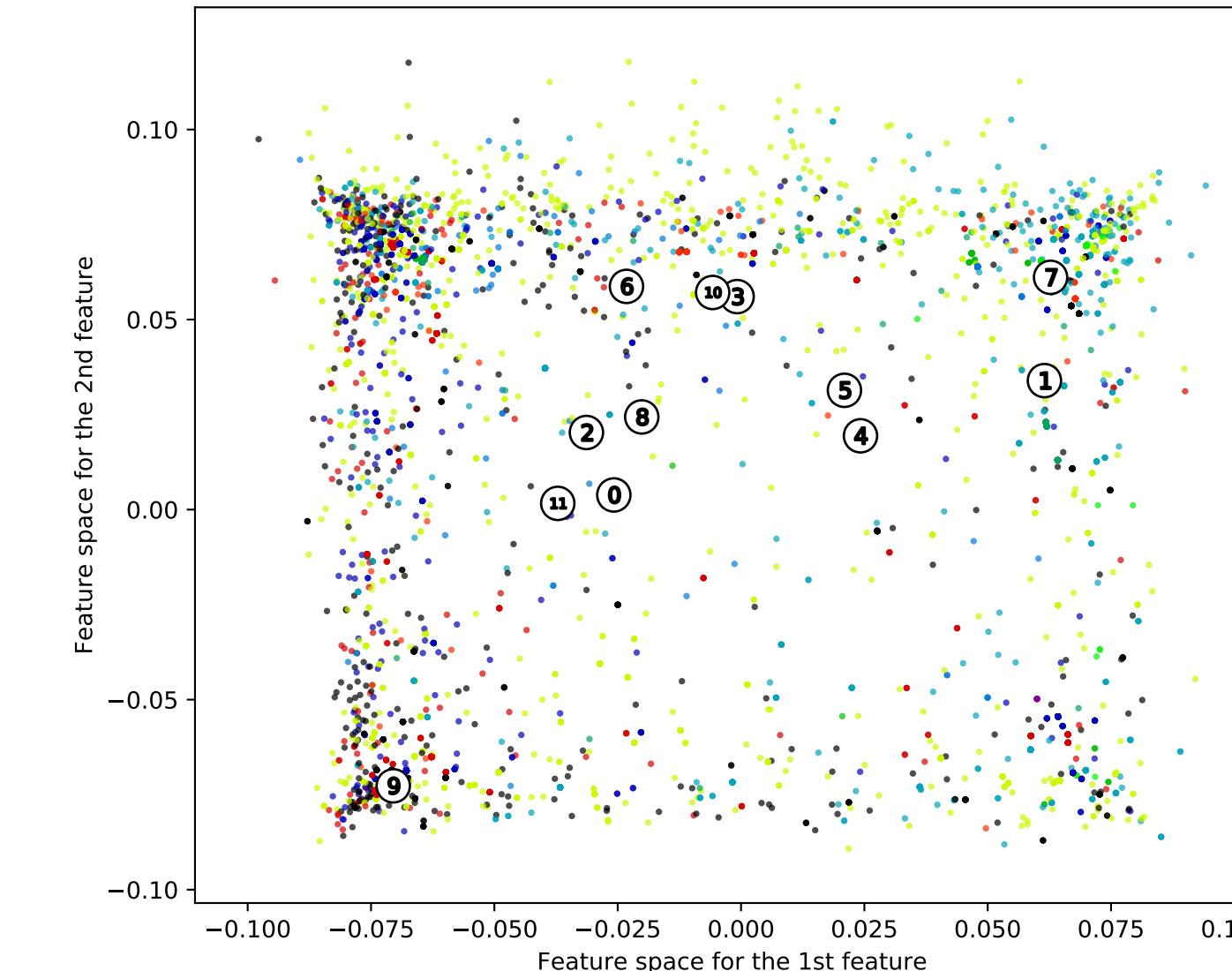


Silhouette analysis for KMeans clustering on sample data with n_clusters = 12 with Average Silhouette of: 0.18388043344020844

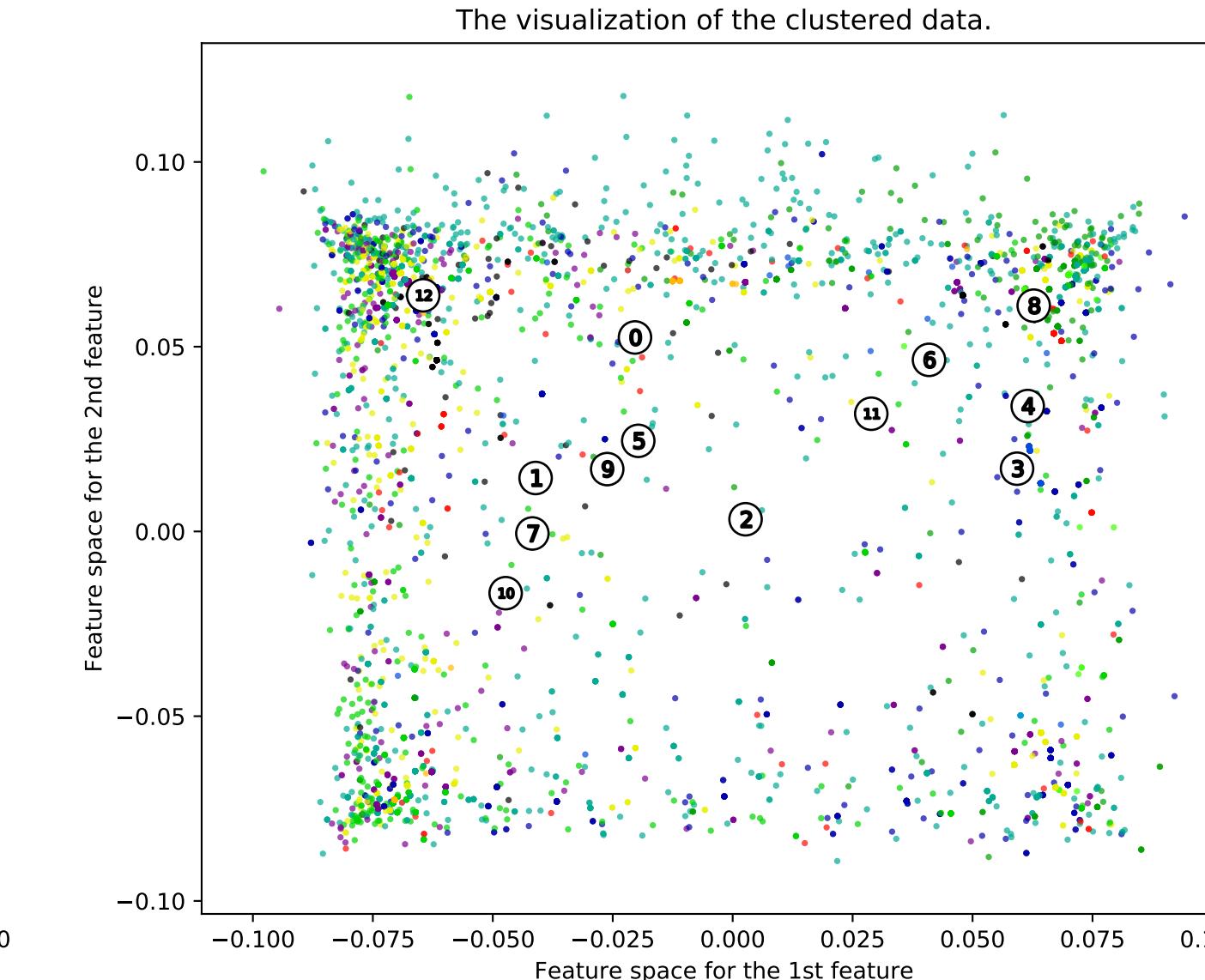
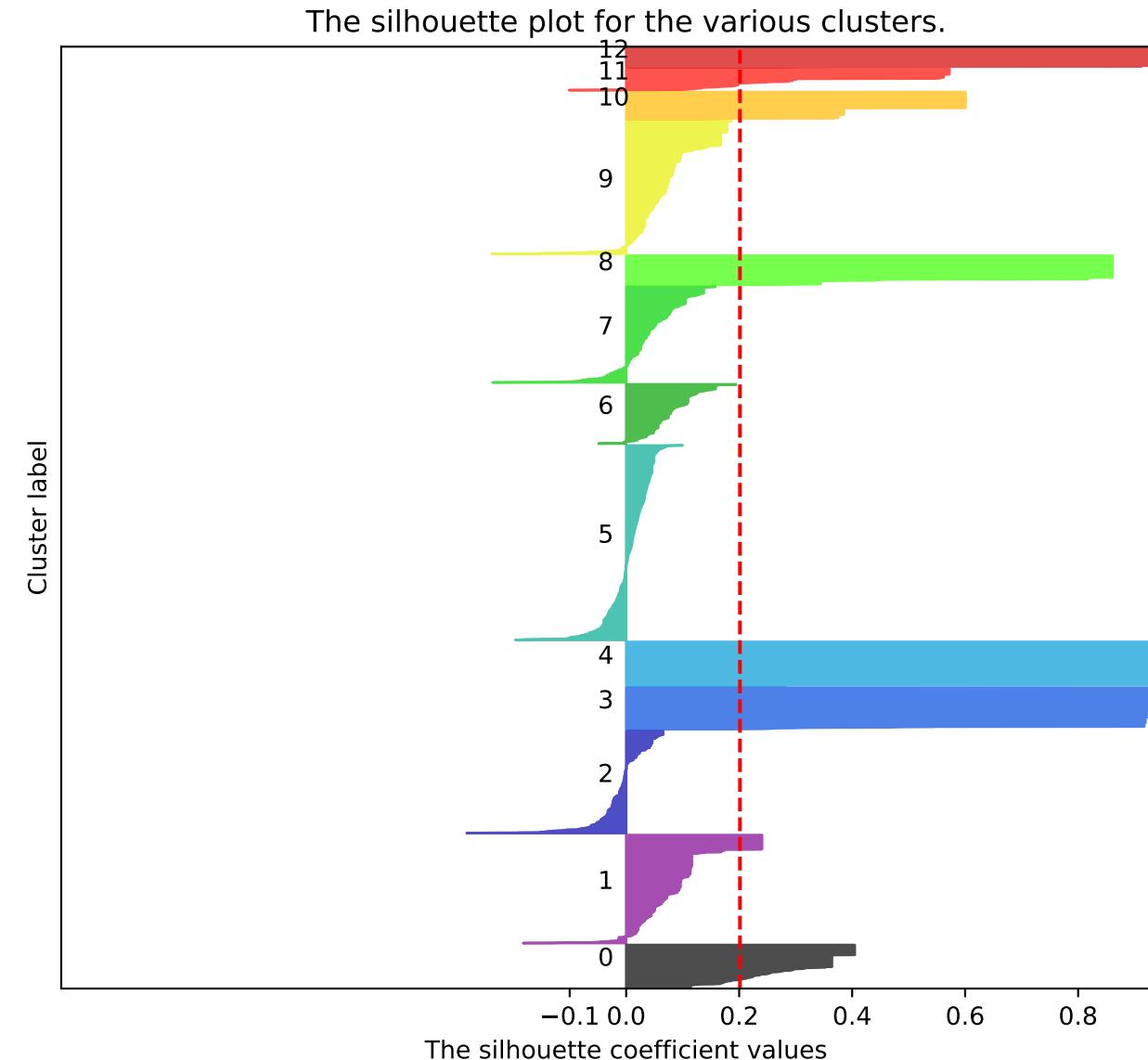
The silhouette plot for the various clusters.



The visualization of the clustered data.

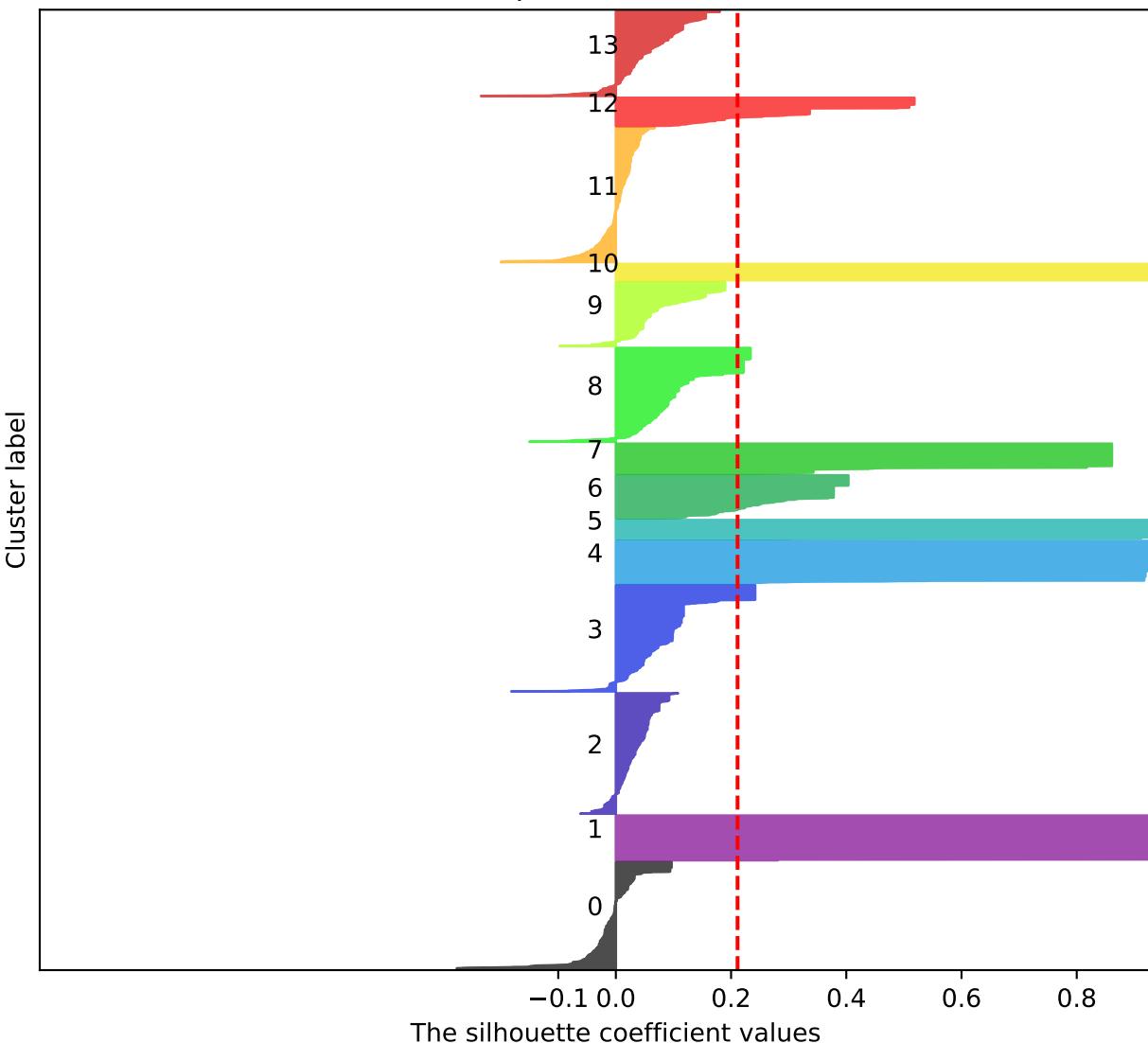


Silhouette analysis for KMeans clustering on sample data with n_clusters = 13 with Average Silhouette of: 0.20136064291000366

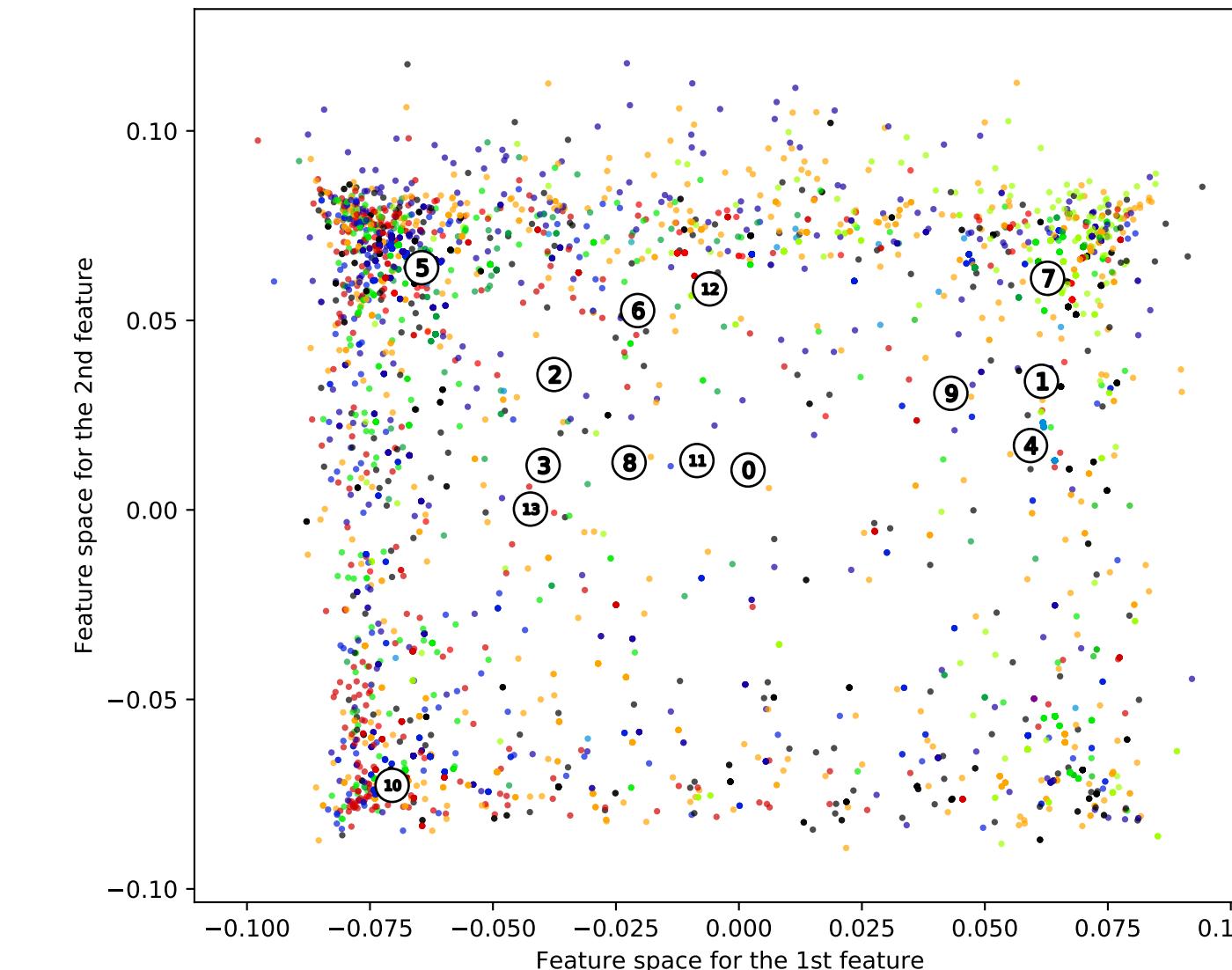


Silhouette analysis for KMeans clustering on sample data with n_clusters = 14 with Average Silhouette of: 0.21124742925167084

The silhouette plot for the various clusters.

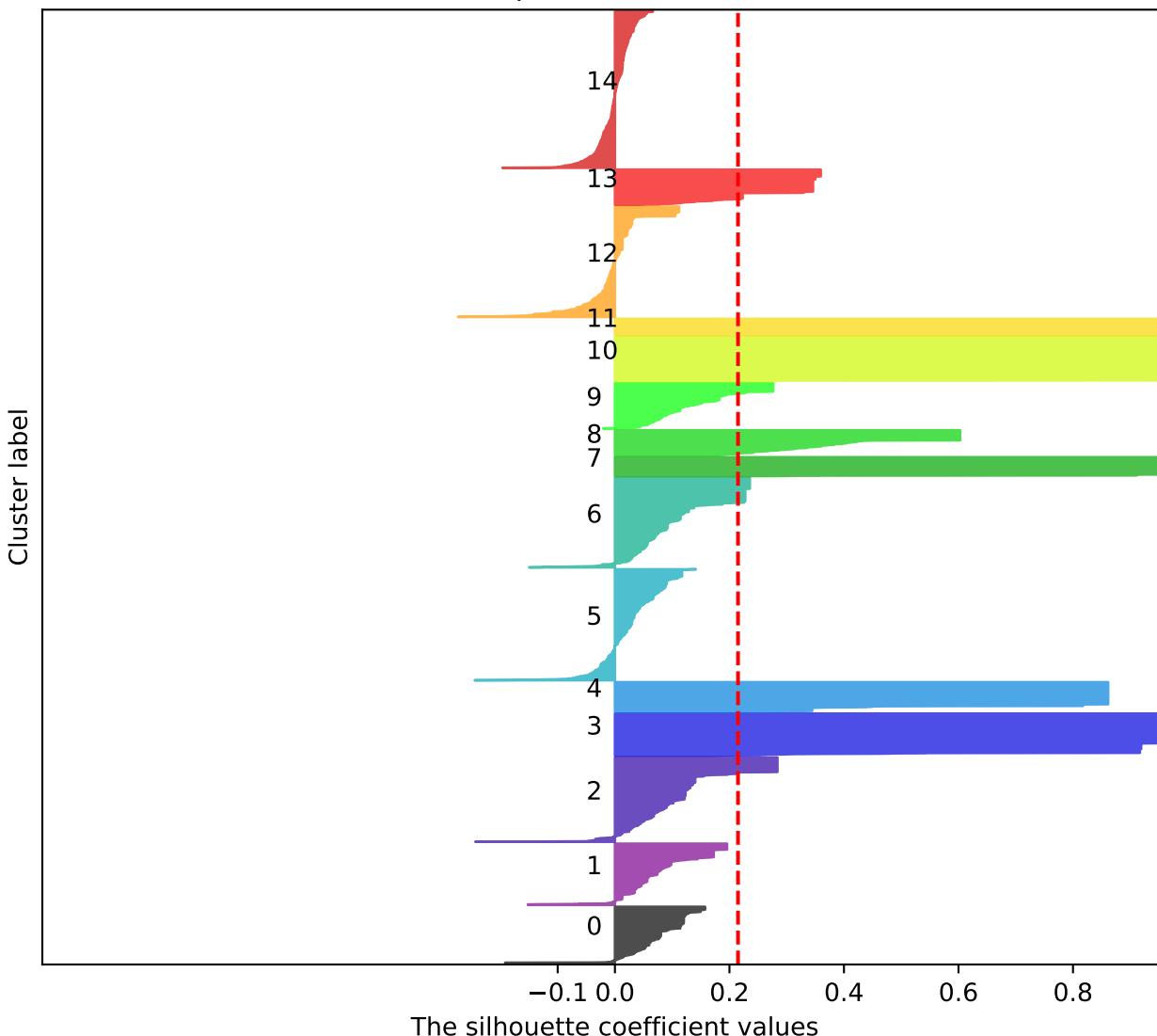


The visualization of the clustered data.

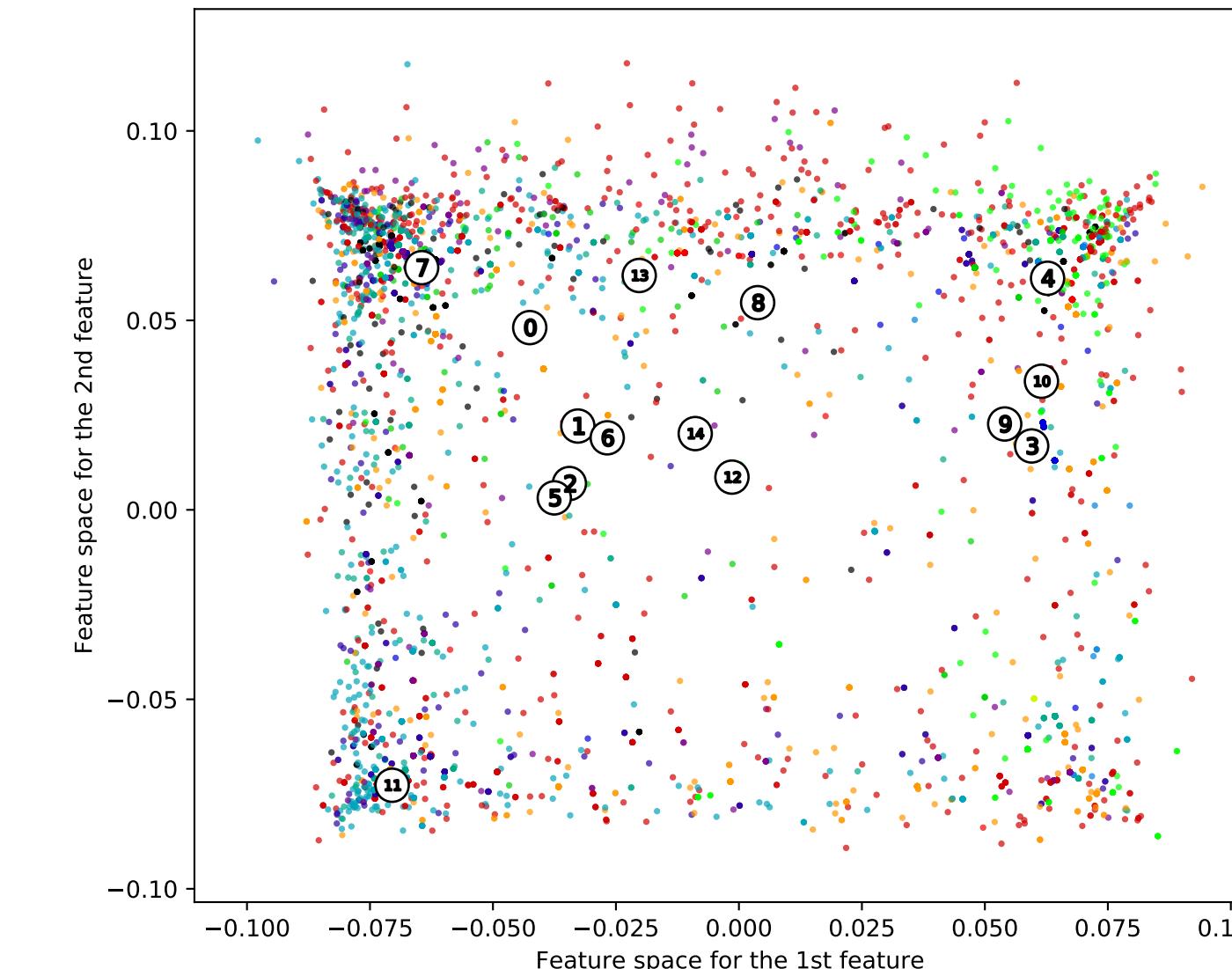


Silhouette analysis for KMeans clustering on sample data with n_clusters = 15 with Average Silhouette of: 0.2149772047996521

The silhouette plot for the various clusters.

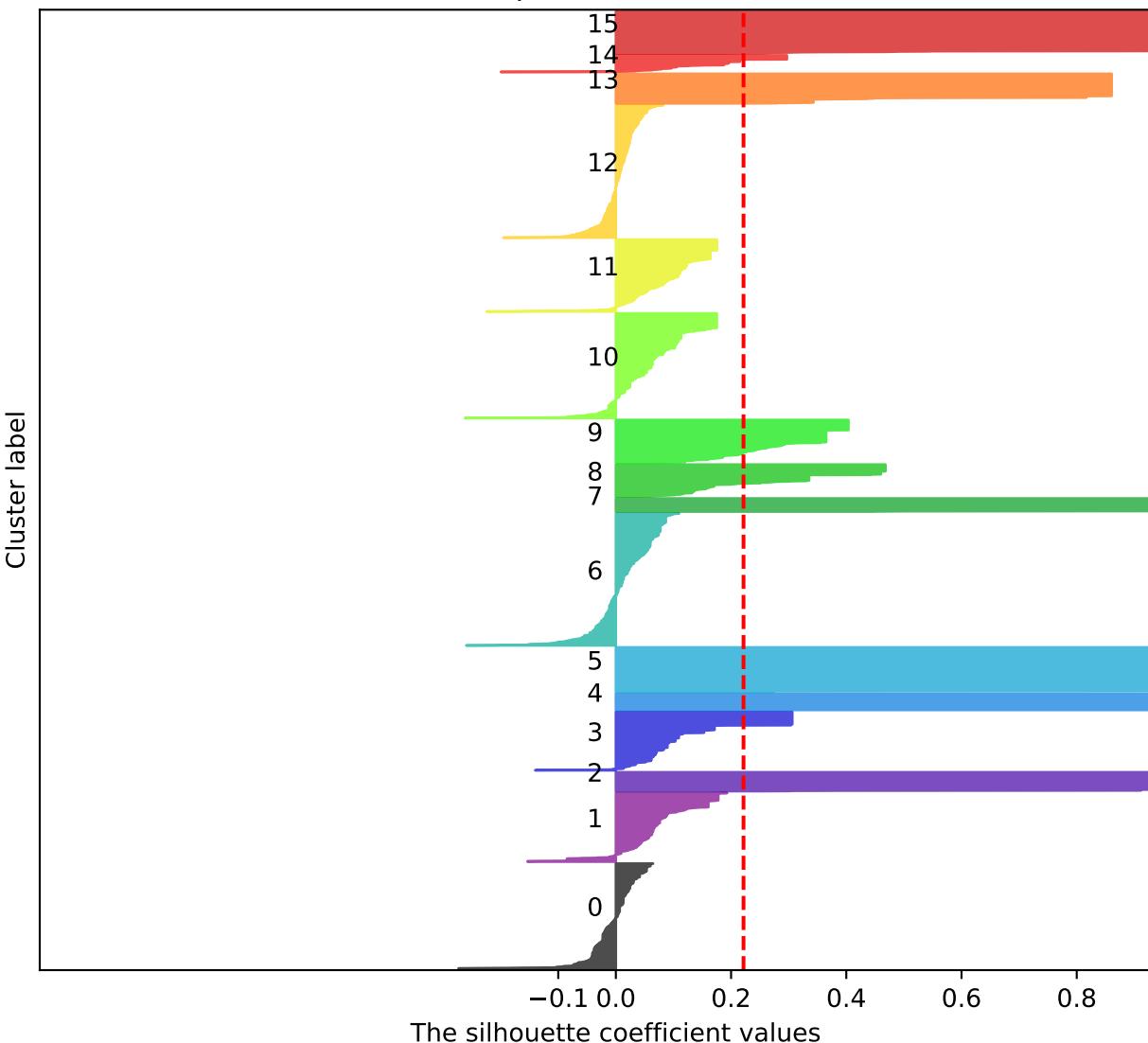


The visualization of the clustered data.

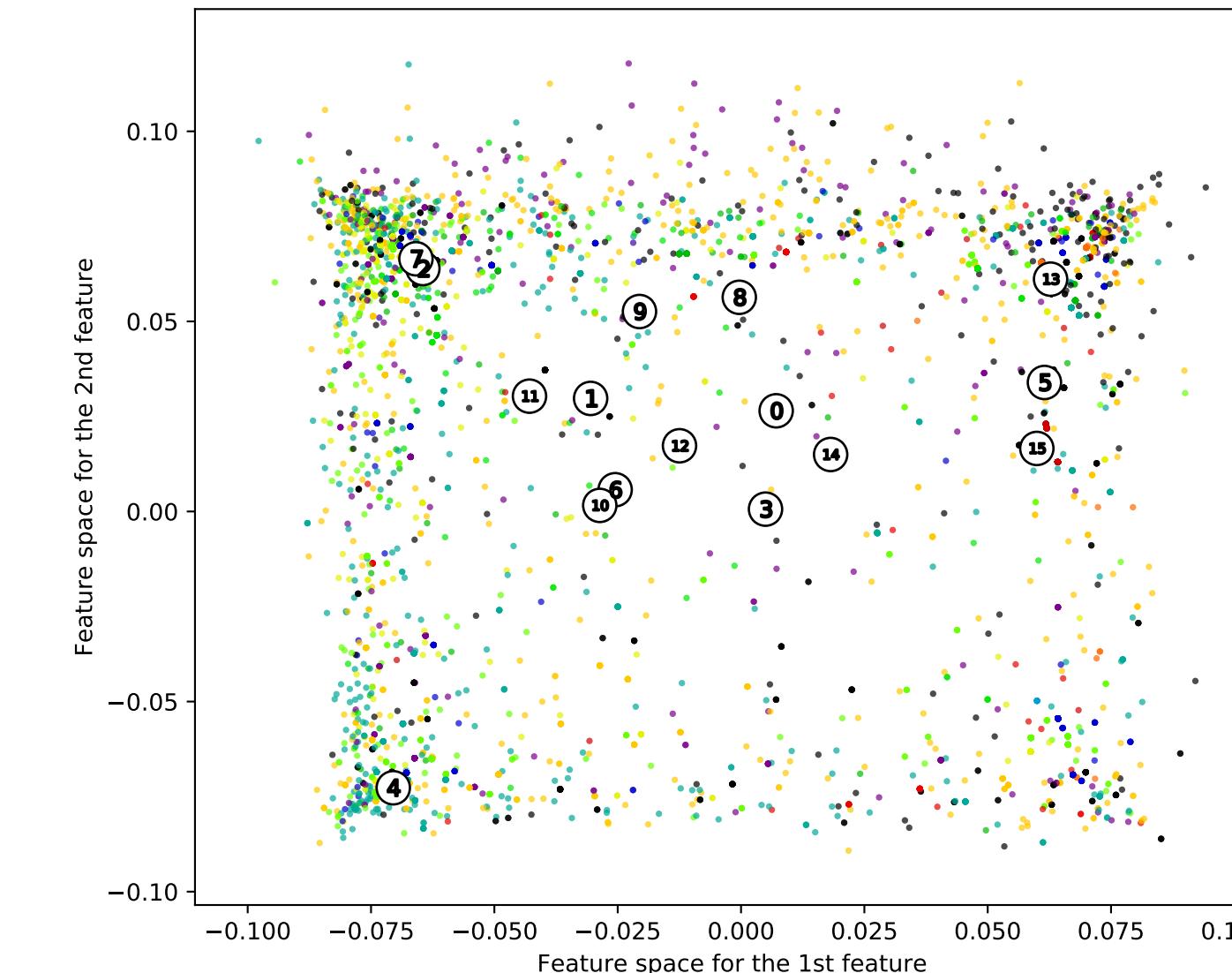


Silhouette analysis for KMeans clustering on sample data with n_clusters = 16 with Average Silhouette of: 0.22157977521419525

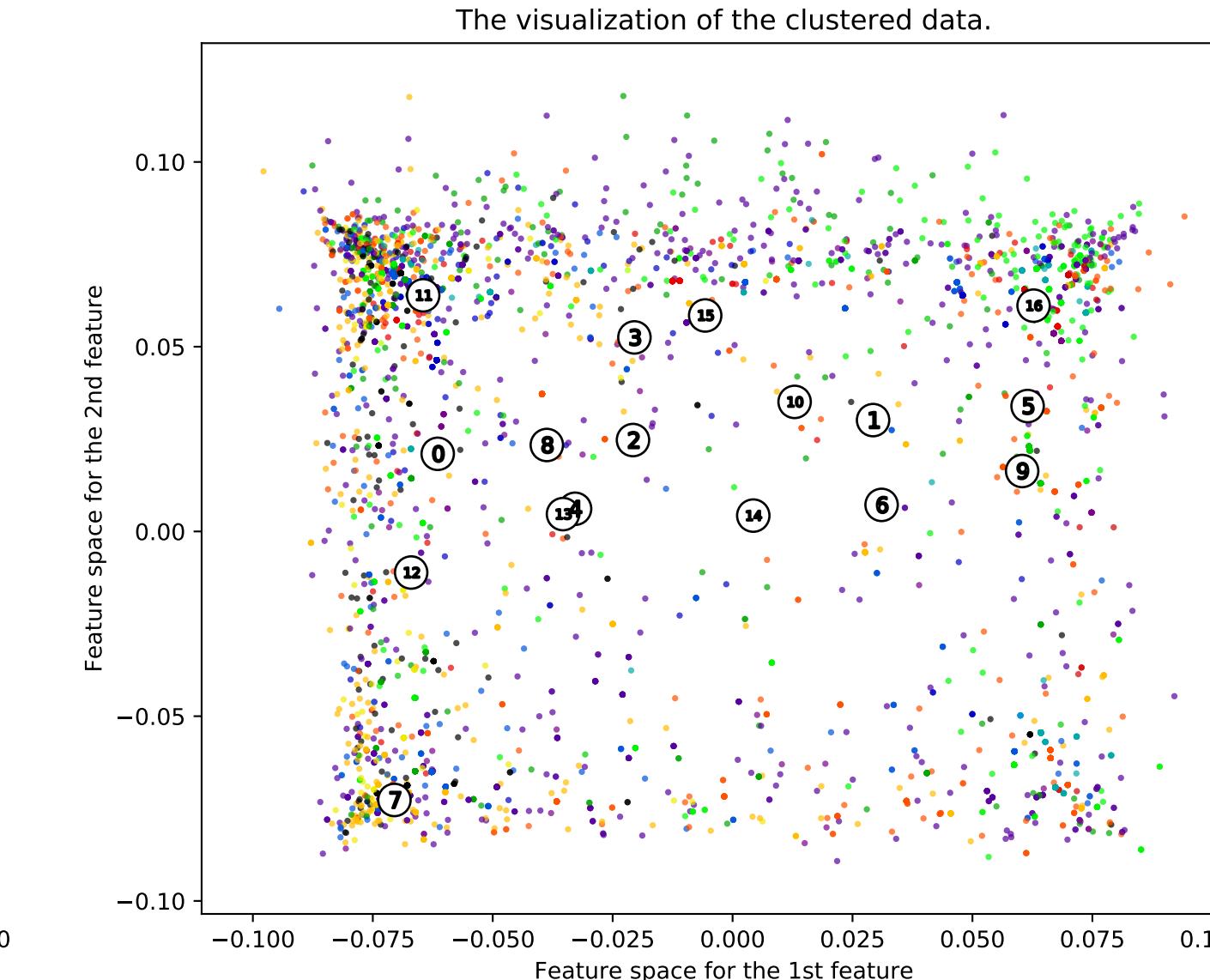
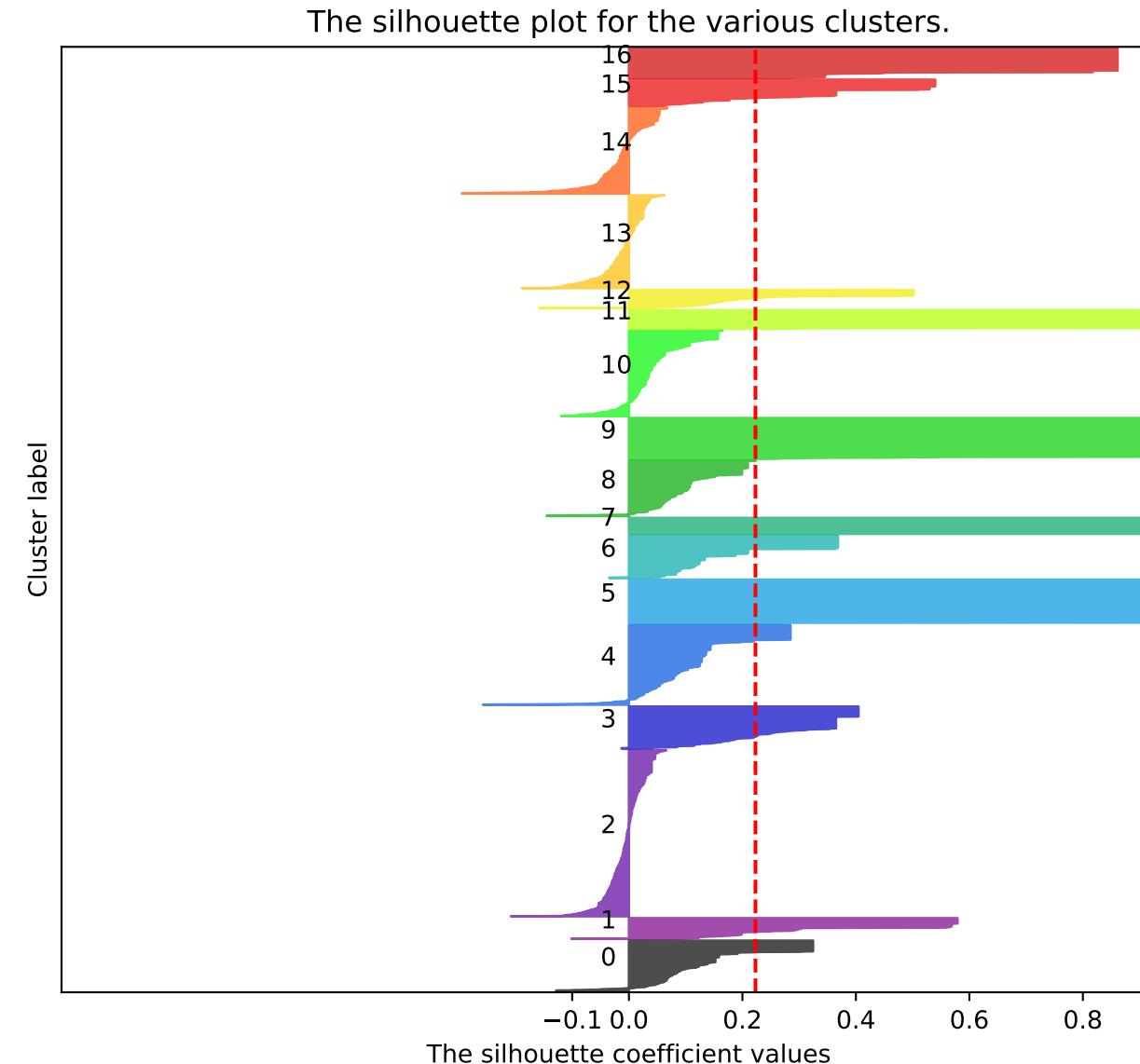
The silhouette plot for the various clusters.



The visualization of the clustered data.

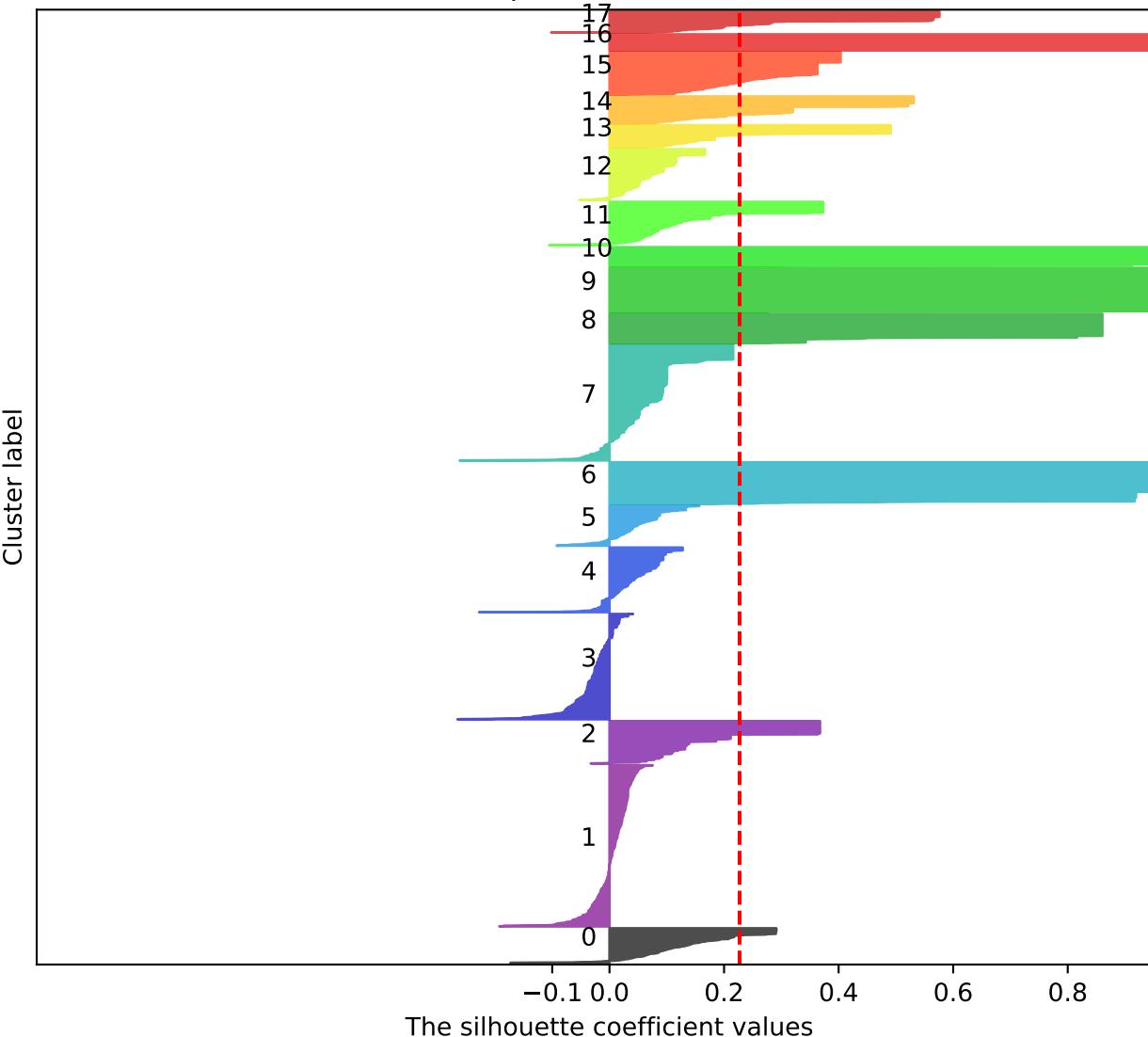


Silhouette analysis for KMeans clustering on sample data with n_clusters = 17 with Average Silhouette of: 0.22301286458969116

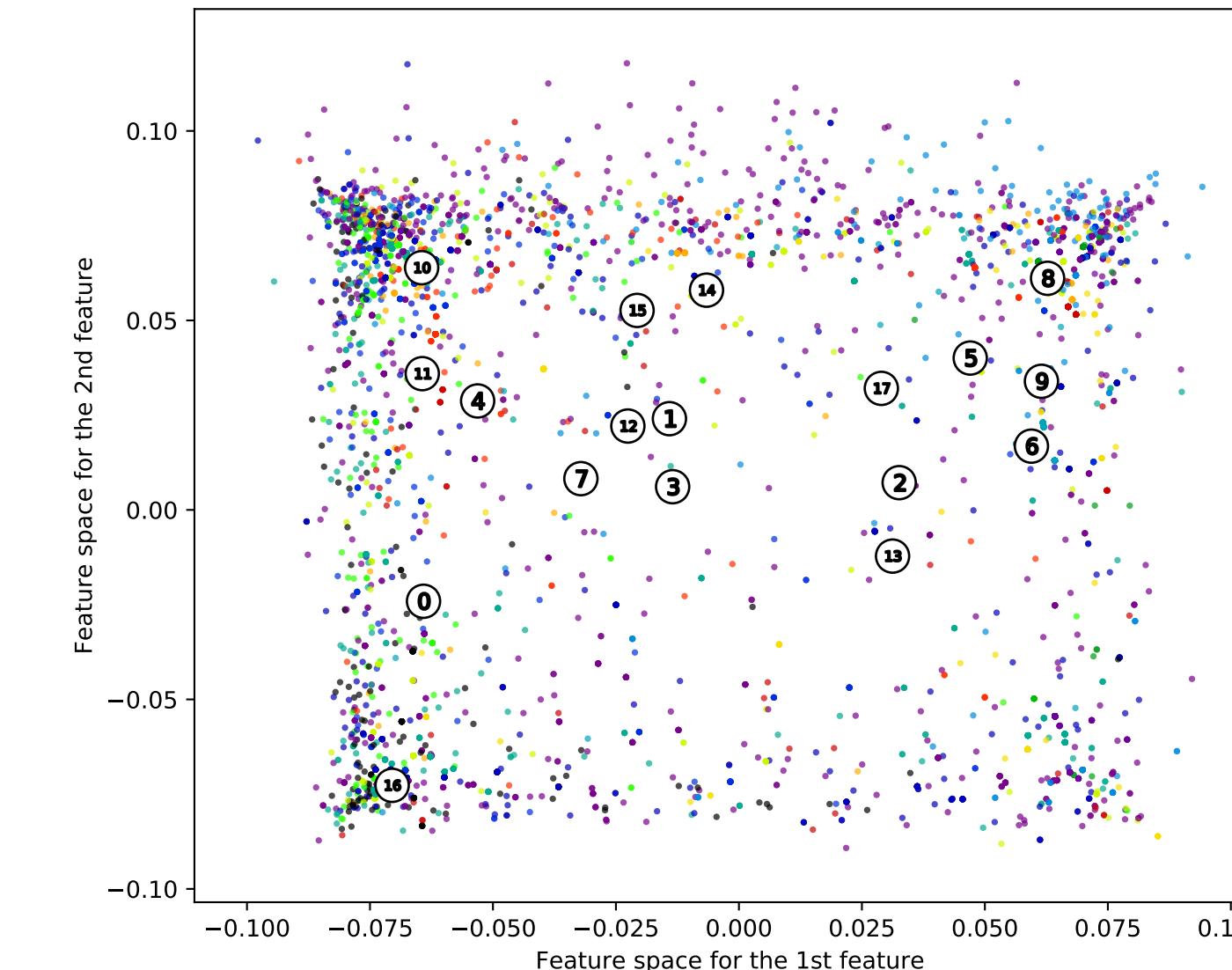


Silhouette analysis for KMeans clustering on sample data with n_clusters = 18 with Average Silhouette of: 0.22711271047592163

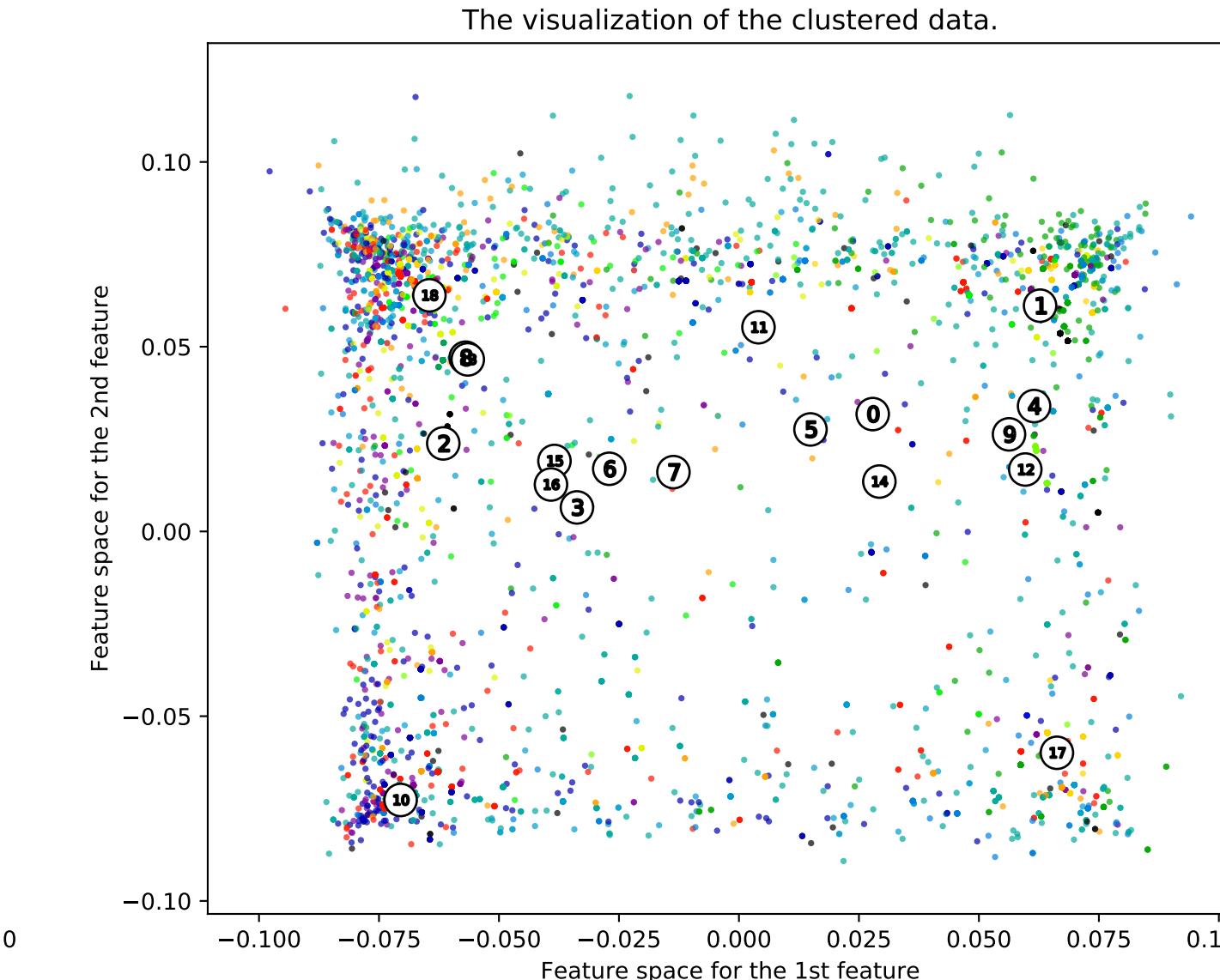
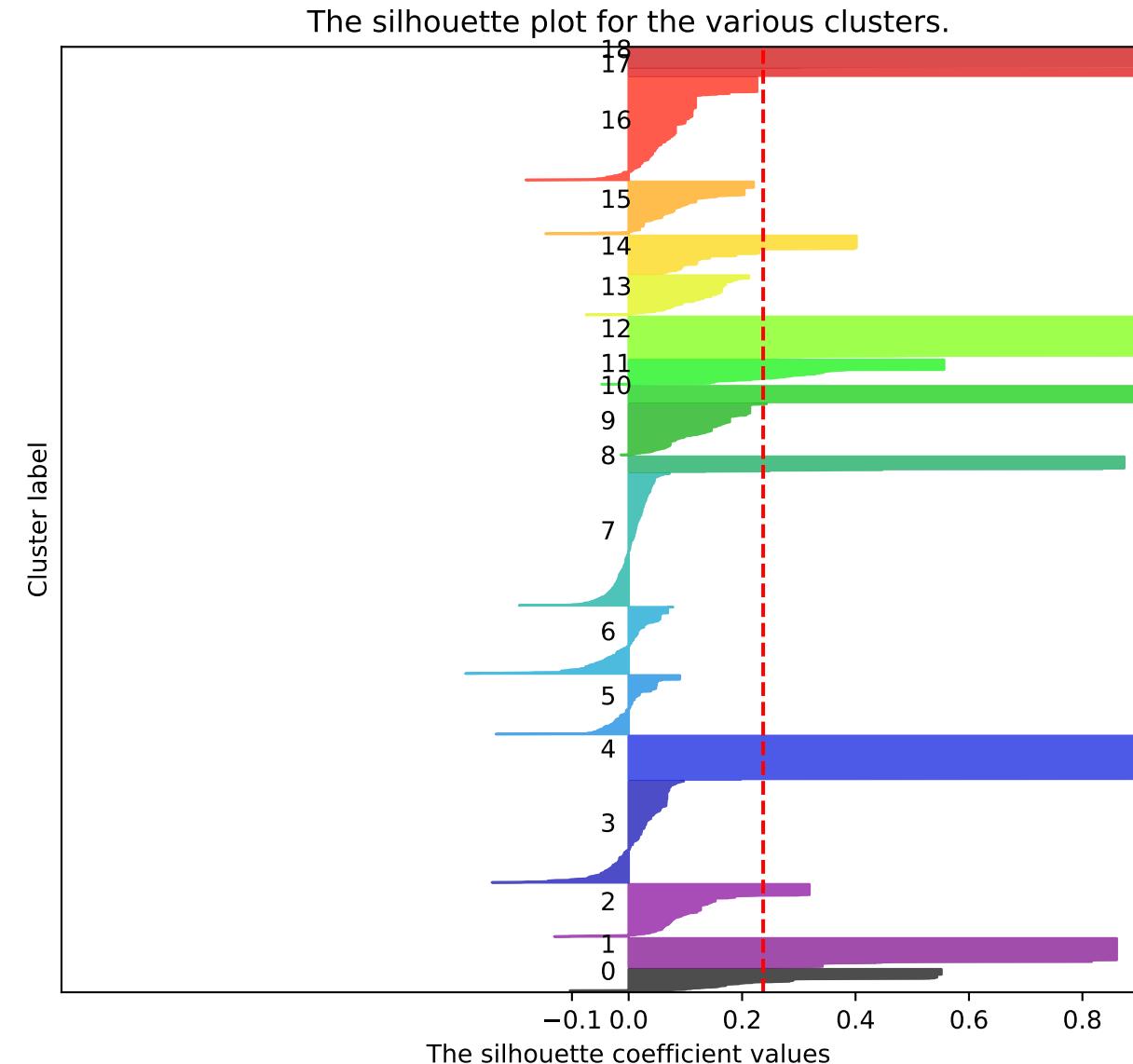
The silhouette plot for the various clusters.



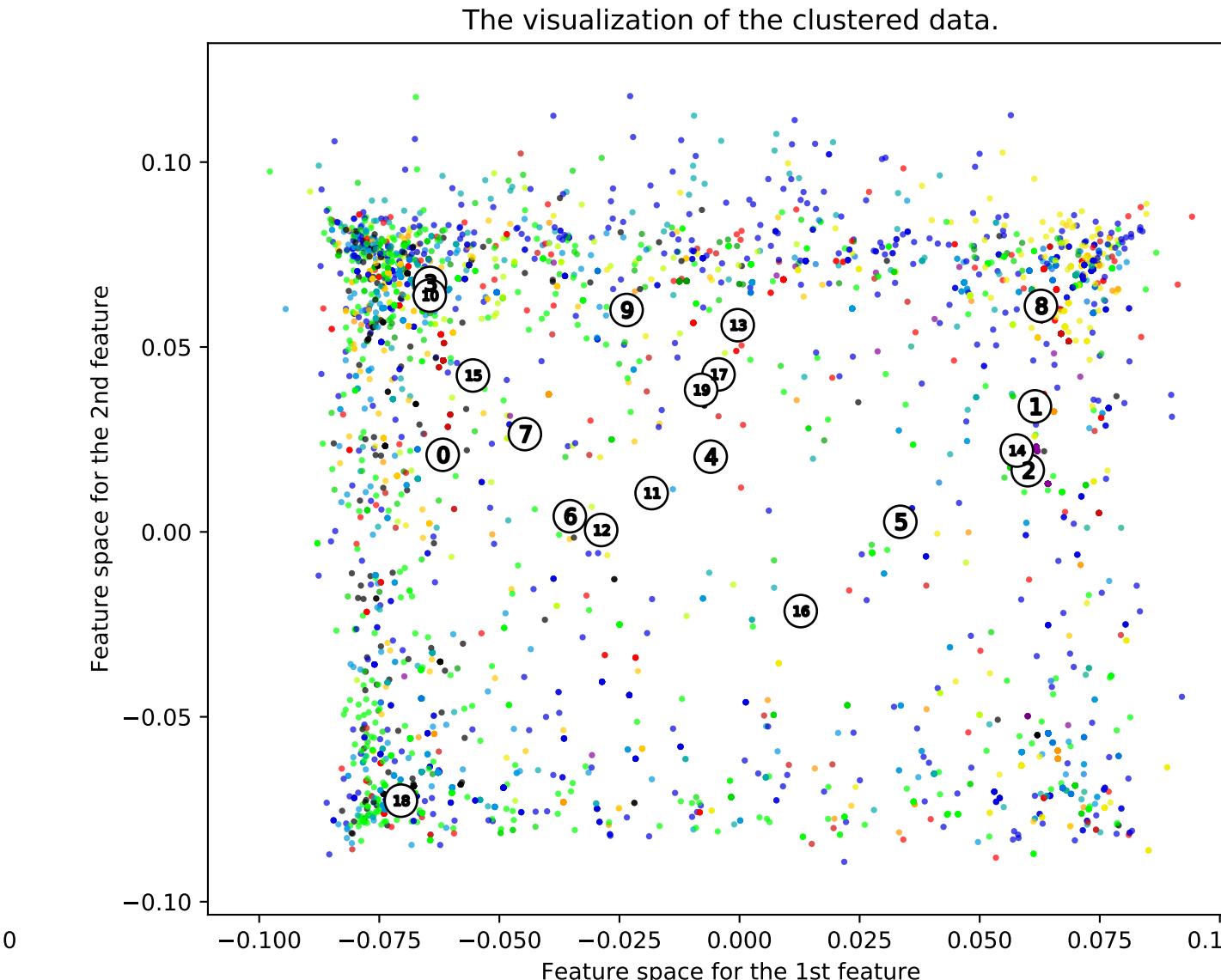
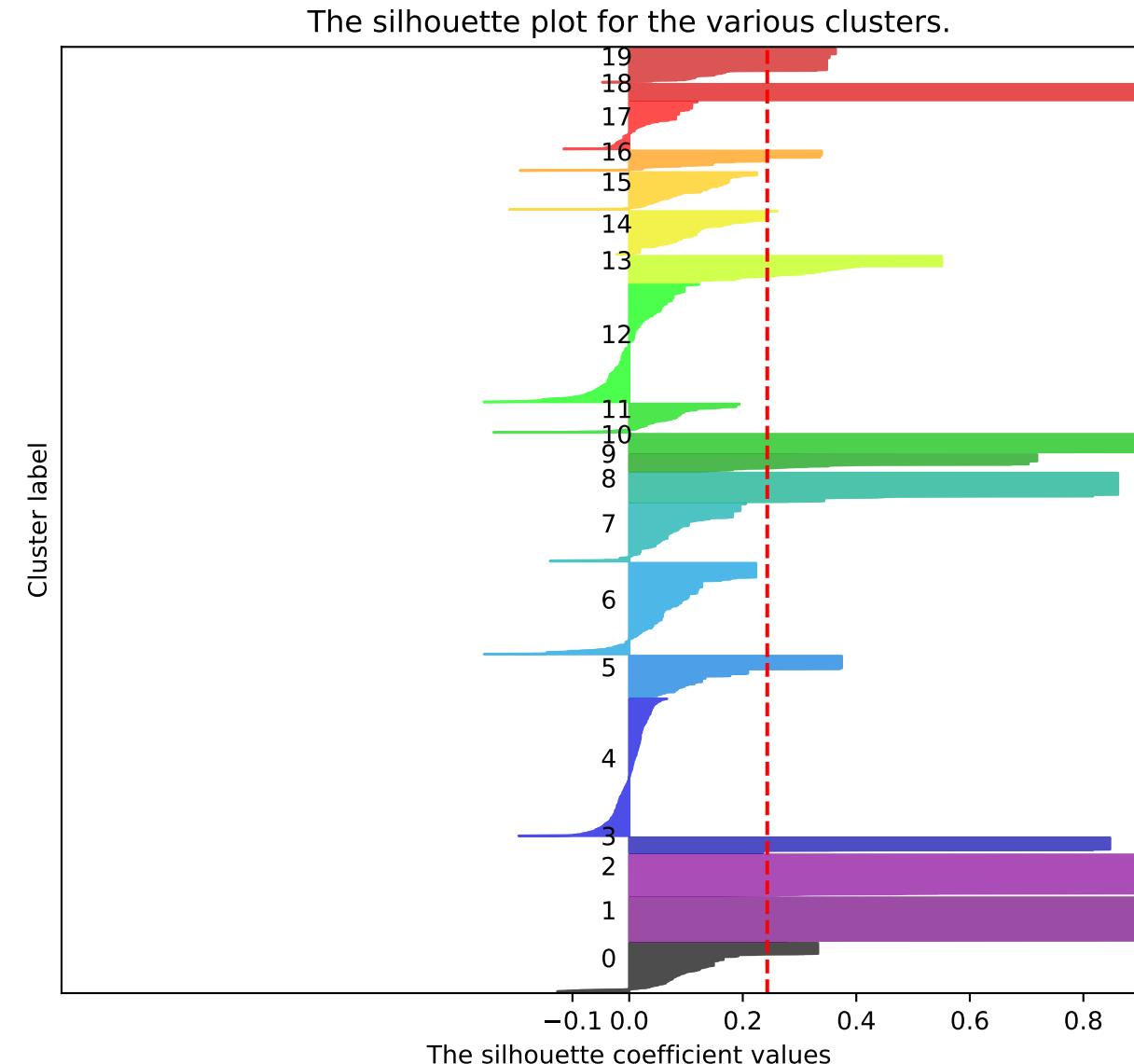
The visualization of the clustered data.



Silhouette analysis for KMeans clustering on sample data with n_clusters = 19 with Average Silhouette of: 0.23712469637393951

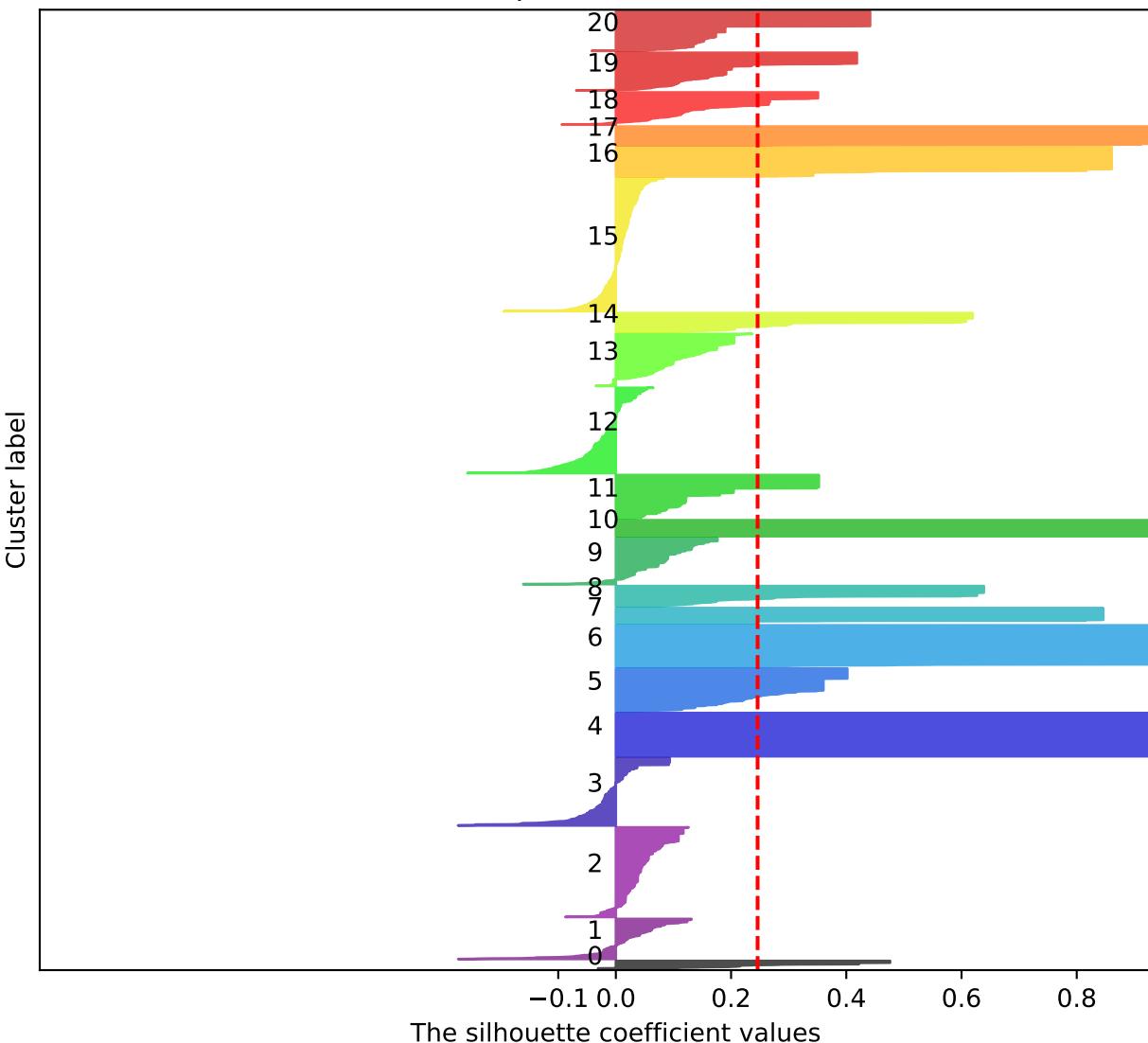


Silhouette analysis for KMeans clustering on sample data with n_clusters = 20 with Average Silhouette of: 0.24318839609622955

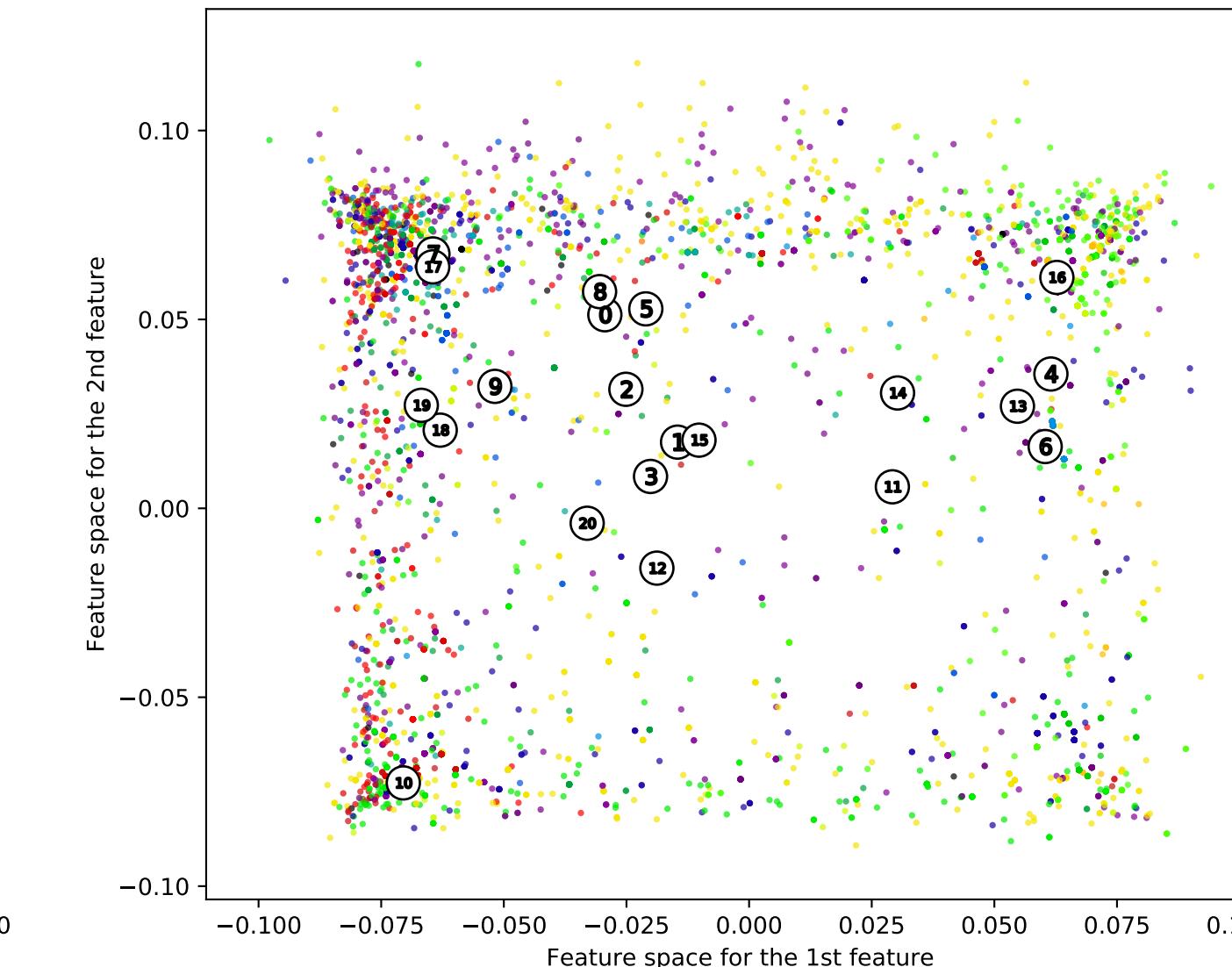


Silhouette analysis for KMeans clustering on sample data with n_clusters = 21 with Average Silhouette of: 0.2460639923810959

The silhouette plot for the various clusters.

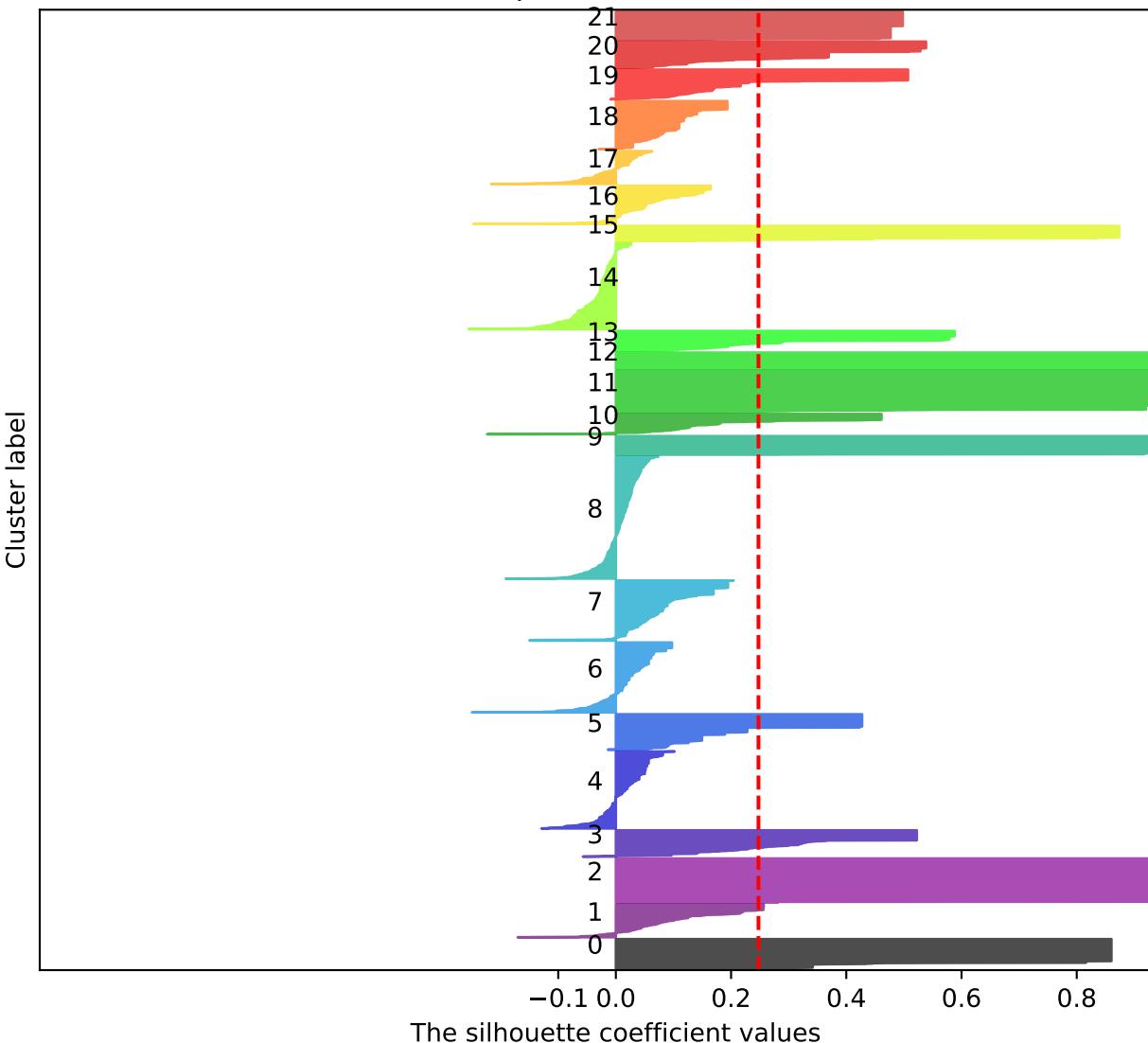


The visualization of the clustered data.

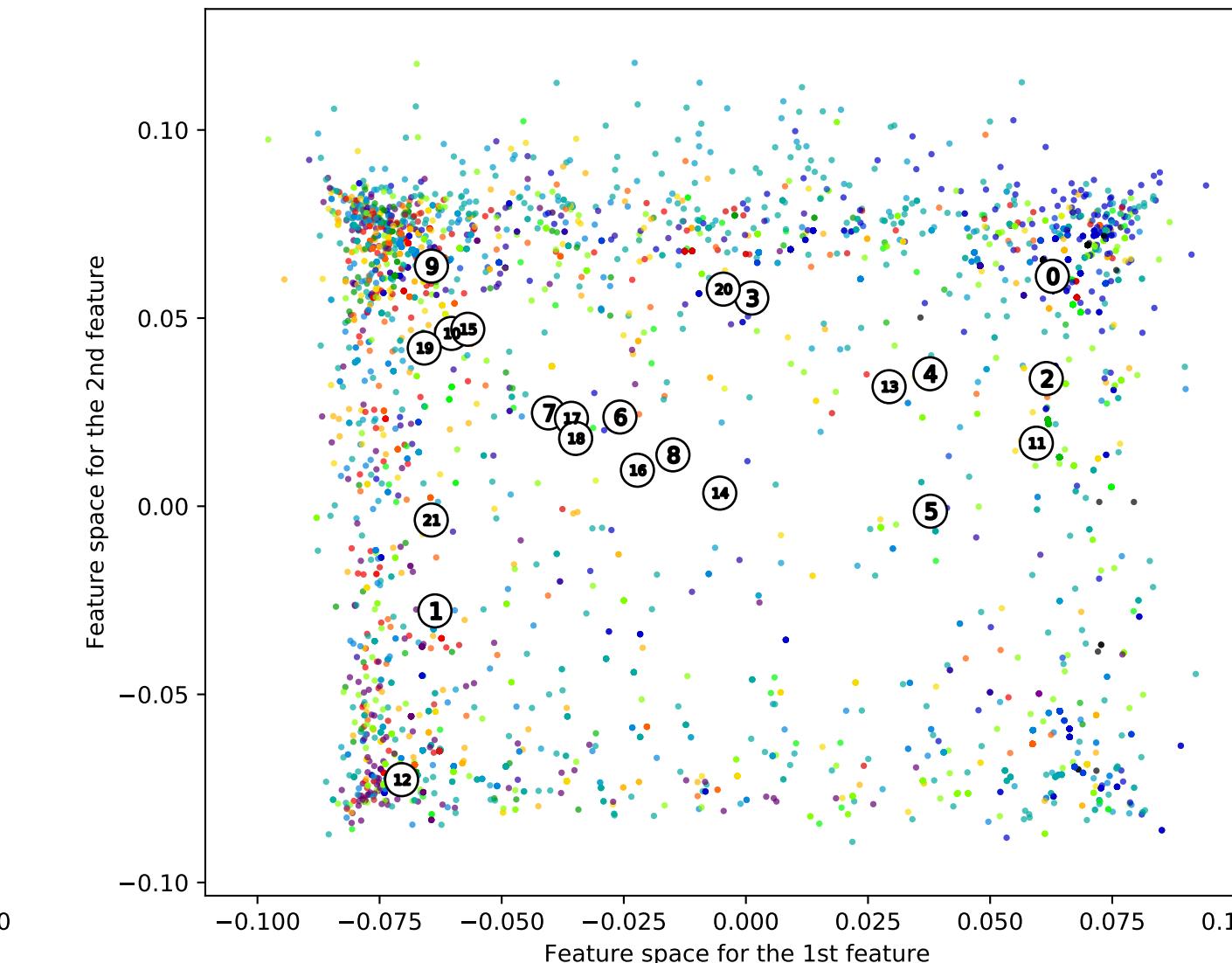


Silhouette analysis for KMeans clustering on sample data with n_clusters = 22 with Average Silhouette of: 0.24752414226531982

The silhouette plot for the various clusters.

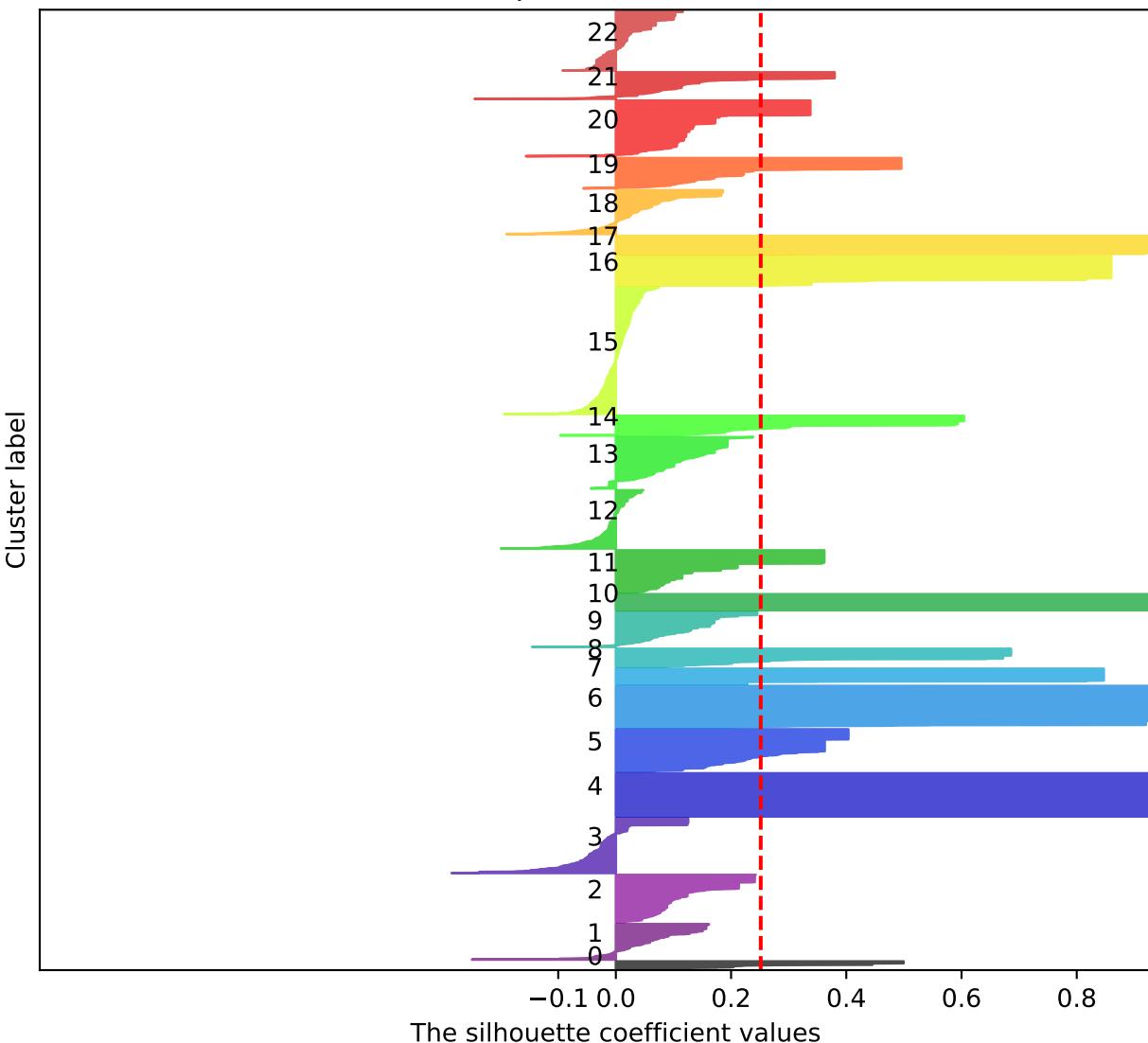


The visualization of the clustered data.

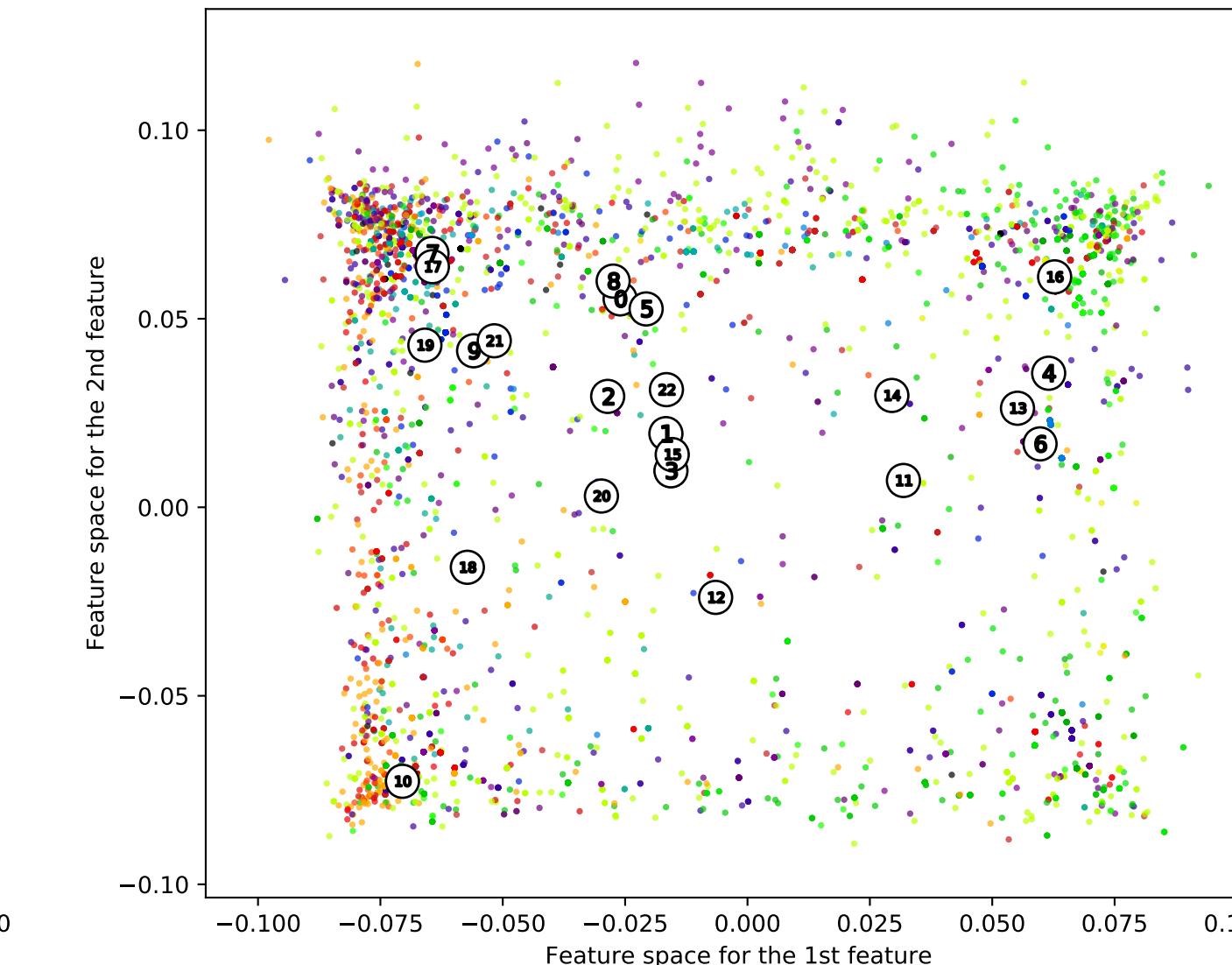


Silhouette analysis for KMeans clustering on sample data with n_clusters = 23 with Average Silhouette of: 0.25148993730545044

The silhouette plot for the various clusters.

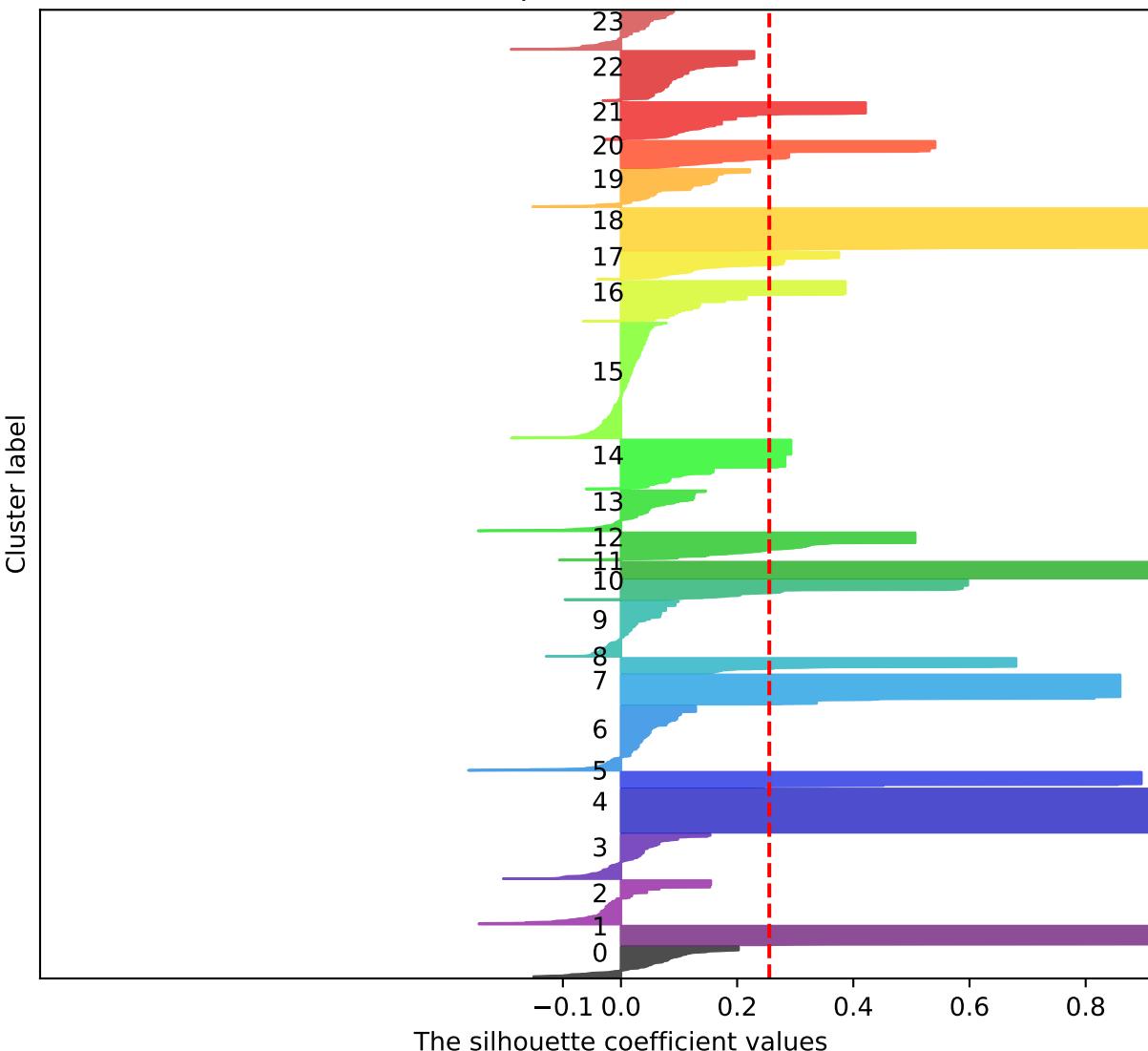


The visualization of the clustered data.

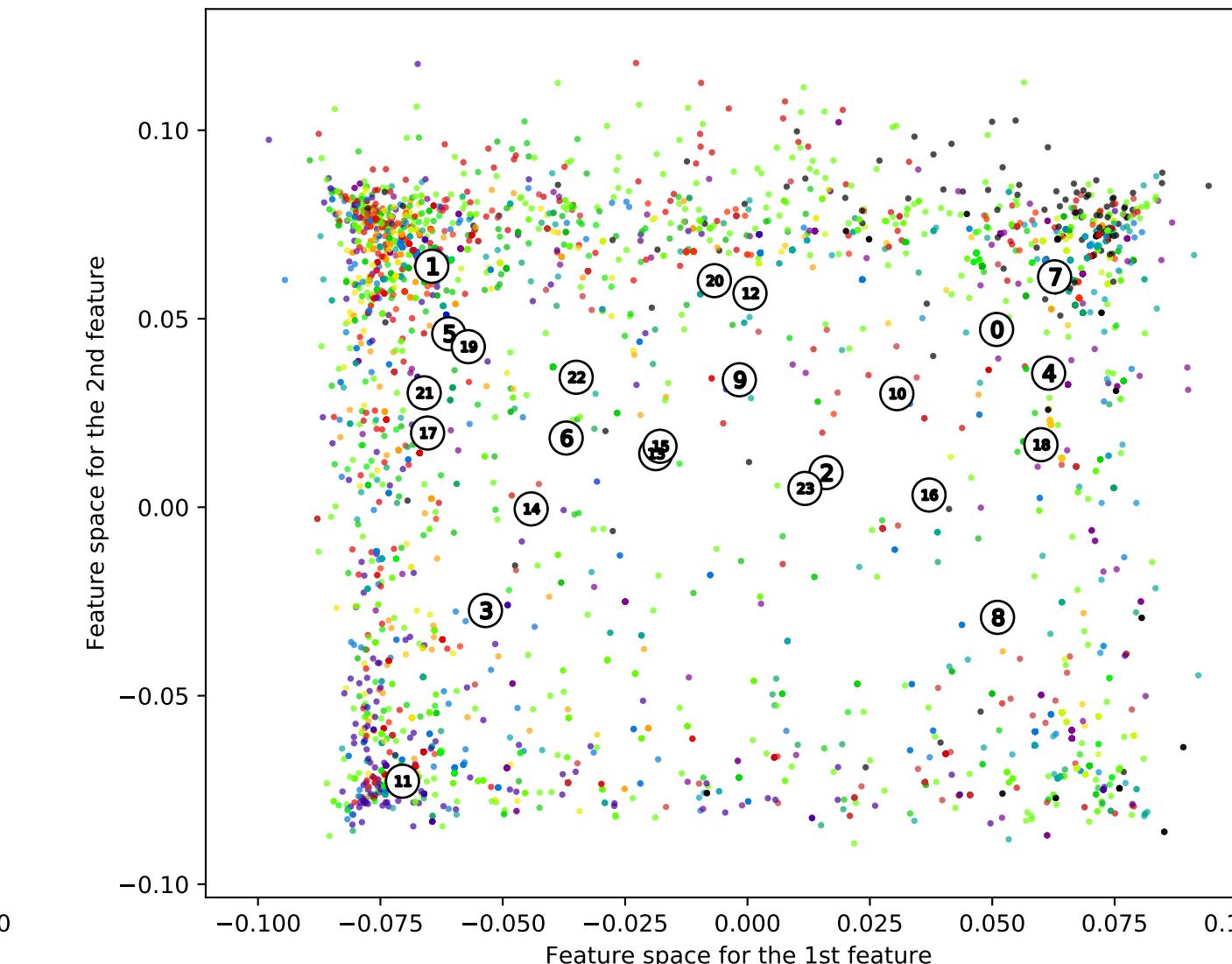


Silhouette analysis for KMeans clustering on sample data with n_clusters = 24 with Average Silhouette of: 0.2553640902042389

The silhouette plot for the various clusters.

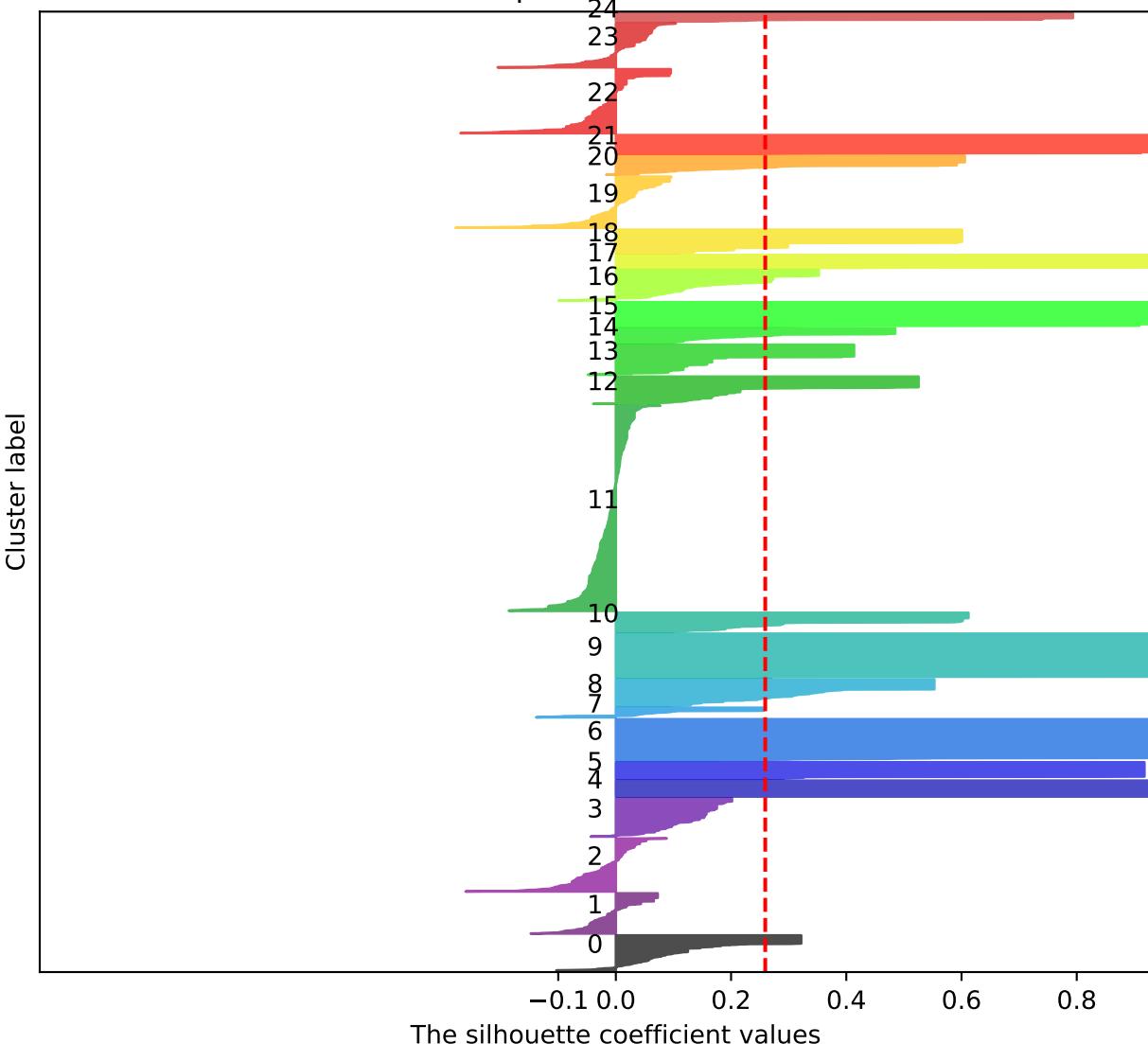


The visualization of the clustered data.

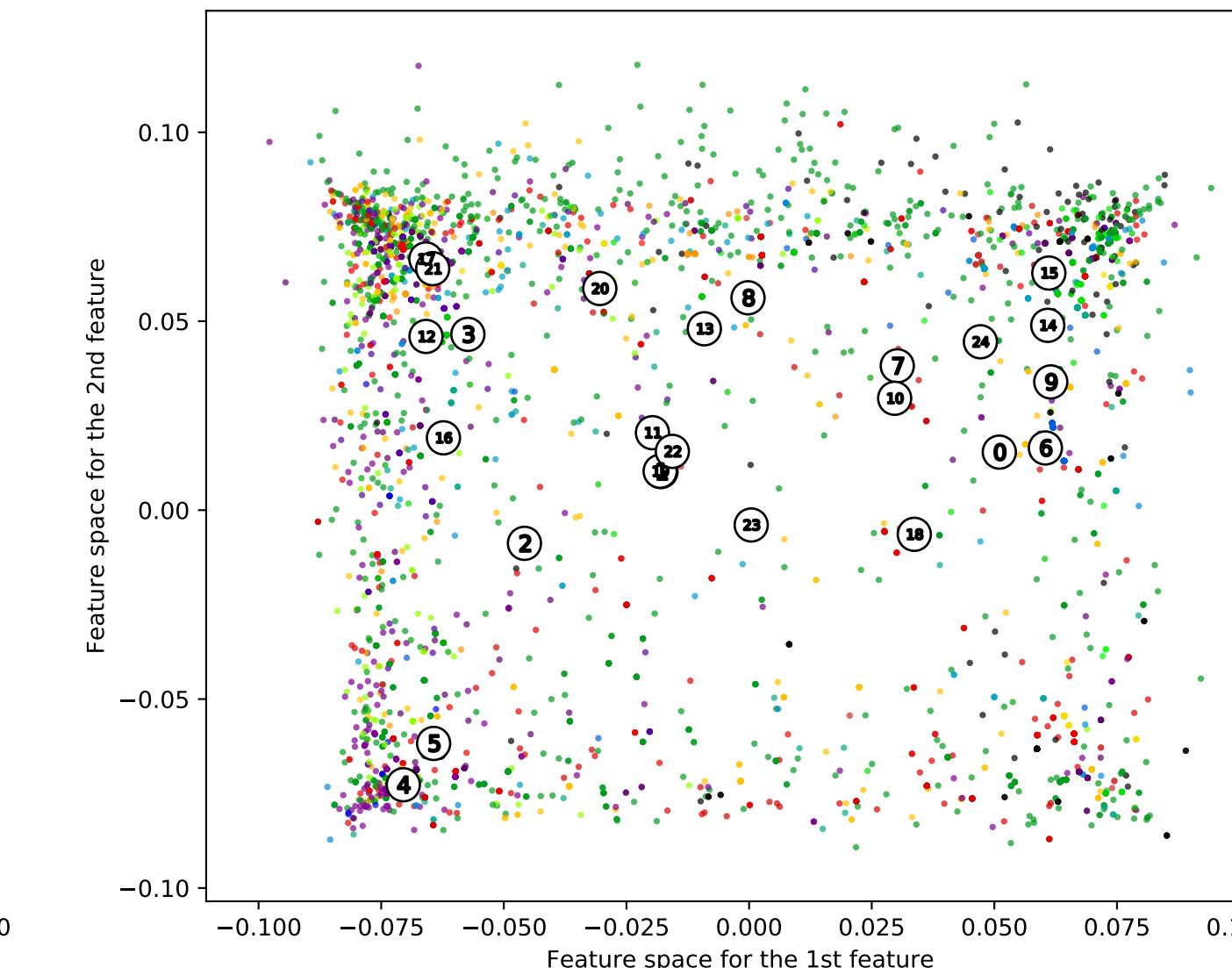


Silhouette analysis for KMeans clustering on sample data with n_clusters = 25 with Average Silhouette of: 0.2593276798725128

The silhouette plot for the various clusters.

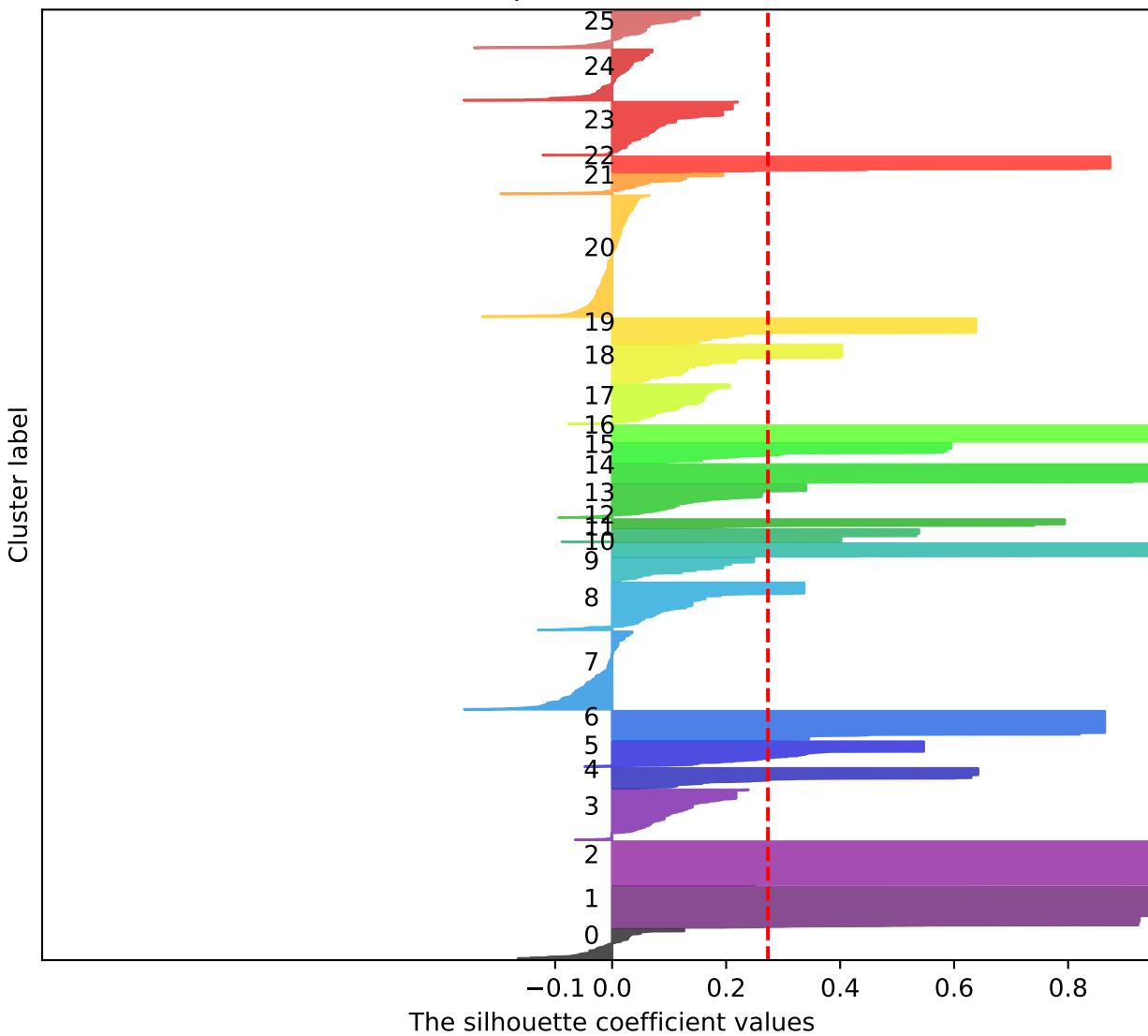


The visualization of the clustered data.

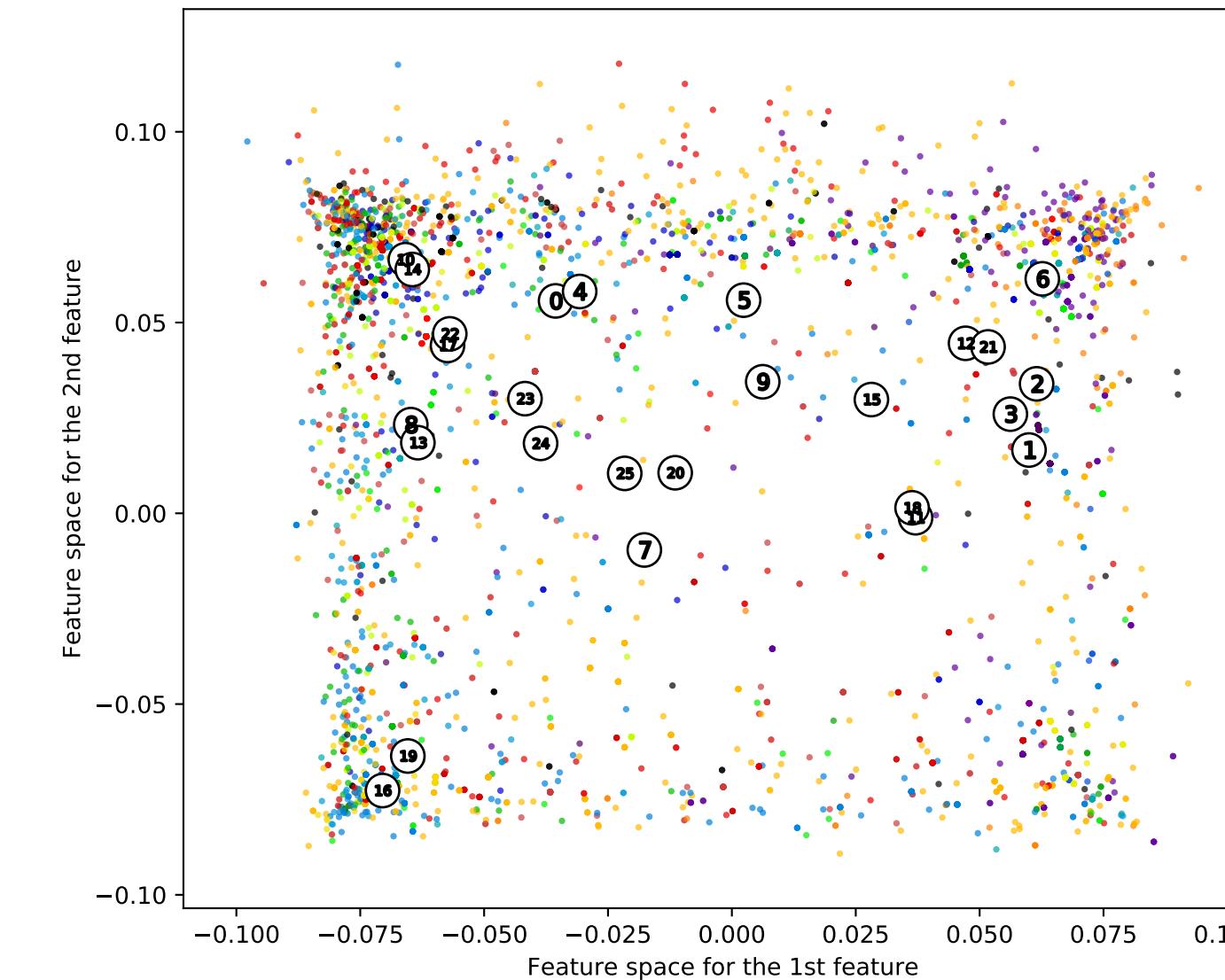


Silhouette analysis for KMeans clustering on sample data with n_clusters = 26 with Average Silhouette of: 0.27339234948158264

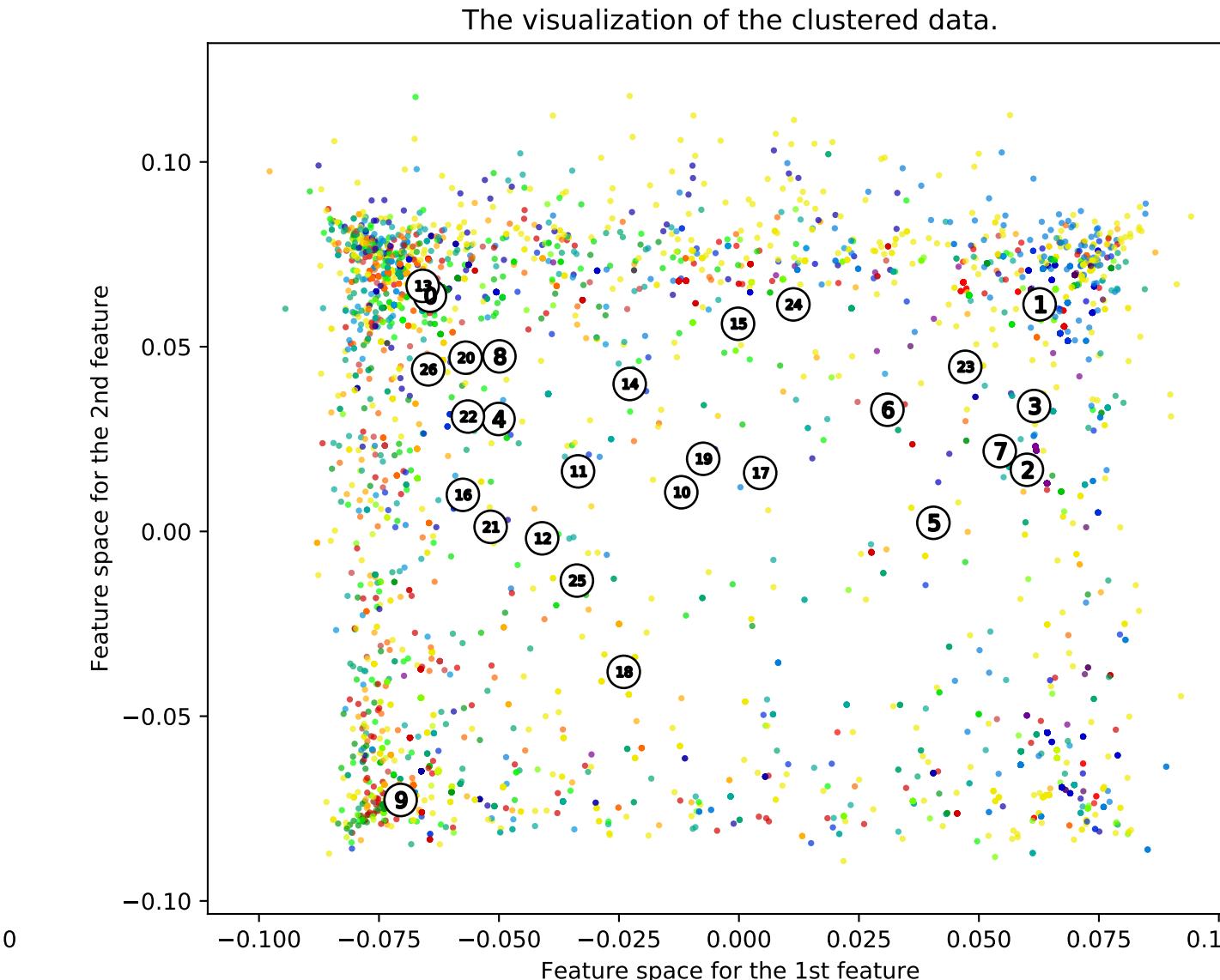
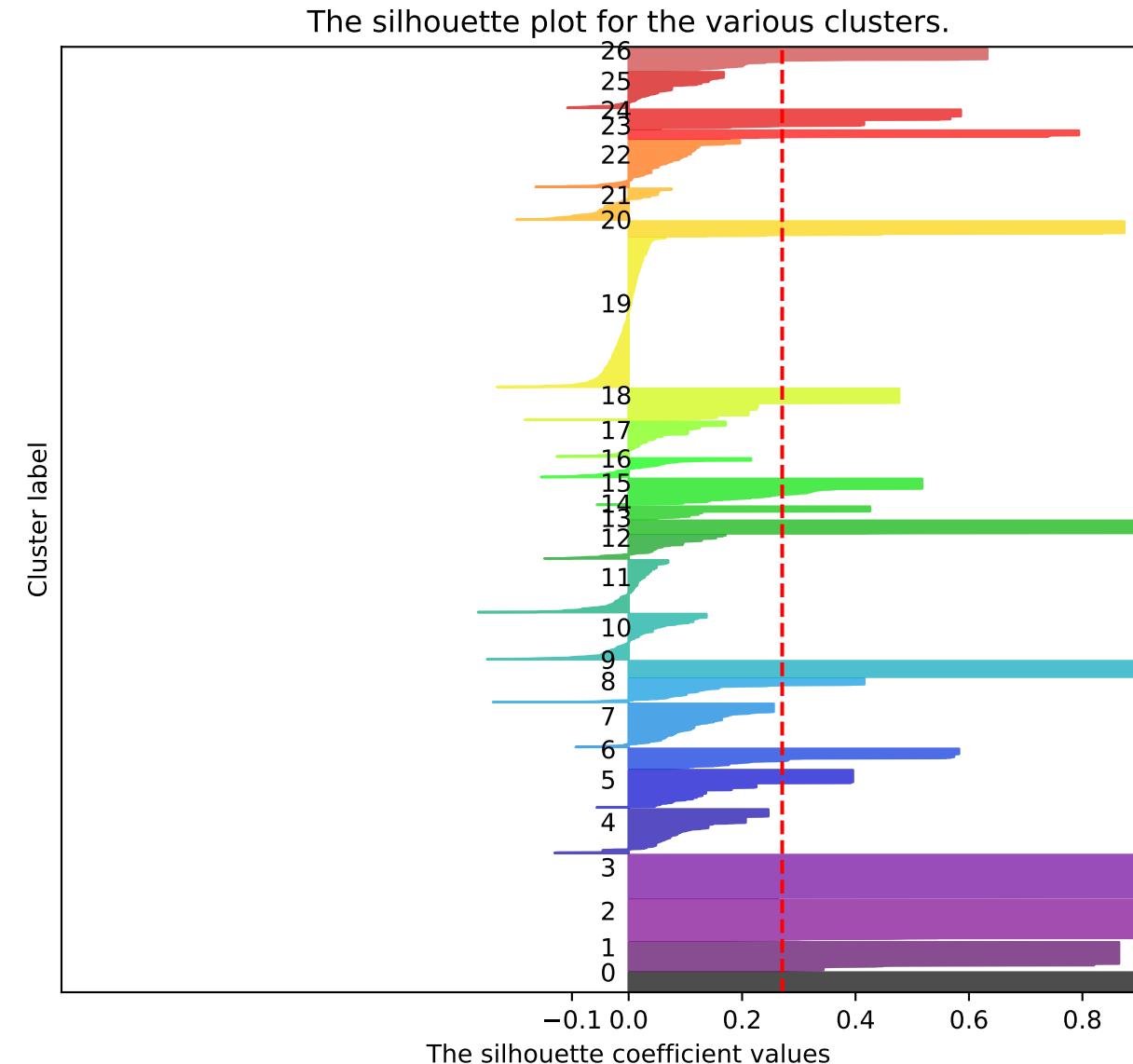
The silhouette plot for the various clusters.



The visualization of the clustered data.

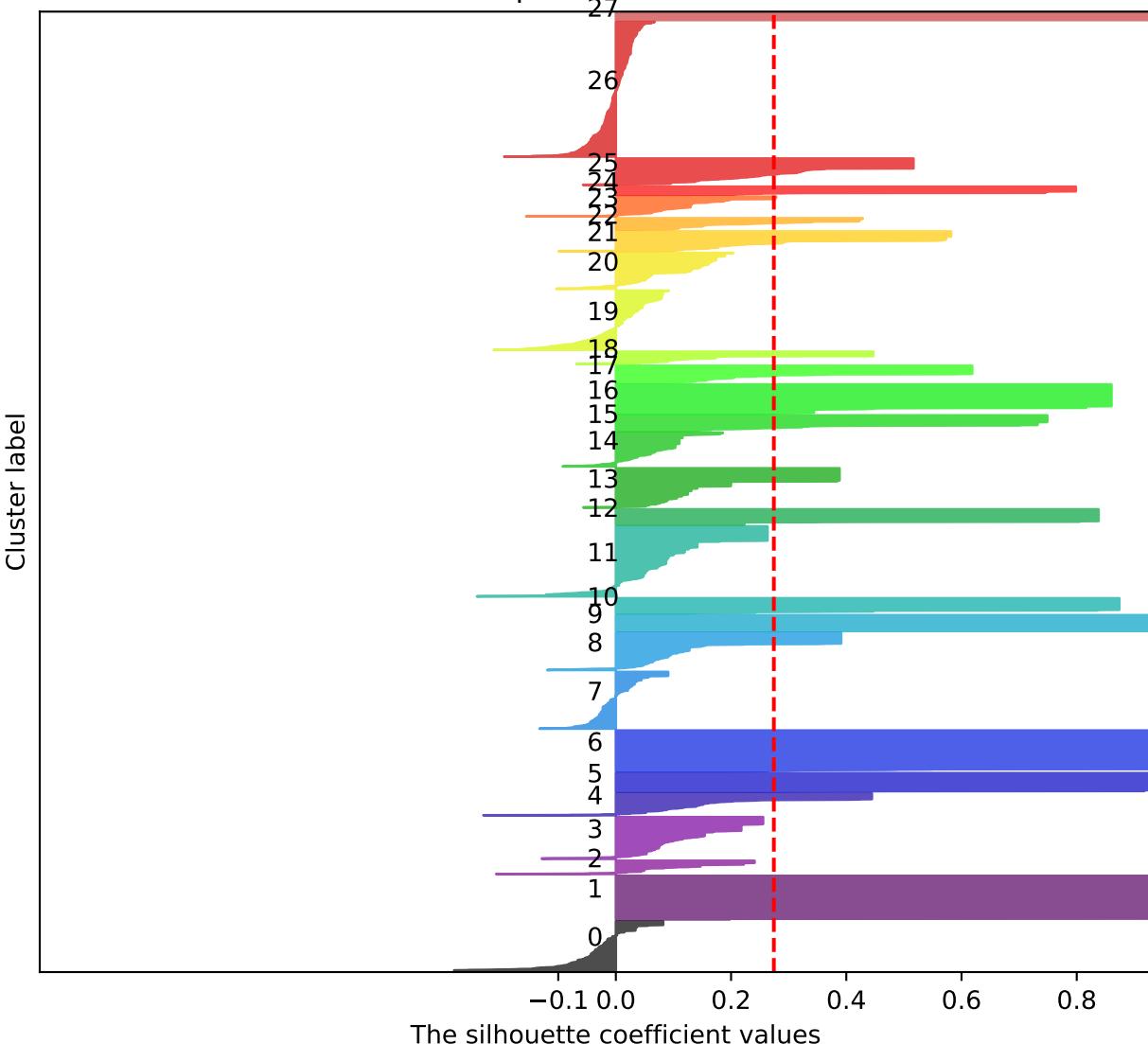


Silhouette analysis for KMeans clustering on sample data with n_clusters = 27 with Average Silhouette of: 0.27066925168037415

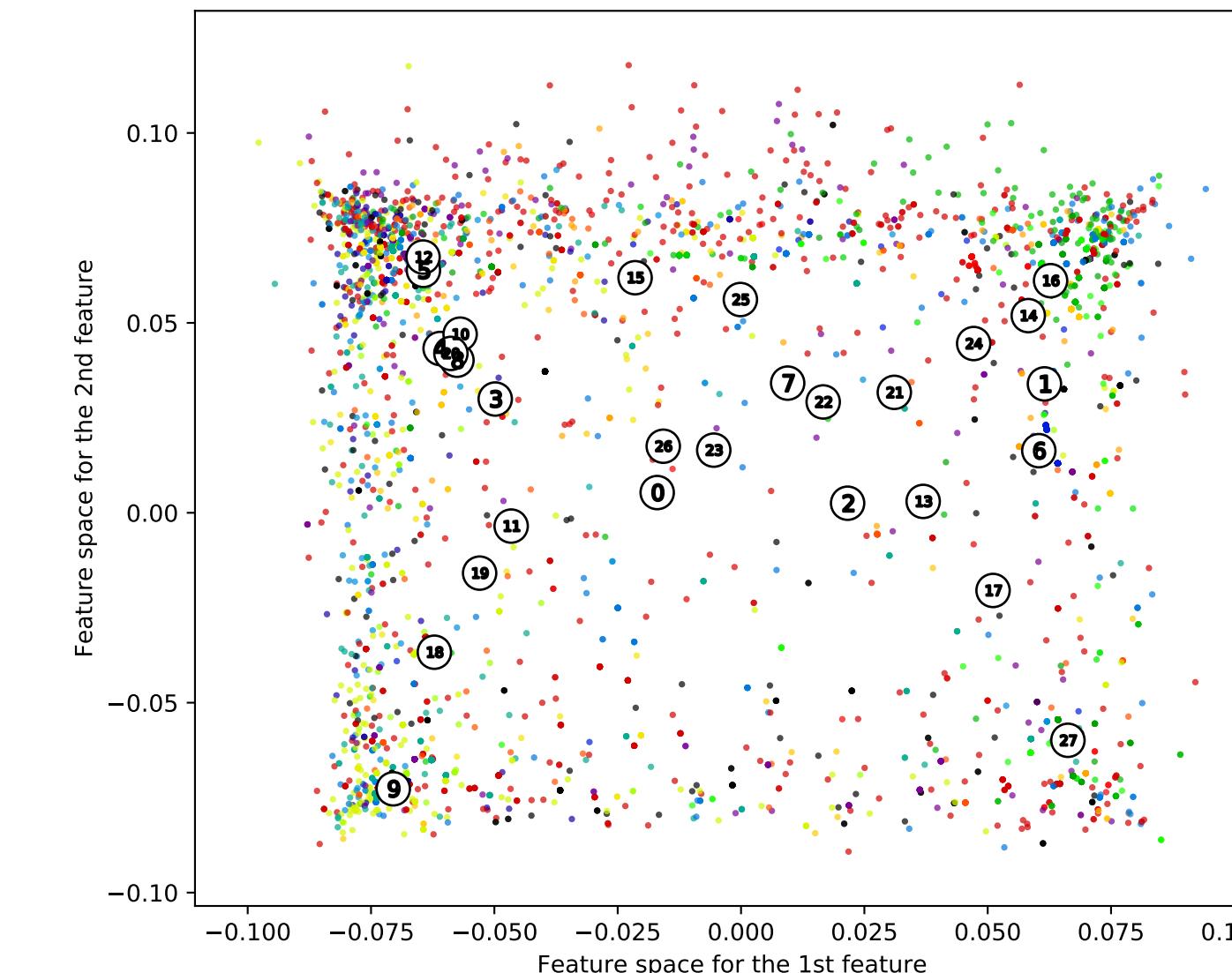


Silhouette analysis for KMeans clustering on sample data with n_clusters = 28 with Average Silhouette of: 0.2742205560207367

The silhouette plot for the various clusters.

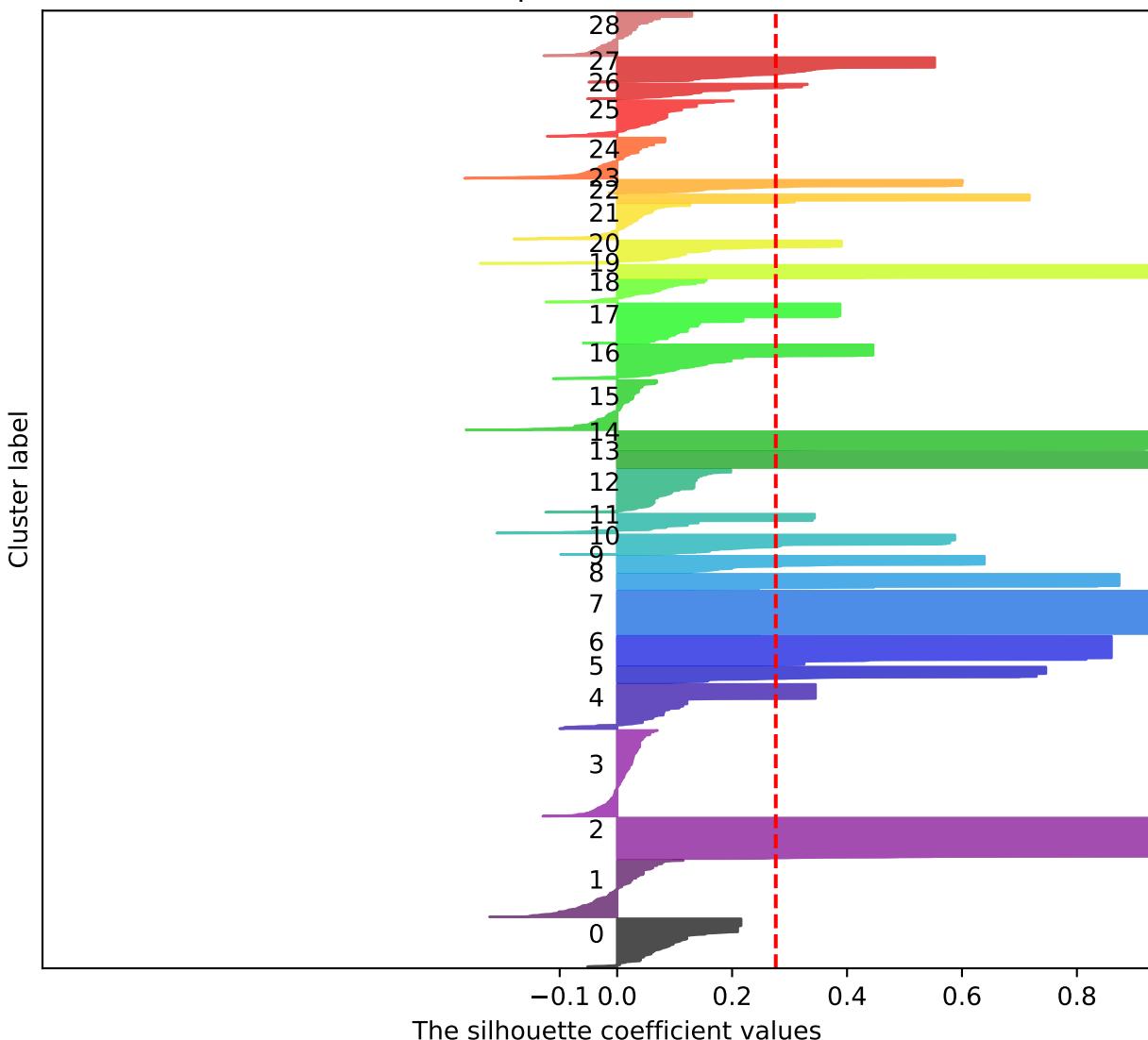


The visualization of the clustered data.

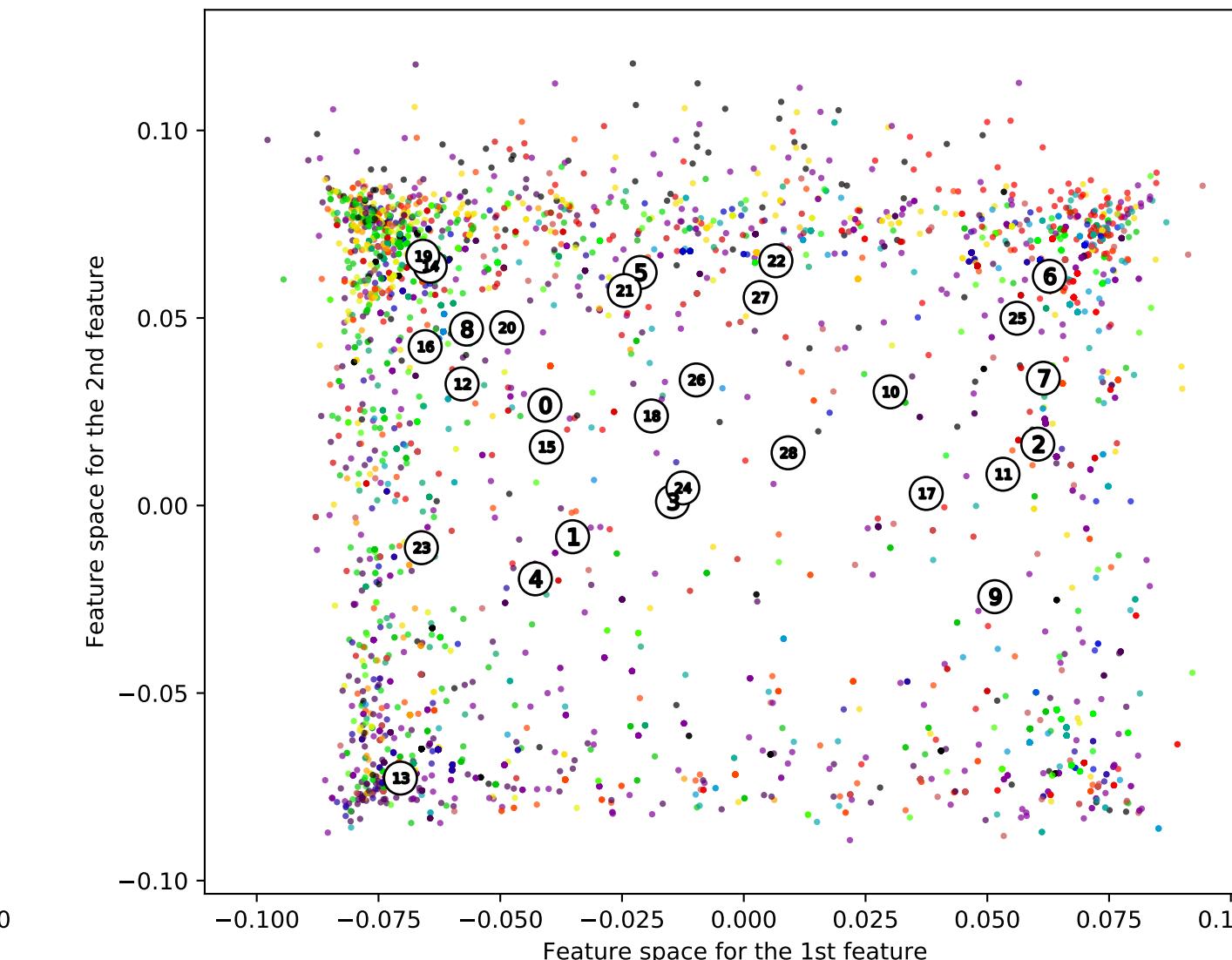


Silhouette analysis for KMeans clustering on sample data with n_clusters = 29 with Average Silhouette of: 0.2760086953639984

The silhouette plot for the various clusters.

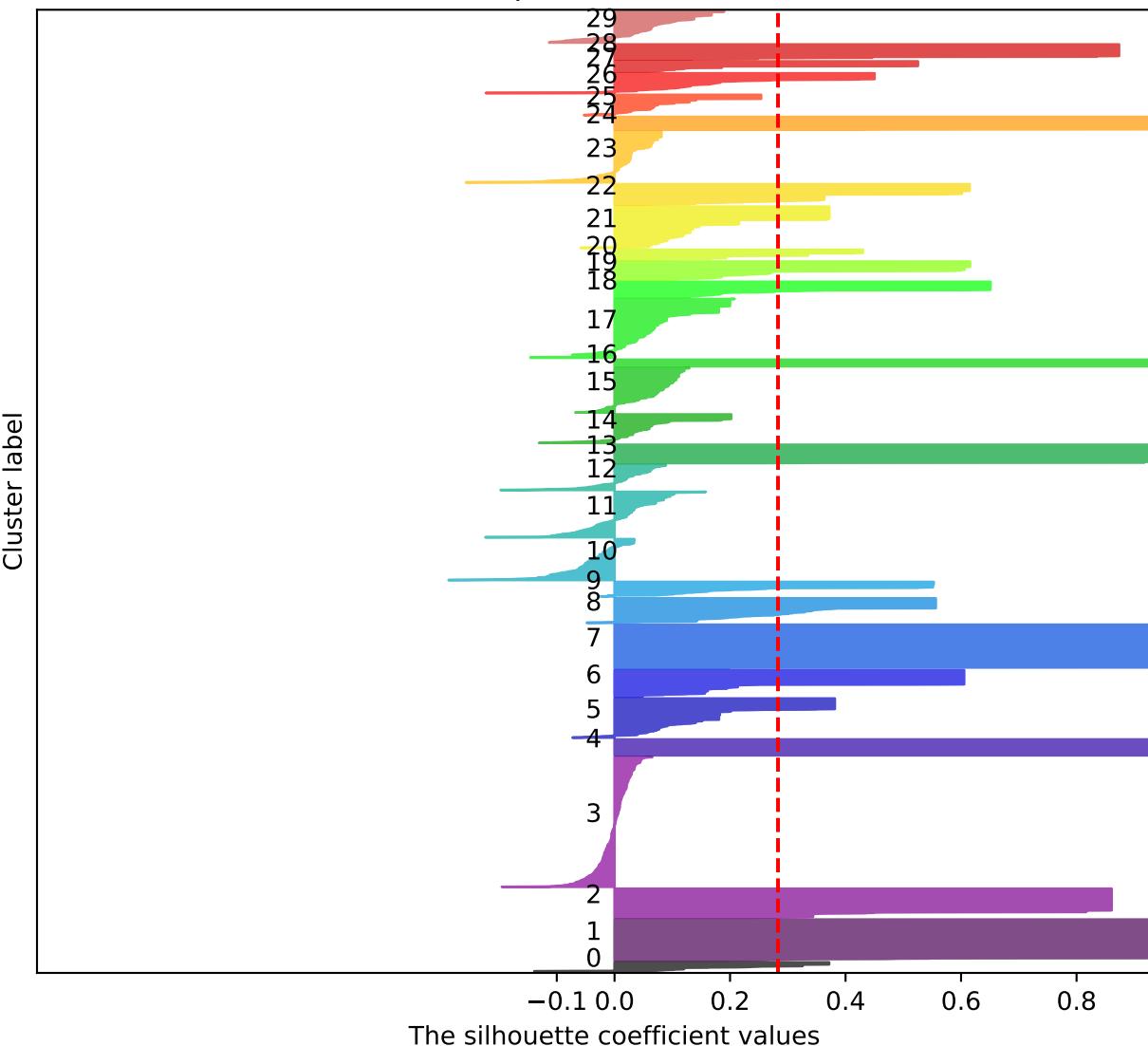


The visualization of the clustered data.

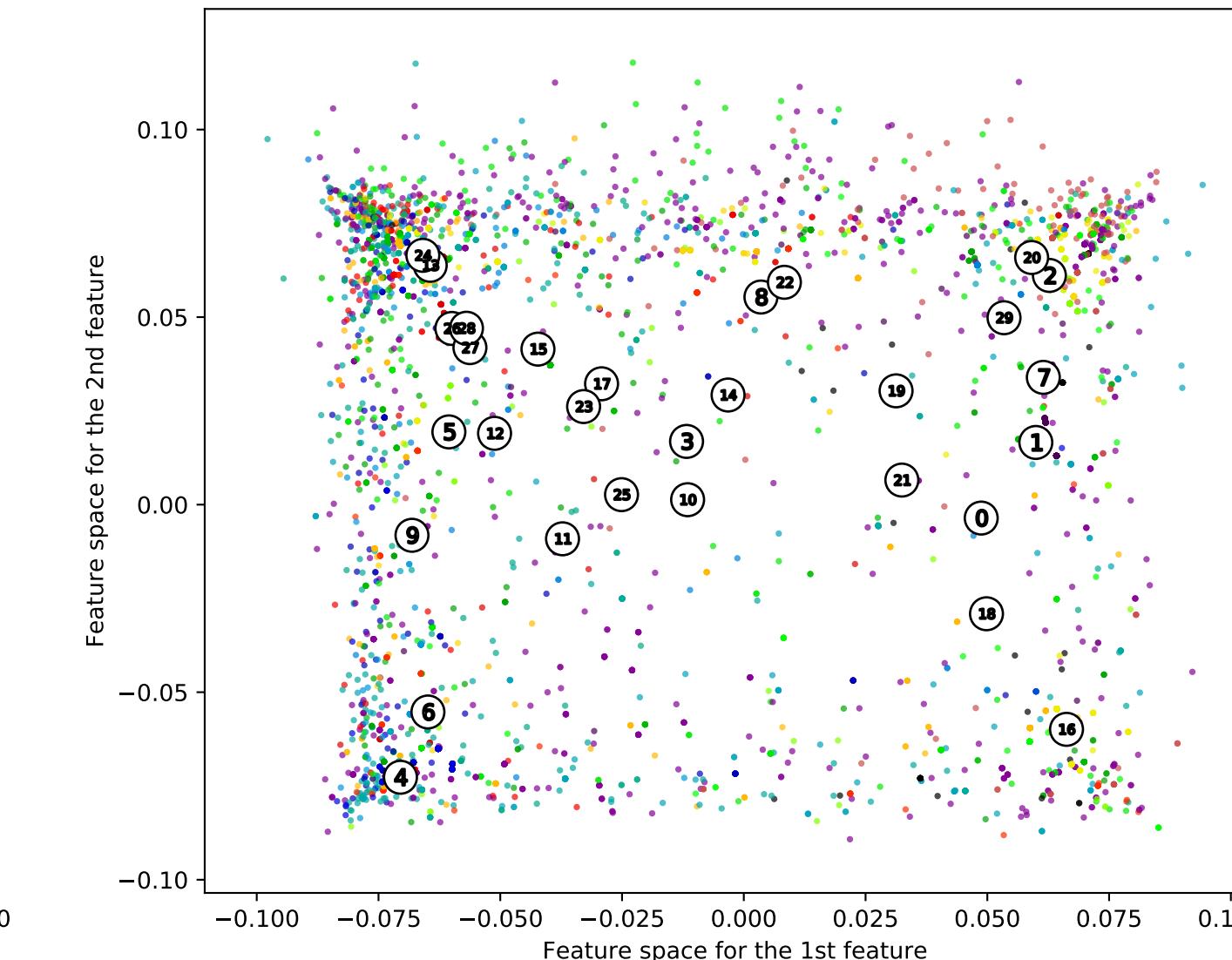


Silhouette analysis for KMeans clustering on sample data with n_clusters = 30 with Average Silhouette of: 0.28304189443588257

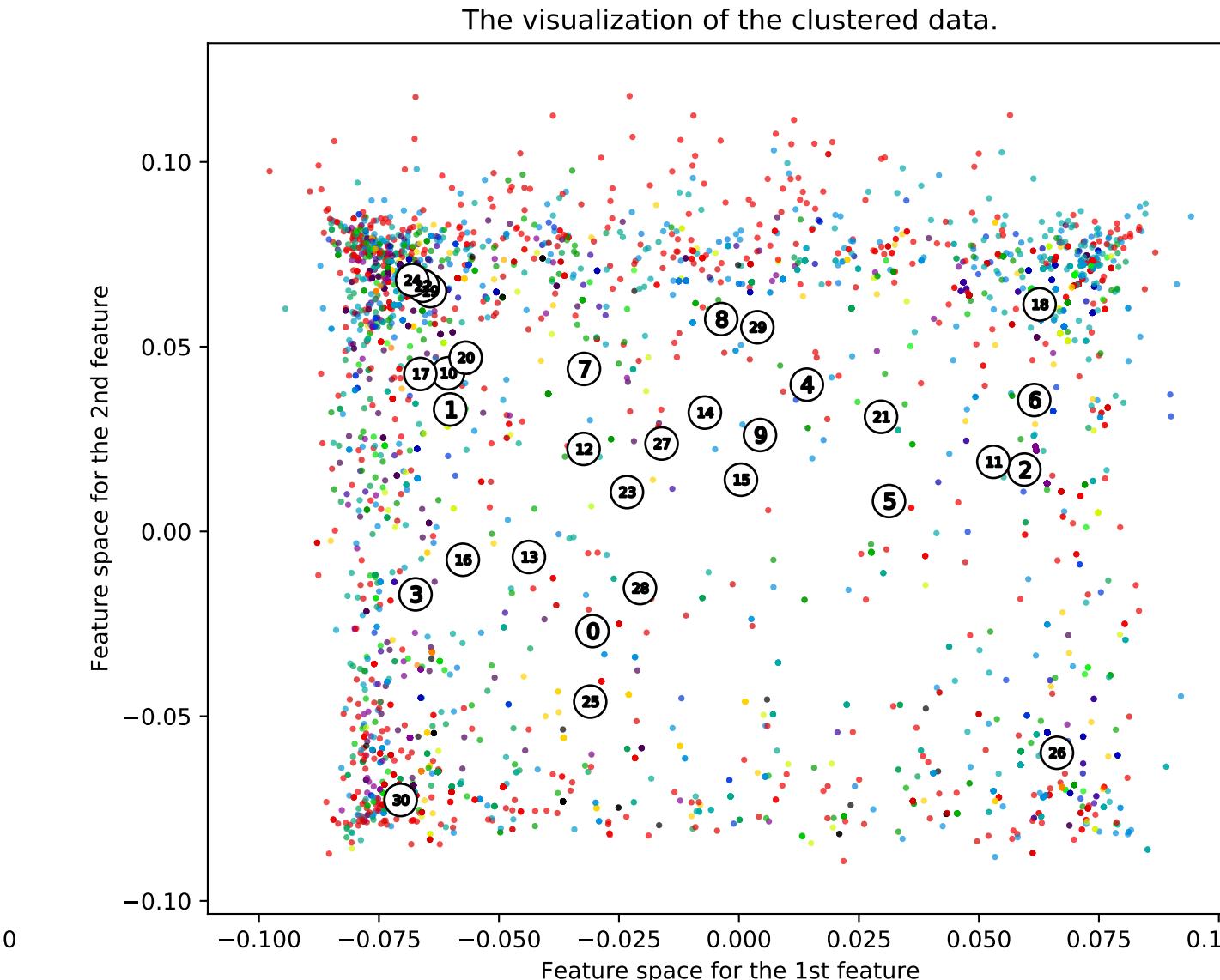
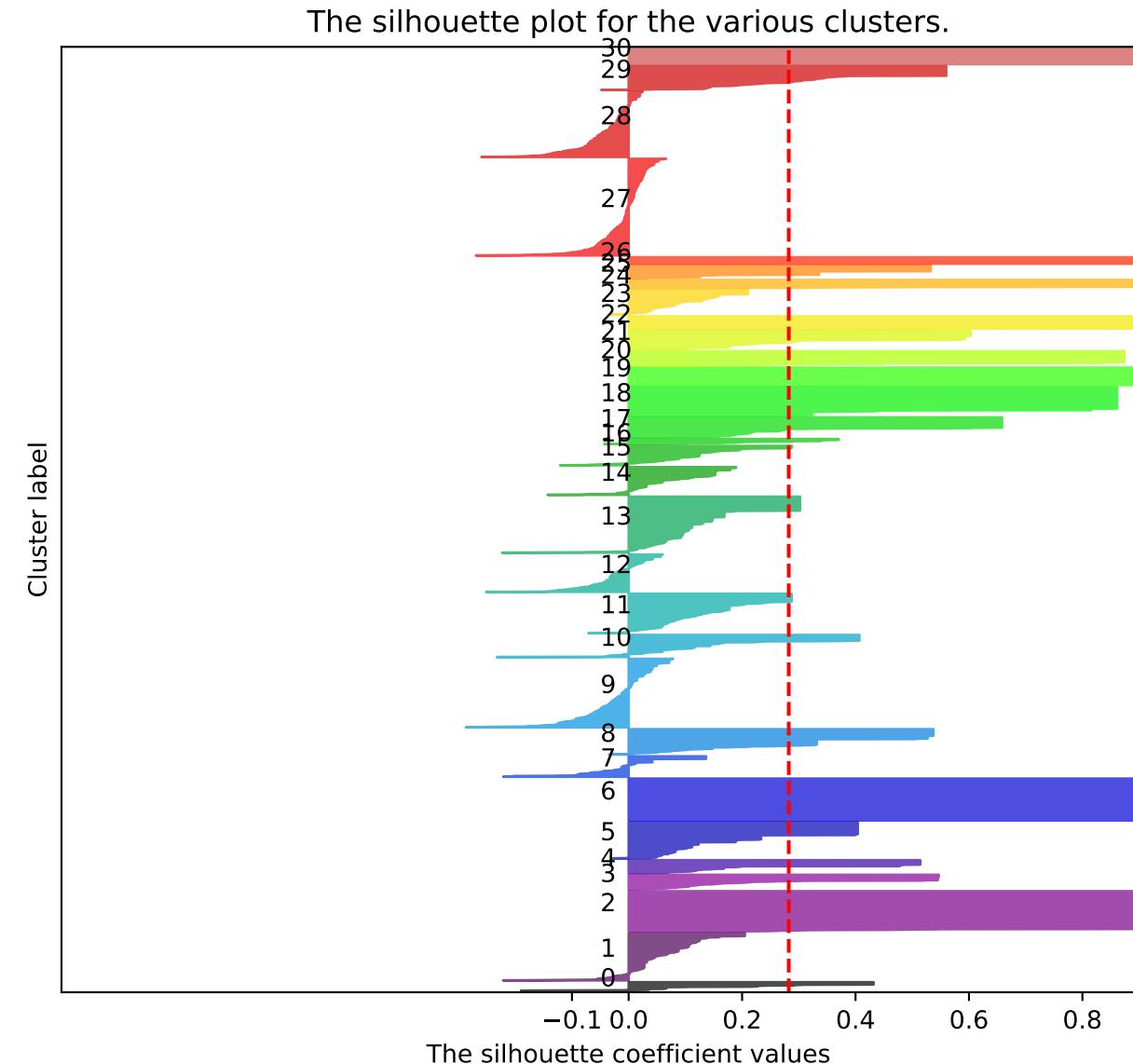
The silhouette plot for the various clusters.



The visualization of the clustered data.

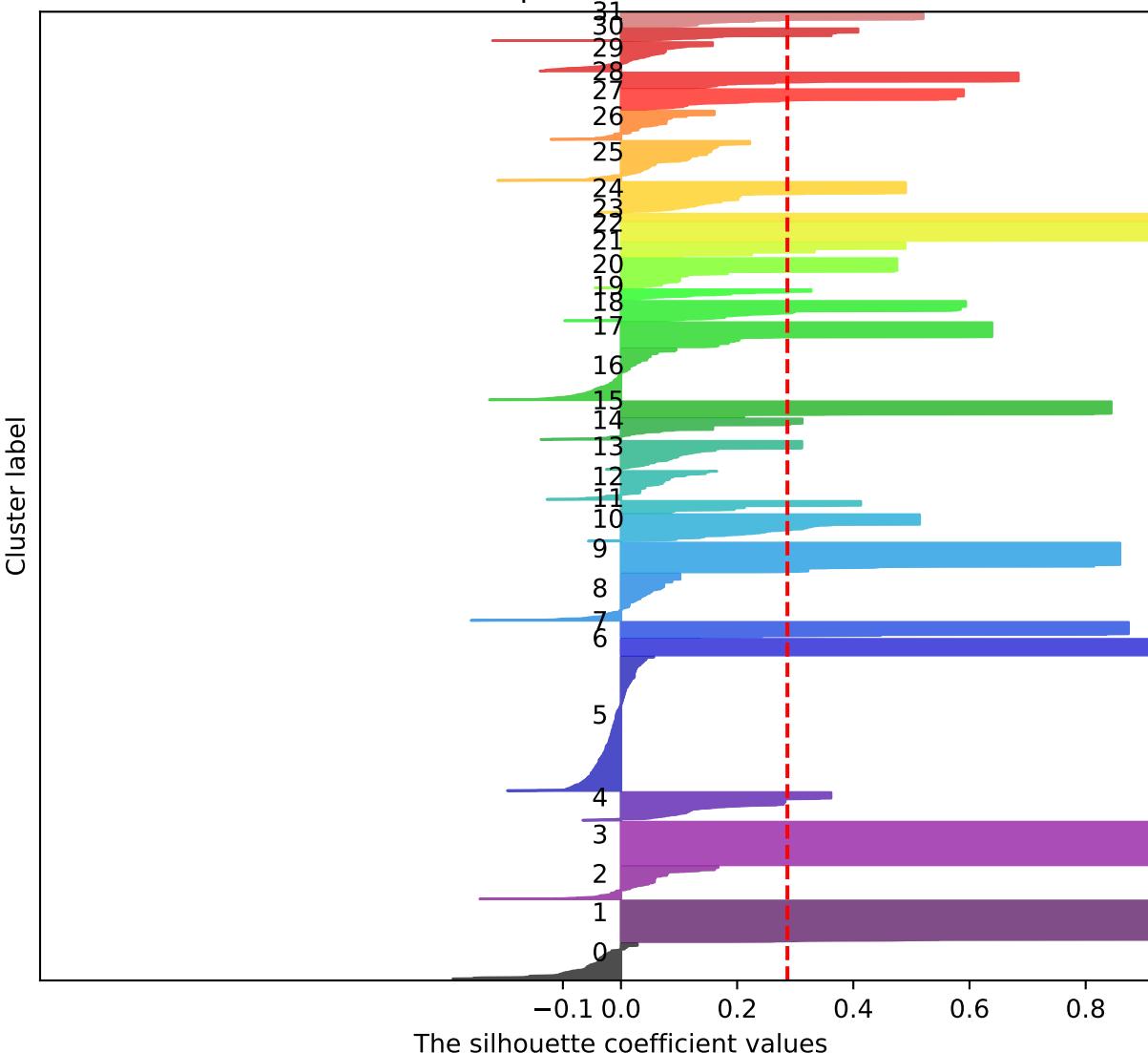


Silhouette analysis for KMeans clustering on sample data with n_clusters = 31 with Average Silhouette of: 0.28228798508644104

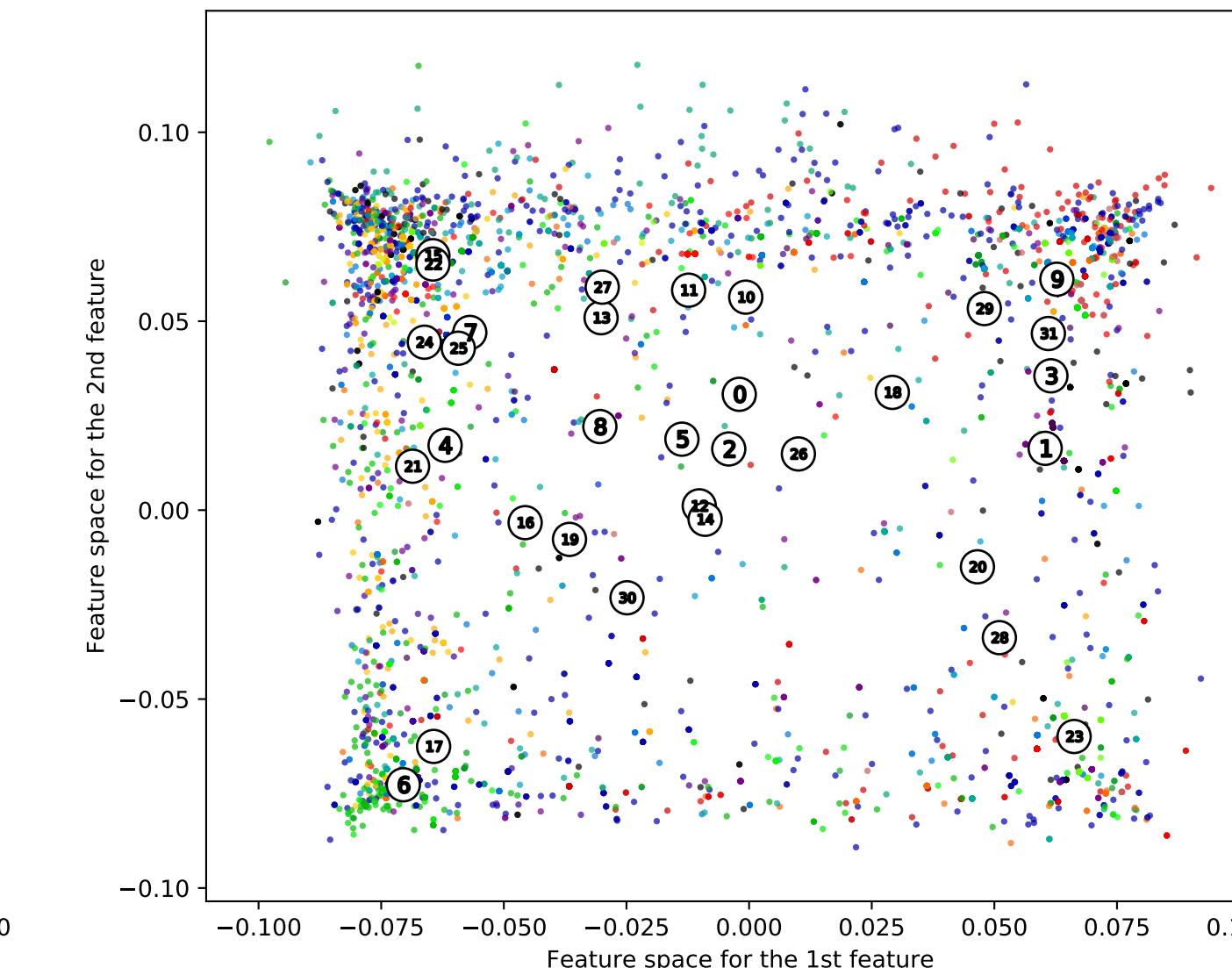


Silhouette analysis for KMeans clustering on sample data with n_clusters = 32 with Average Silhouette of: 0.2864855229854584

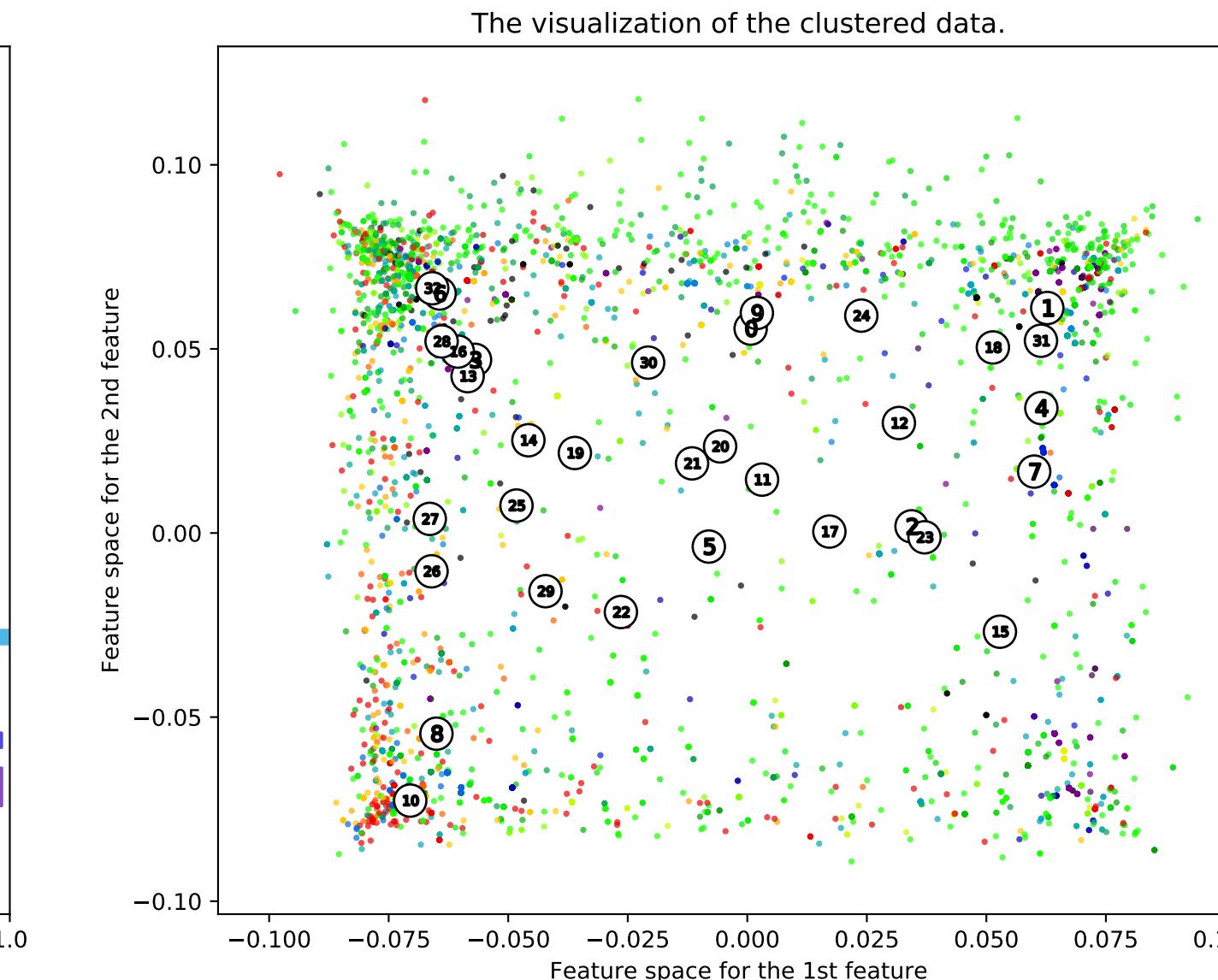
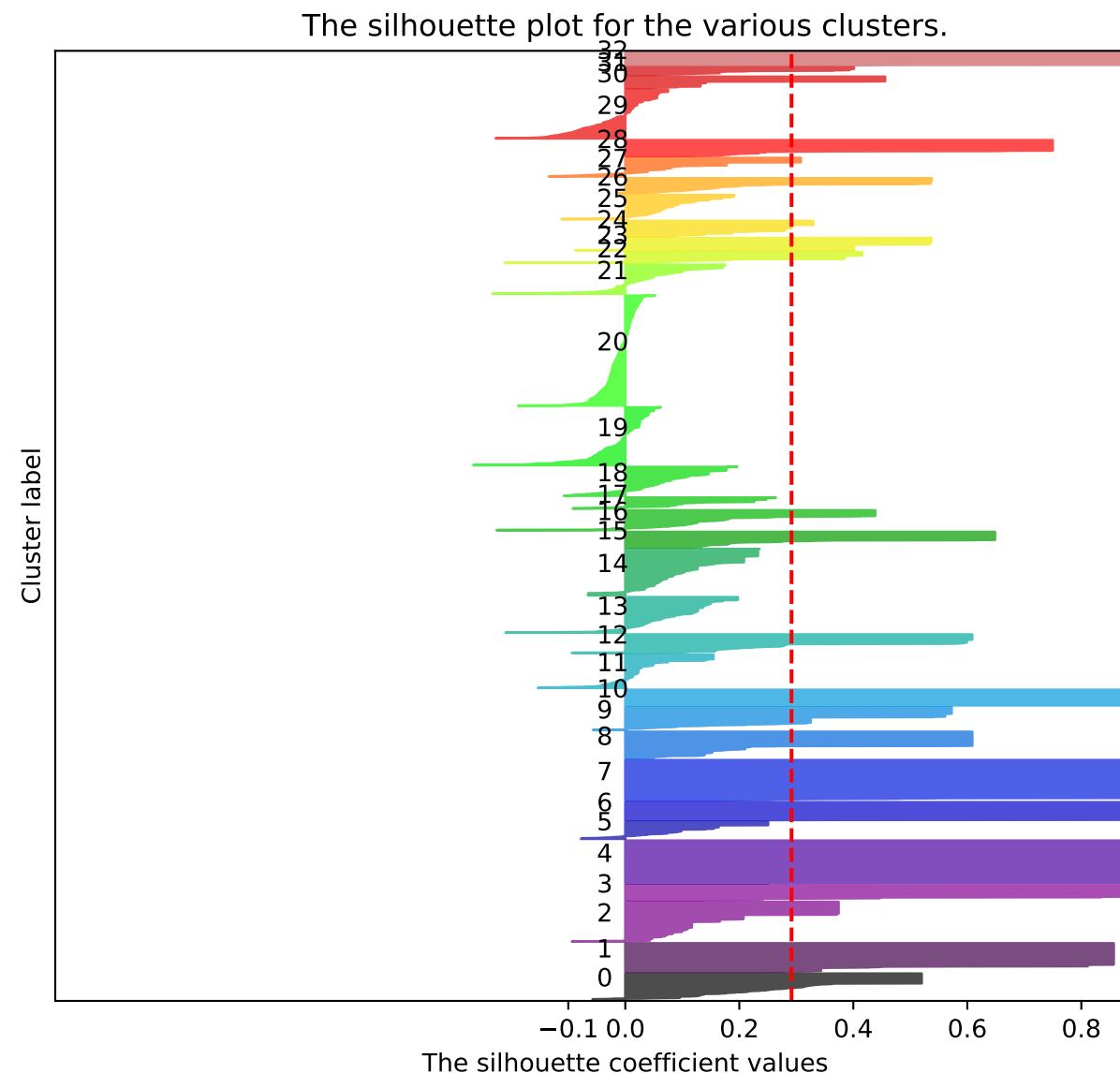
The silhouette plot for the various clusters.



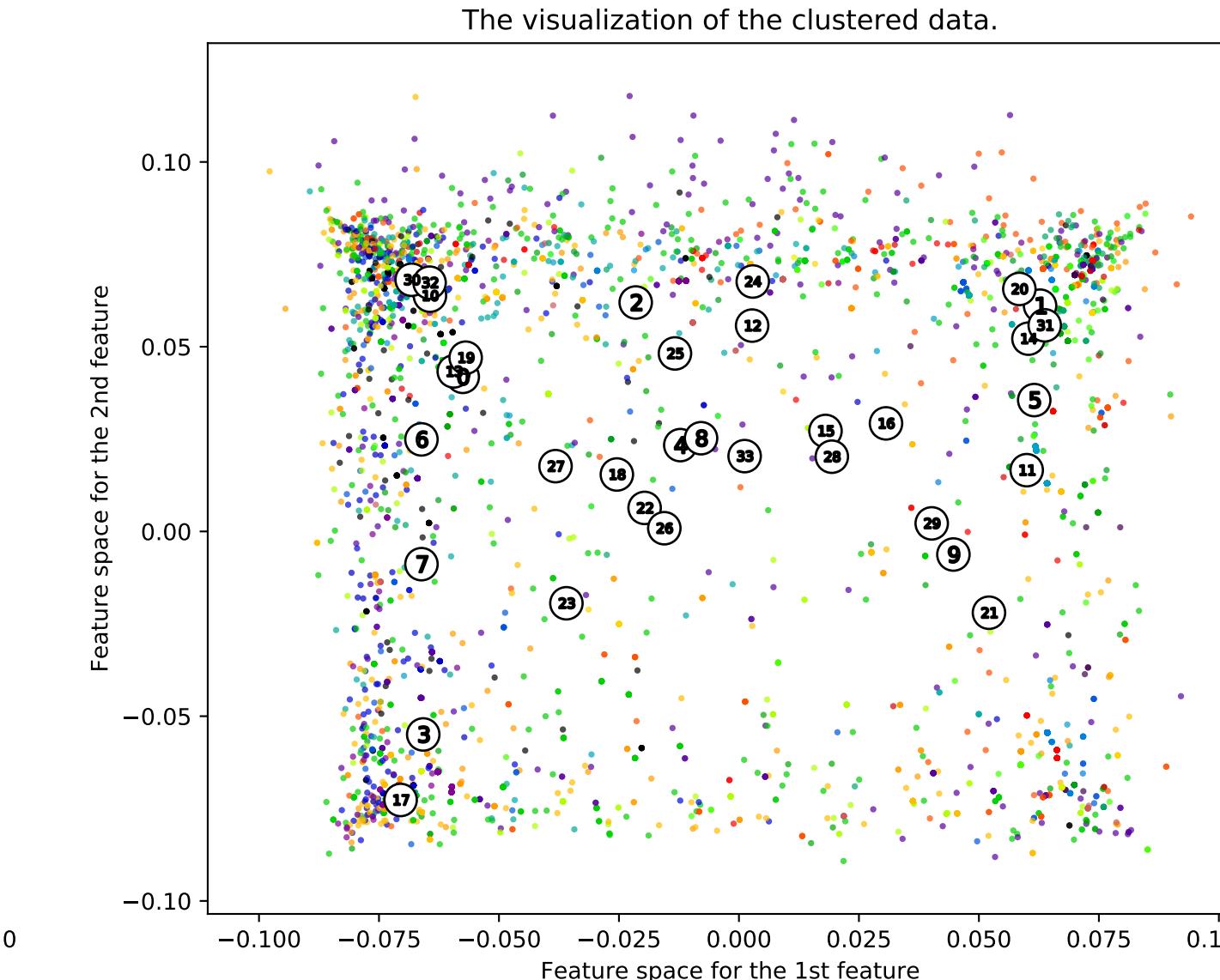
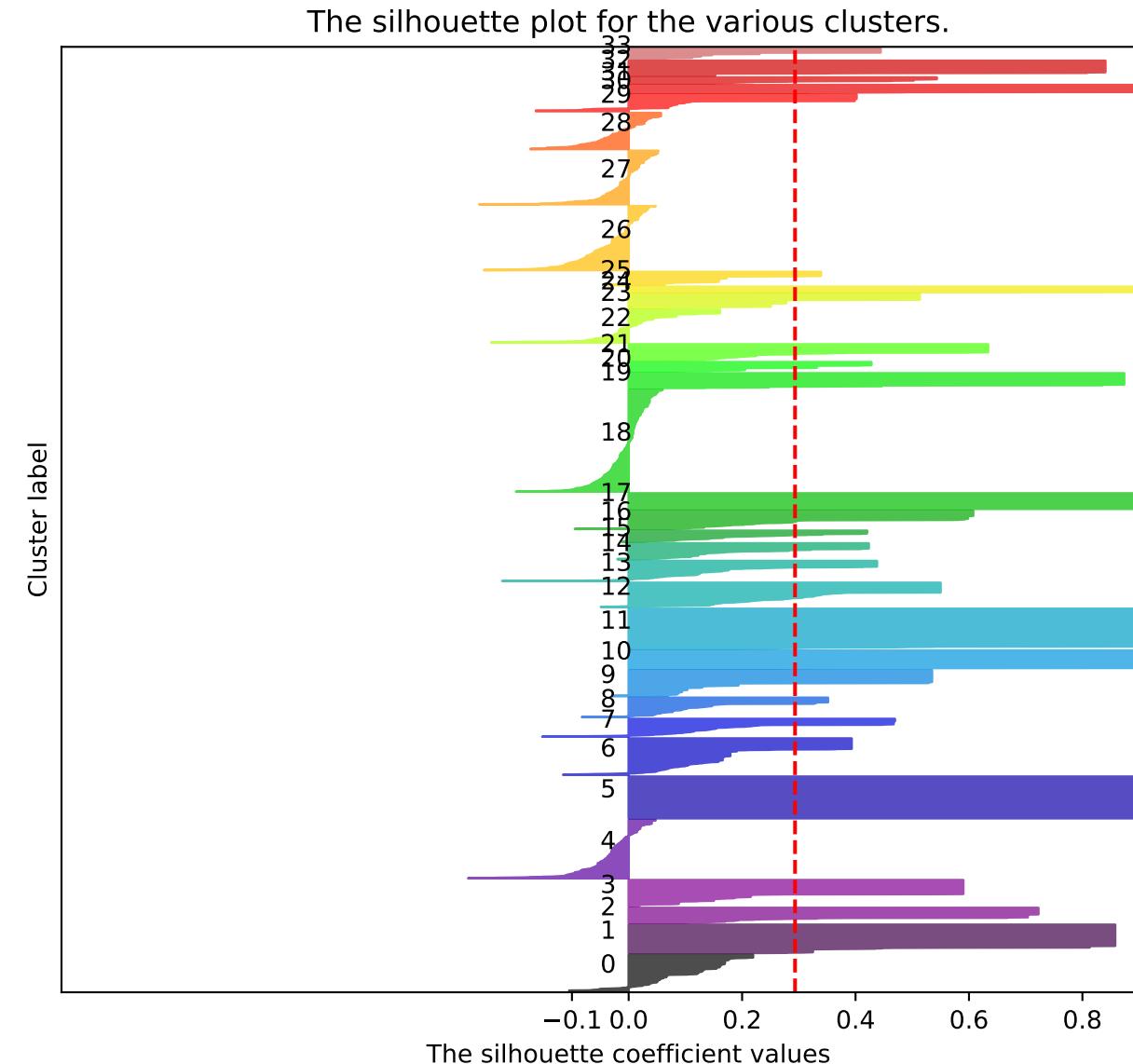
The visualization of the clustered data.



Silhouette analysis for KMeans clustering on sample data with n_clusters = 33 with Average Silhouette of: 0.291567325592041

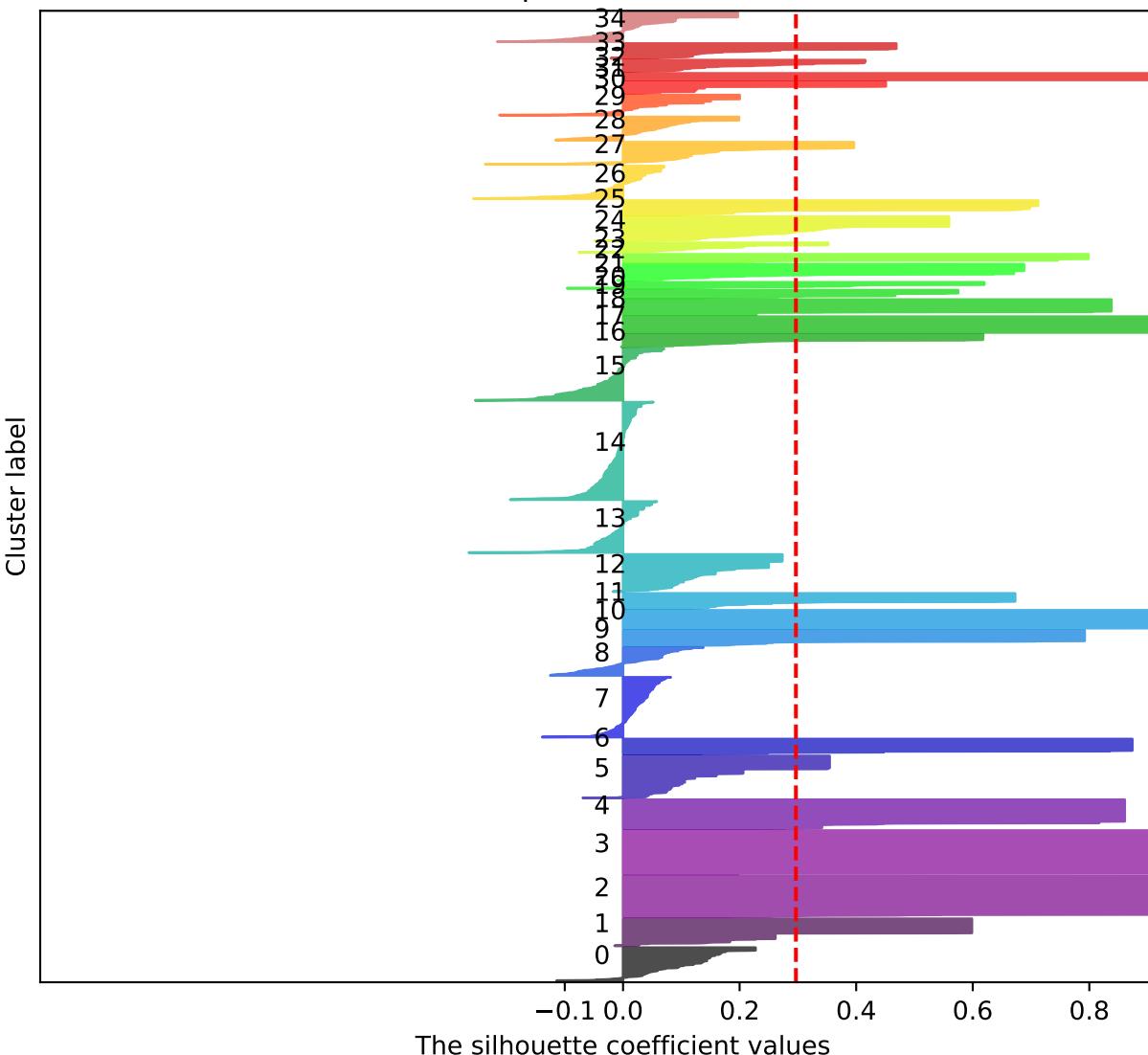


Silhouette analysis for KMeans clustering on sample data with n_clusters = 34 with Average Silhouette of: 0.29331377148628235

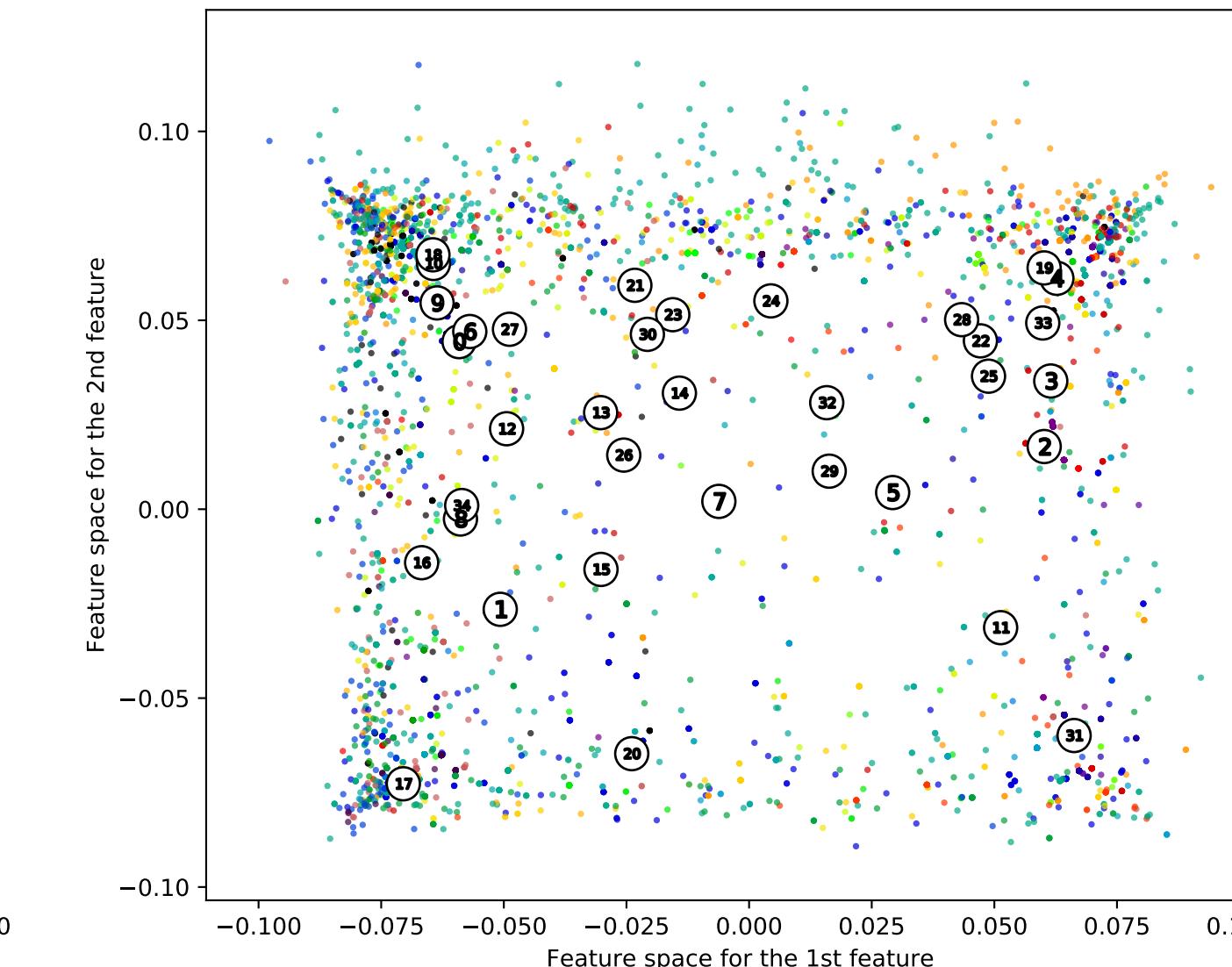


Silhouette analysis for KMeans clustering on sample data with n_clusters = 35 with Average Silhouette of: 0.2965860664844513

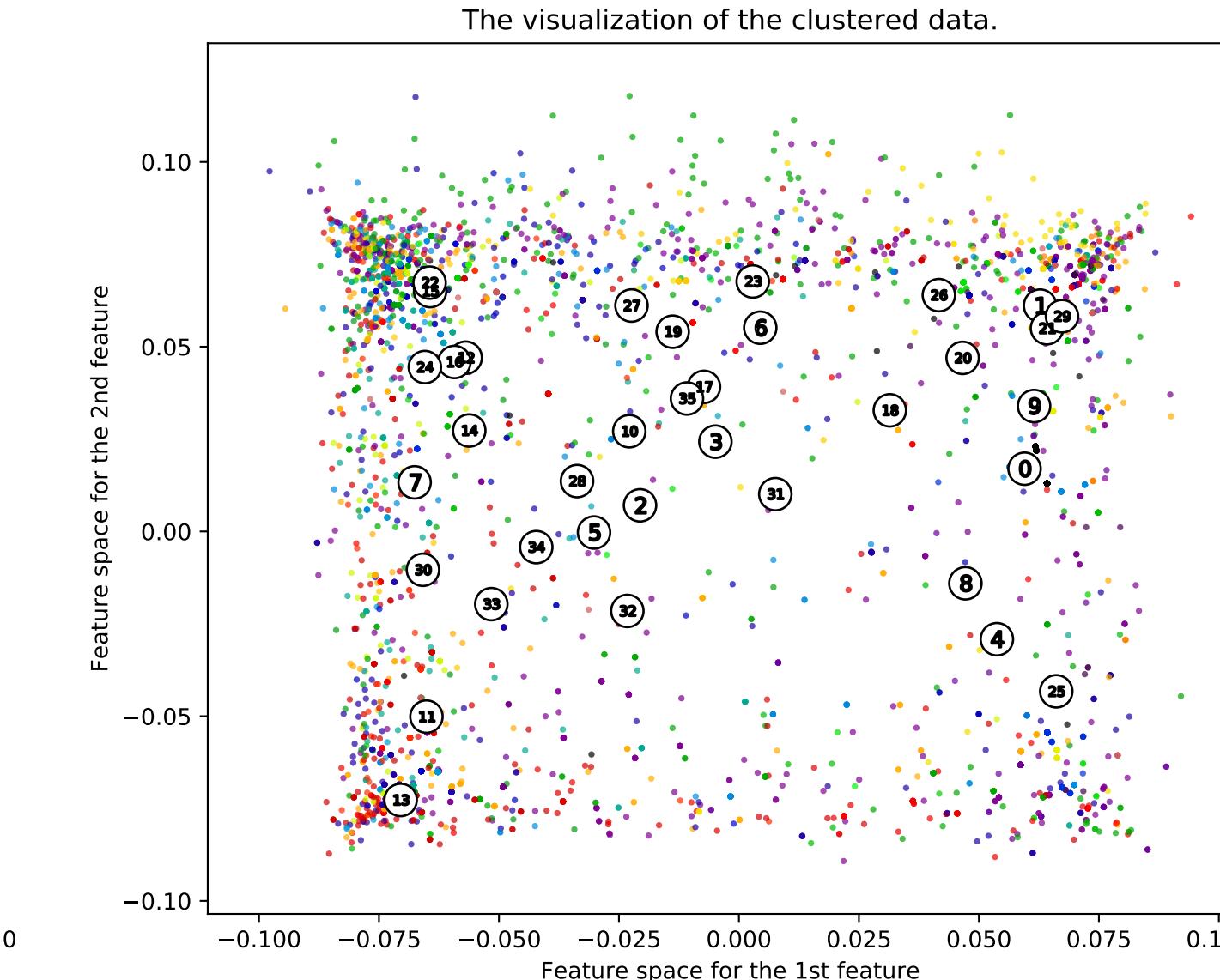
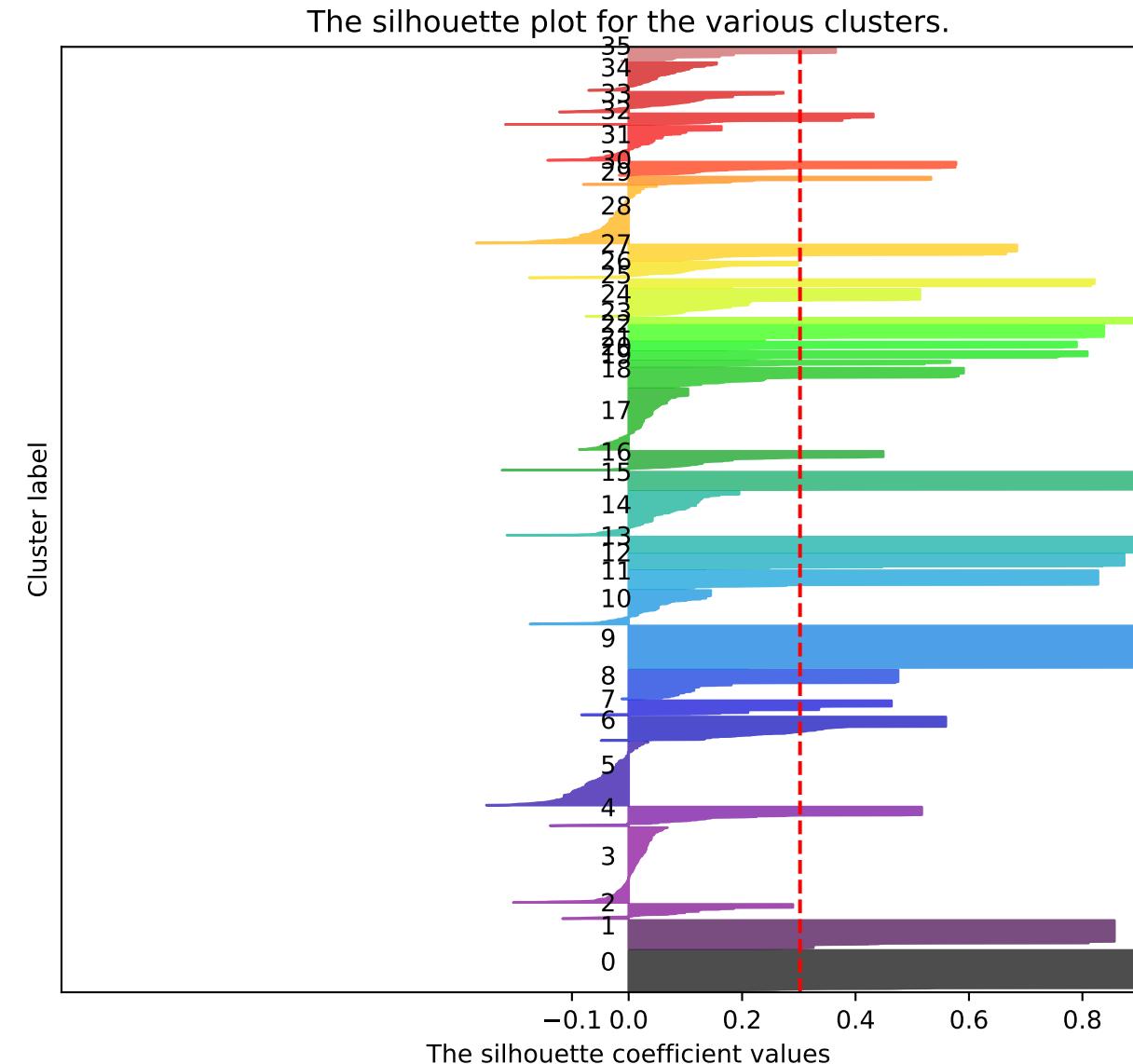
The silhouette plot for the various clusters.



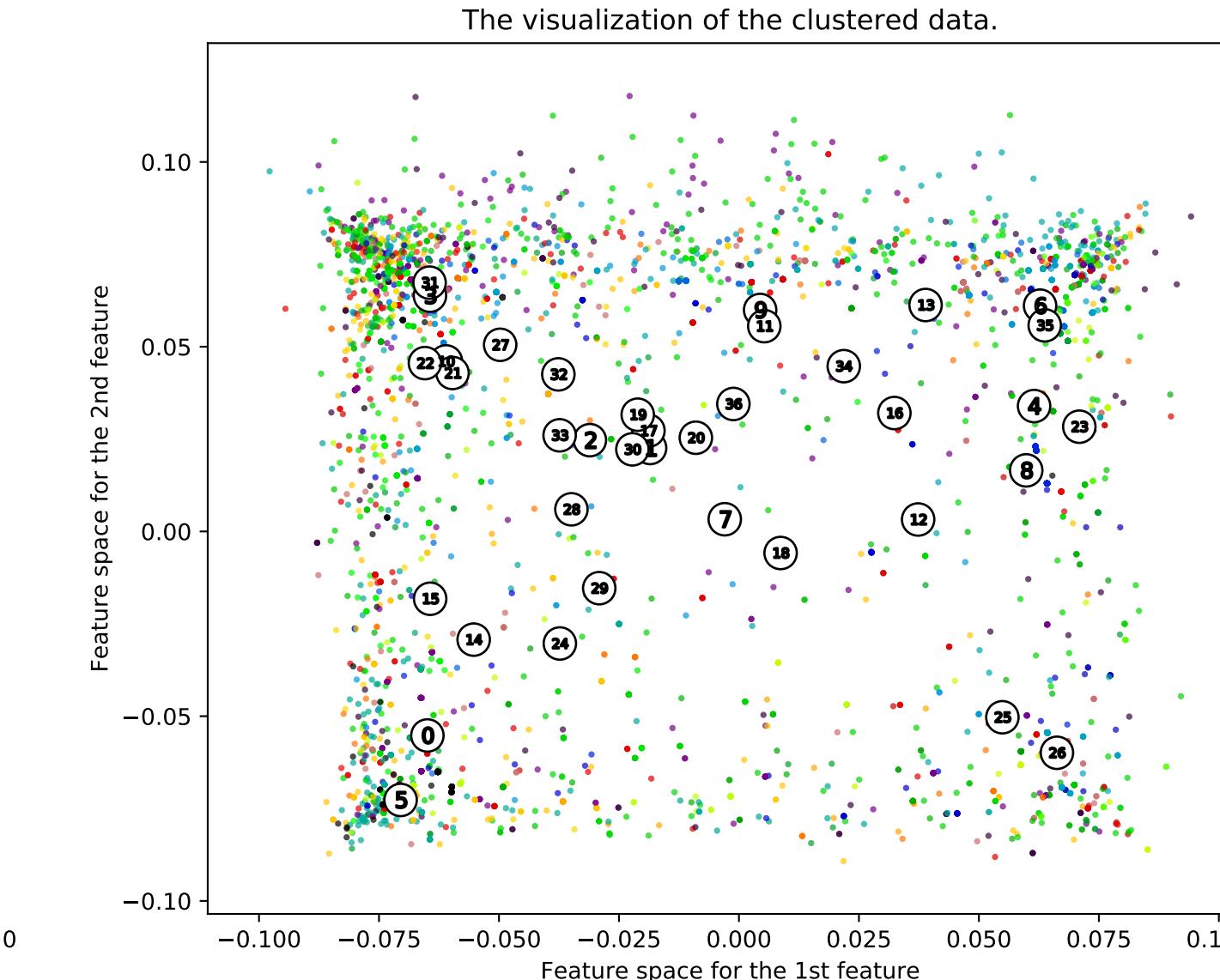
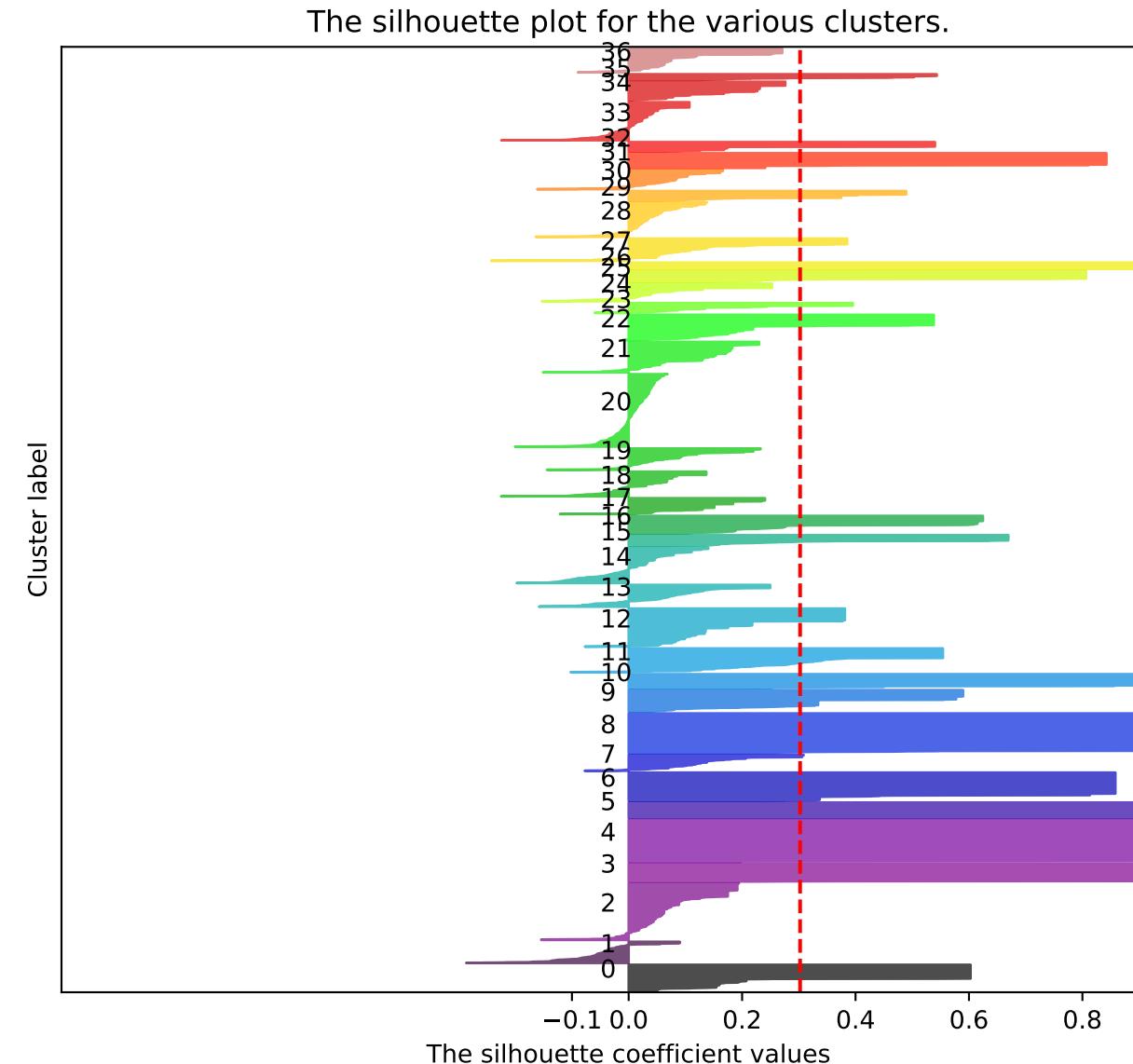
The visualization of the clustered data.



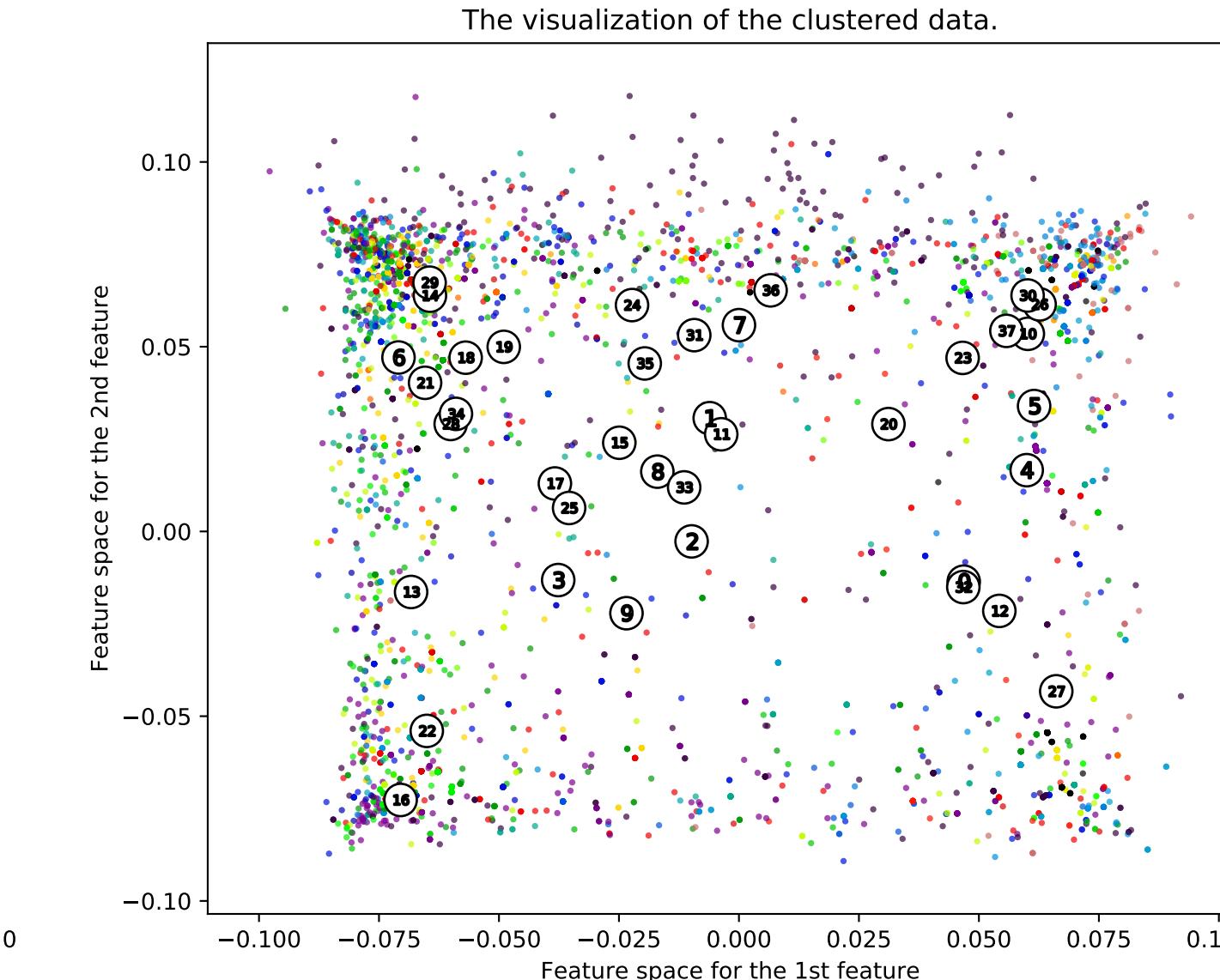
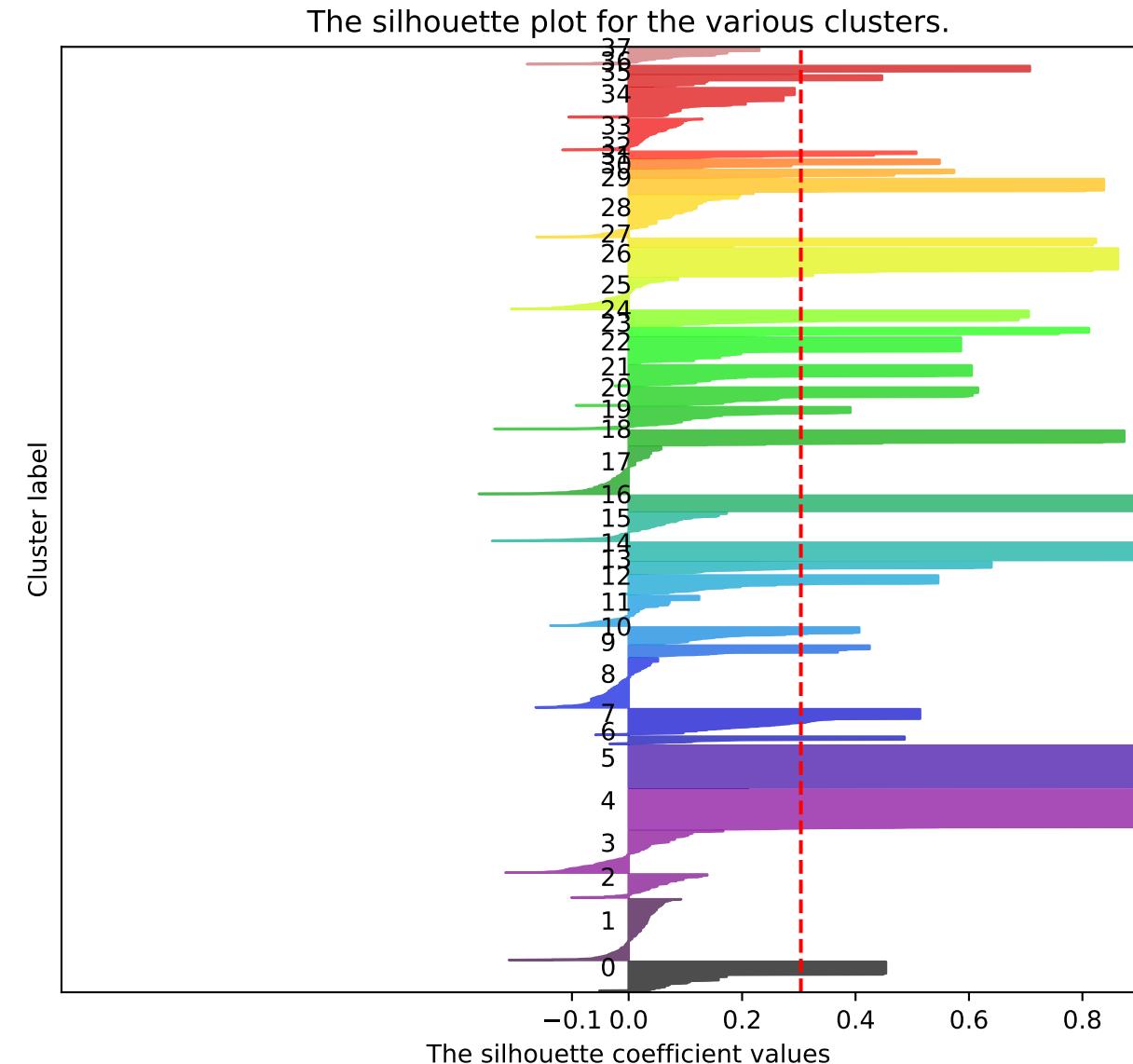
Silhouette analysis for KMeans clustering on sample data with n_clusters = 36 with Average Silhouette of: 0.30216291546821594



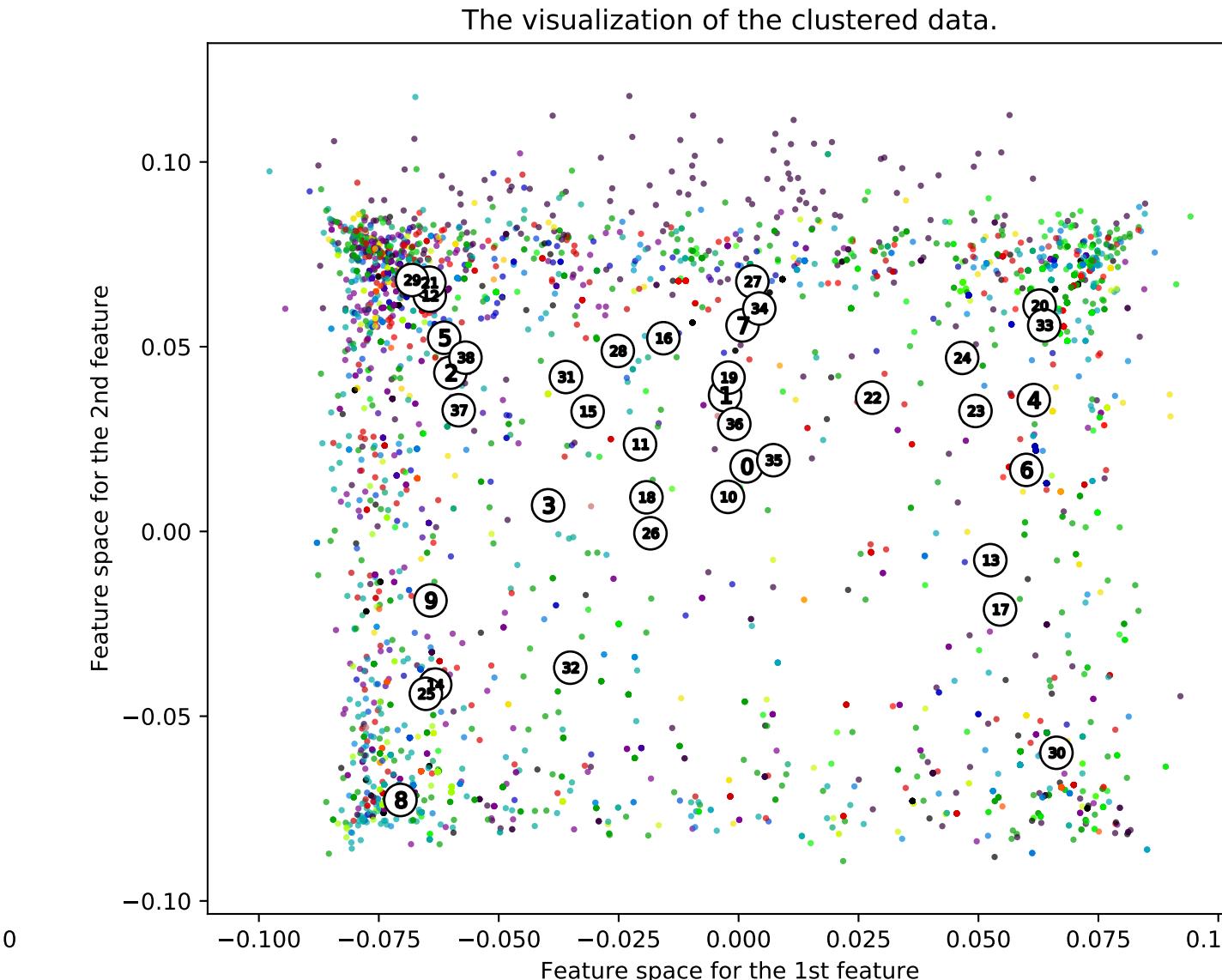
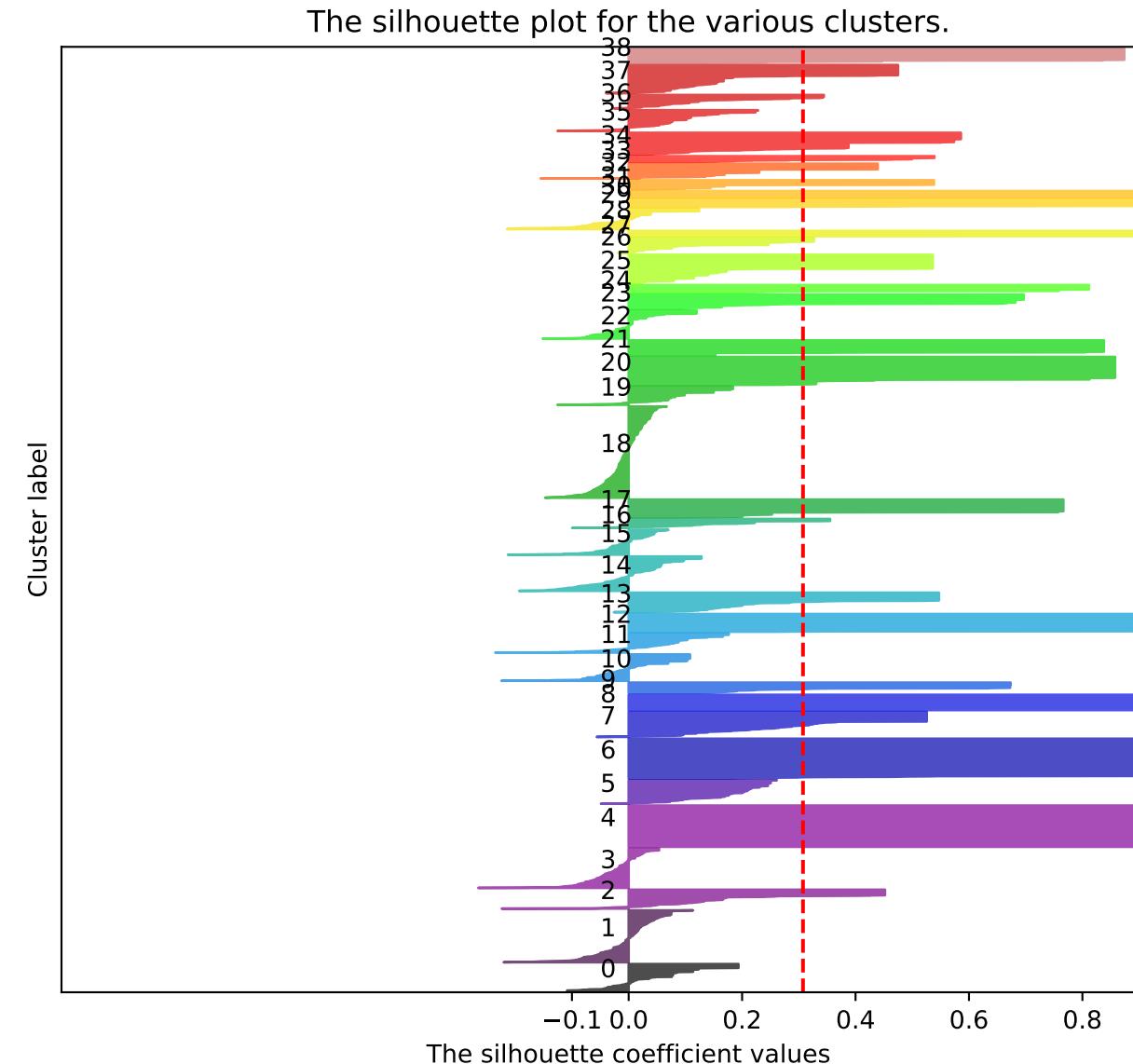
Silhouette analysis for KMeans clustering on sample data with n_clusters = 37 with Average Silhouette of: 0.30227434635162354



Silhouette analysis for KMeans clustering on sample data with n_clusters = 38 with Average Silhouette of: 0.30361276865005493

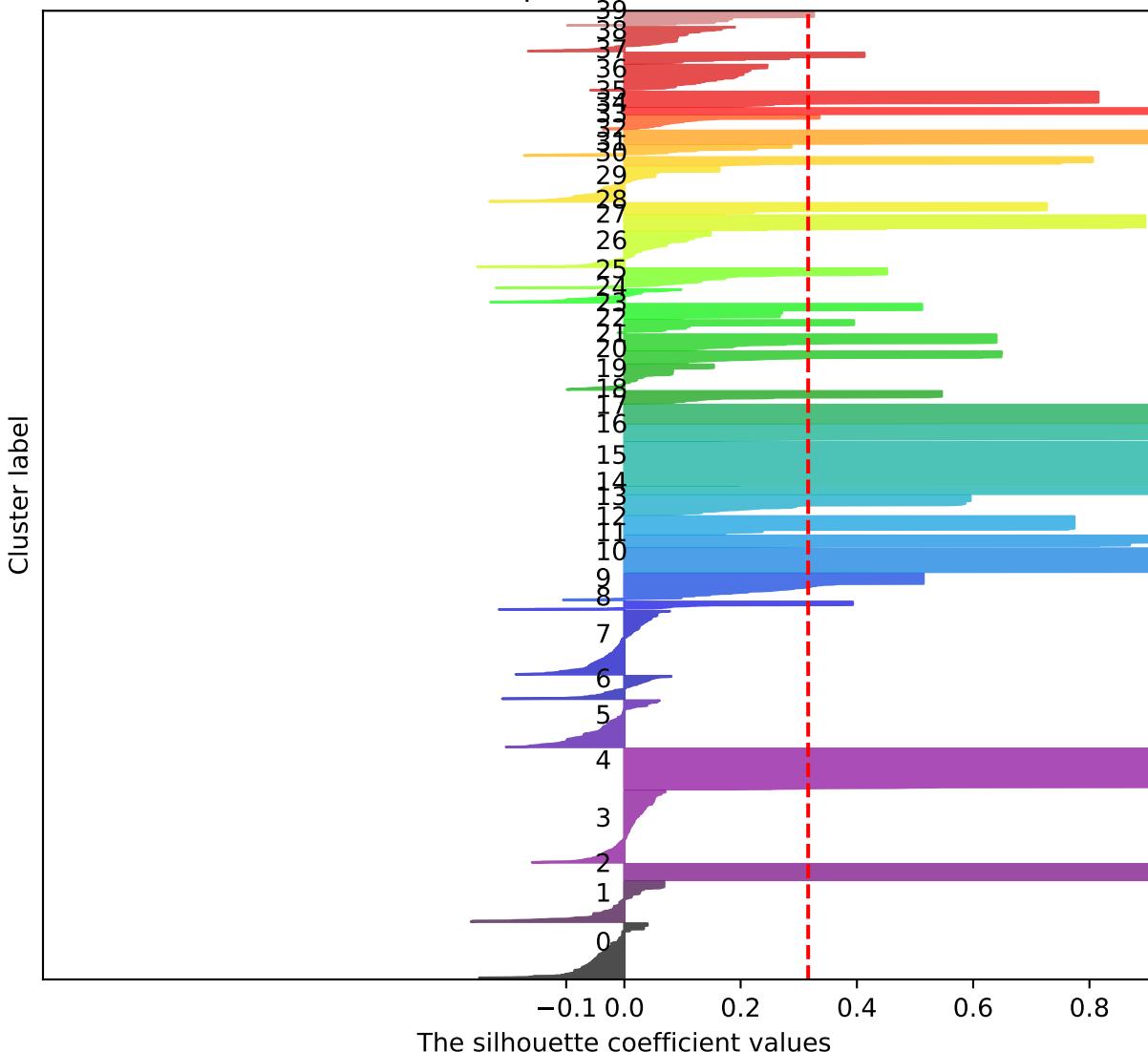


Silhouette analysis for KMeans clustering on sample data with n_clusters = 39 with Average Silhouette of: 0.30733582377433777

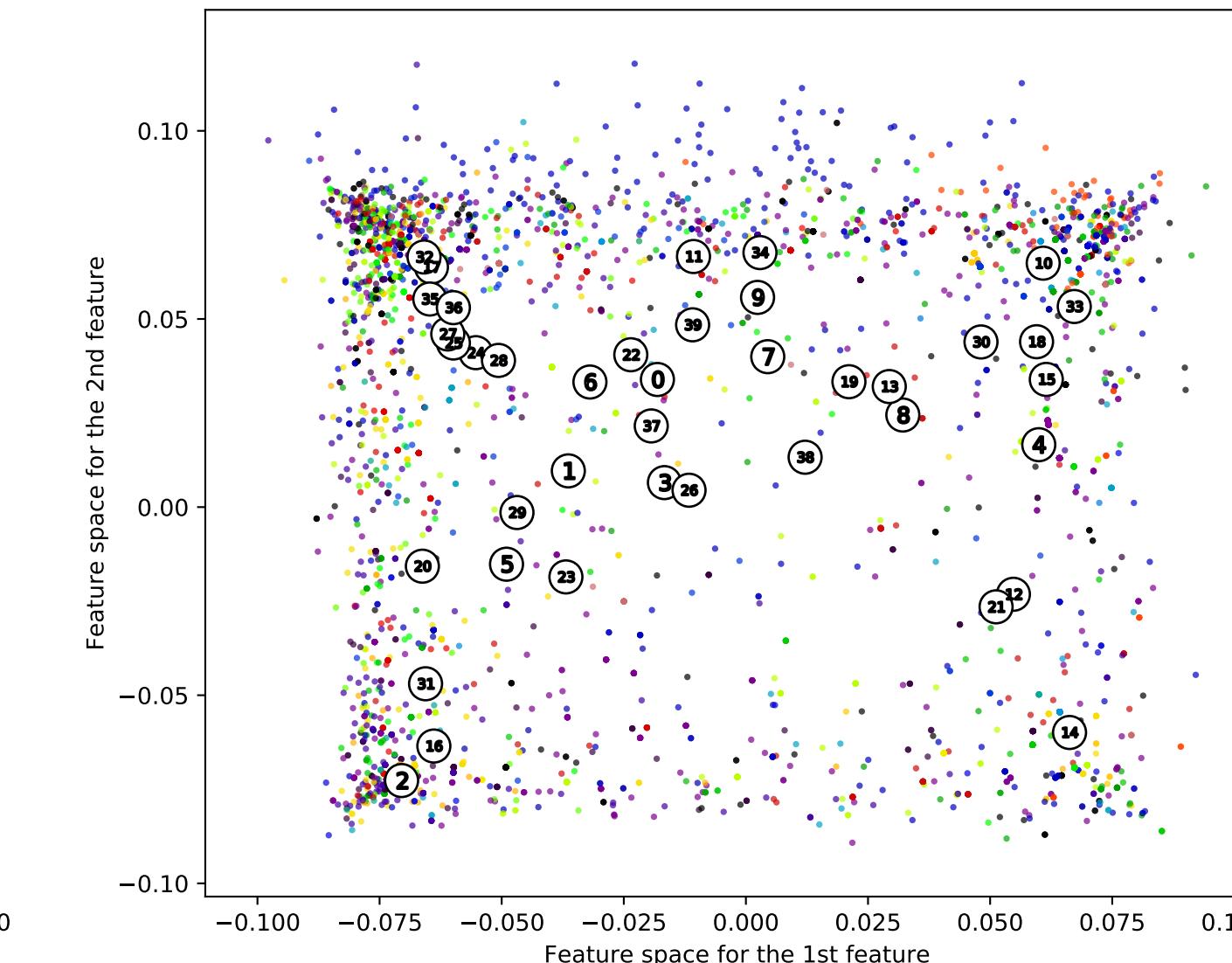


Silhouette analysis for KMeans clustering on sample data with n_clusters = 40 with Average Silhouette of: 0.3161983788013458

The silhouette plot for the various clusters.

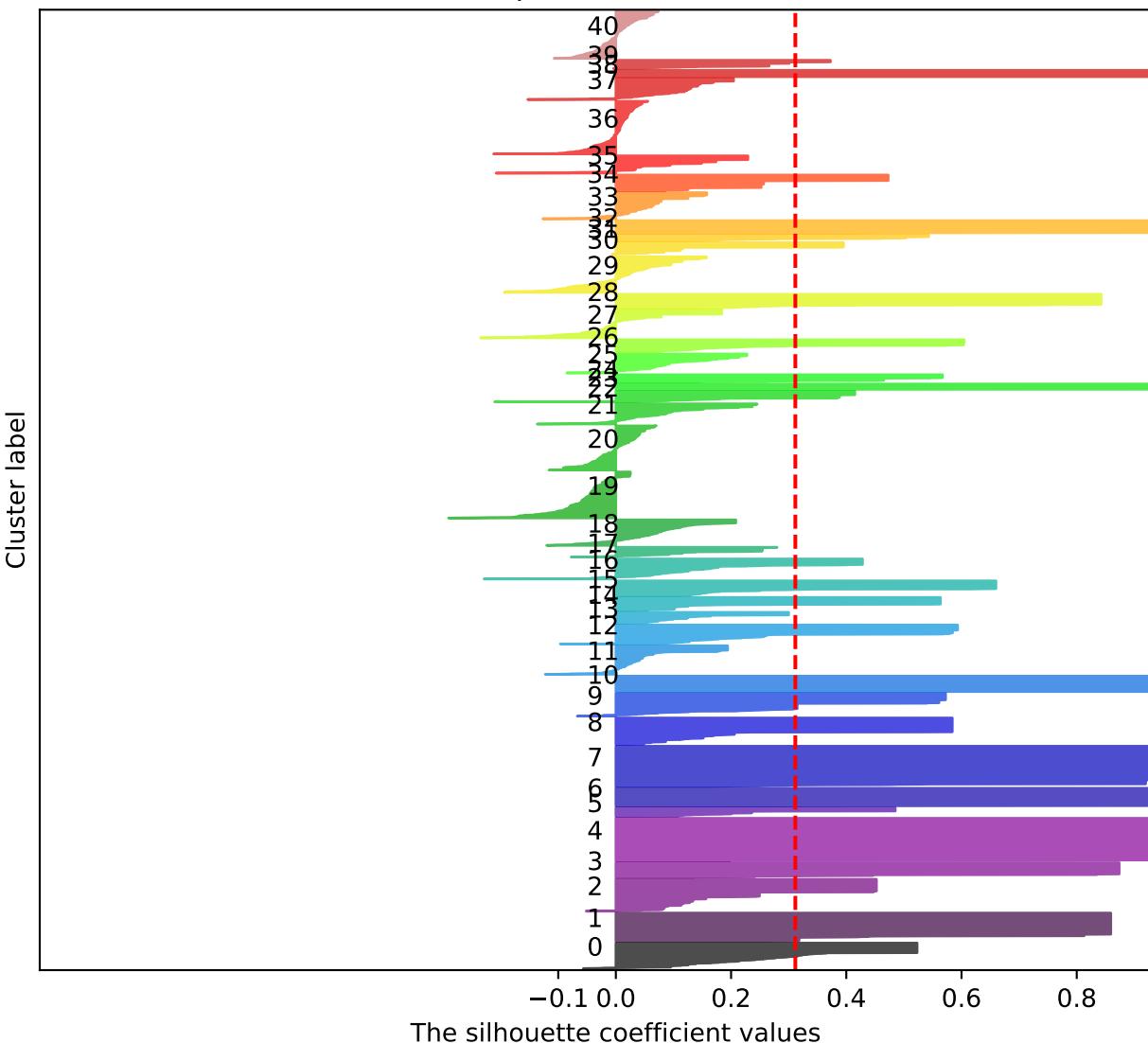


The visualization of the clustered data.

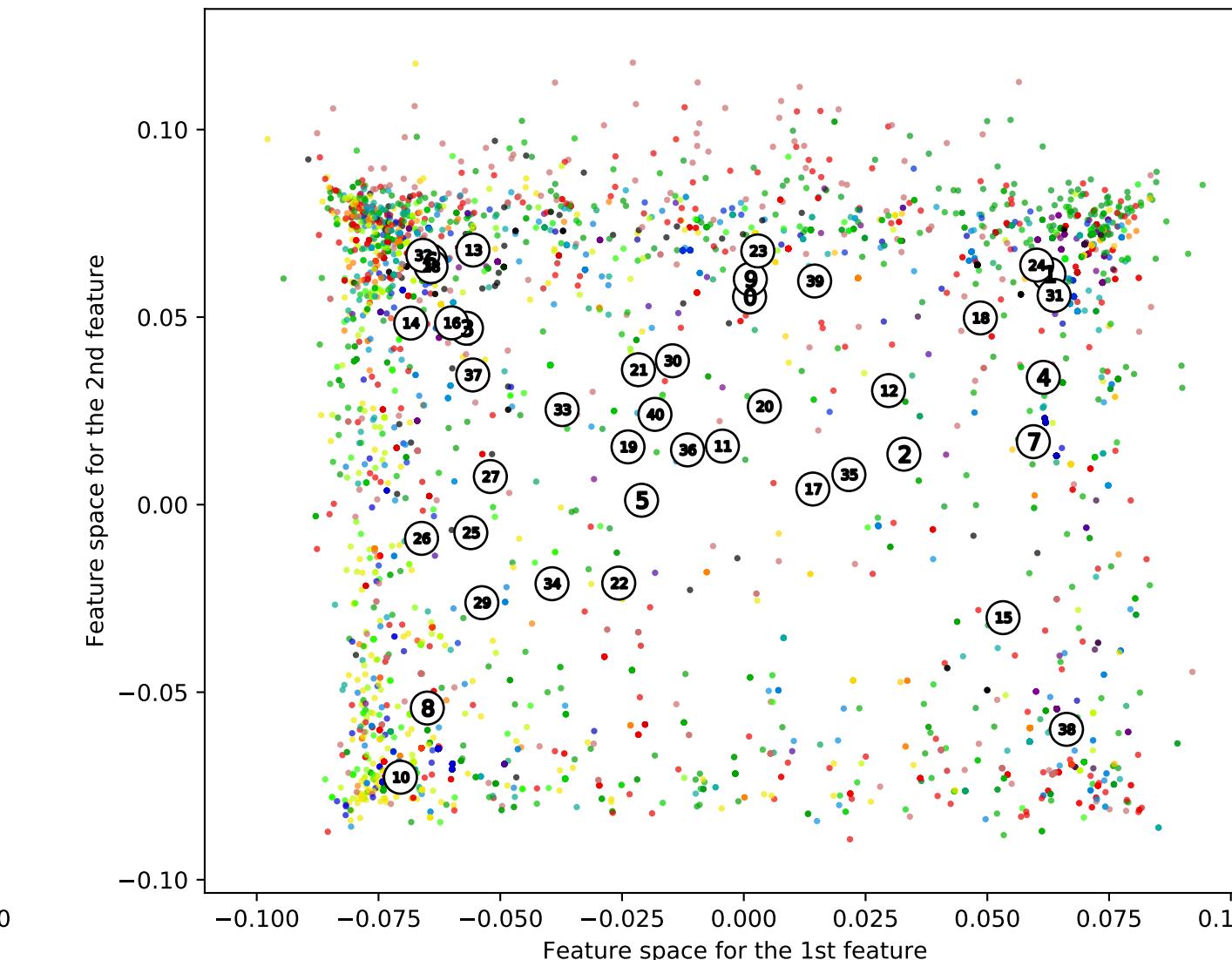


Silhouette analysis for KMeans clustering on sample data with n_clusters = 41 with Average Silhouette of: 0.31156474351882935

The silhouette plot for the various clusters.

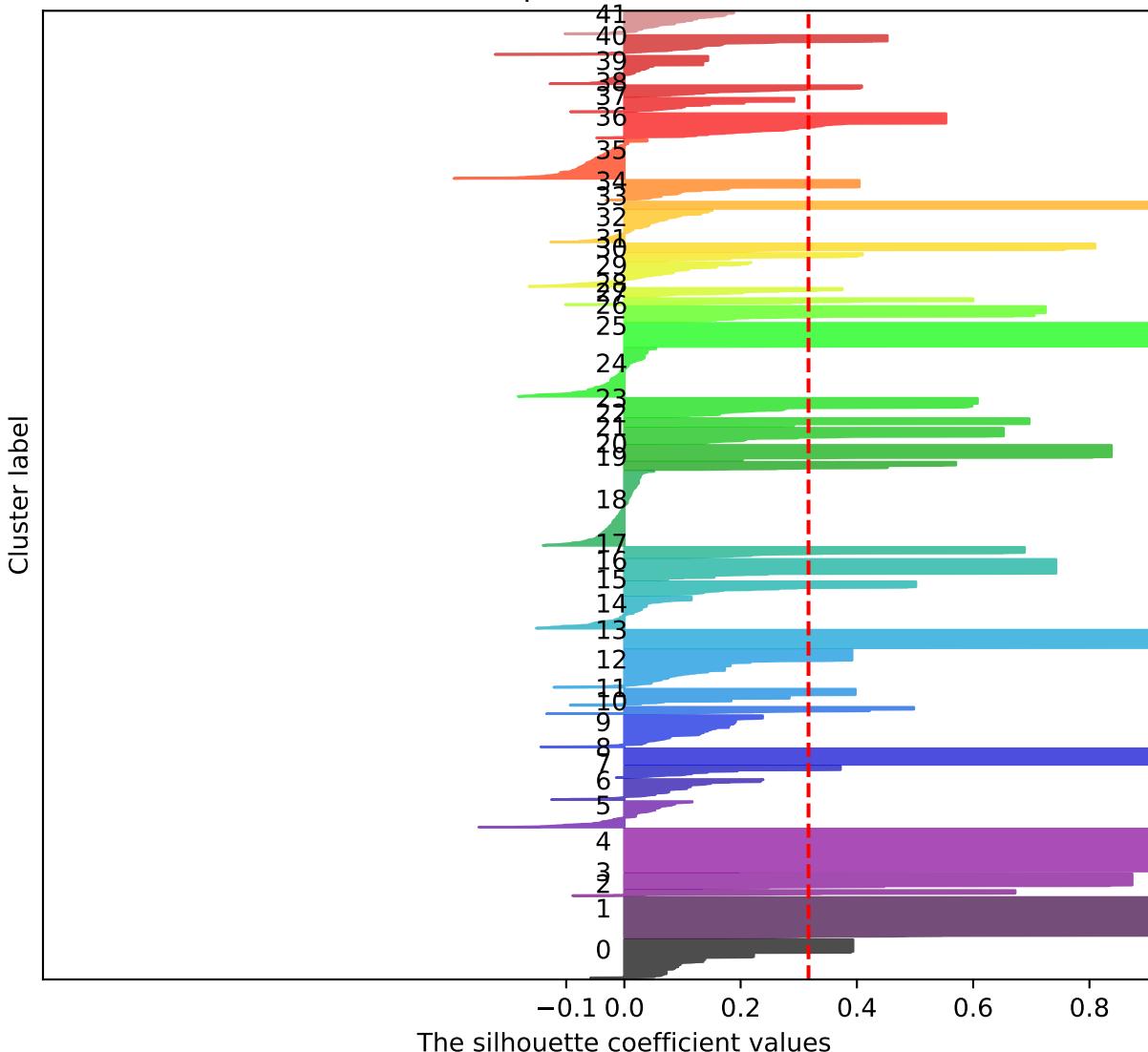


The visualization of the clustered data.

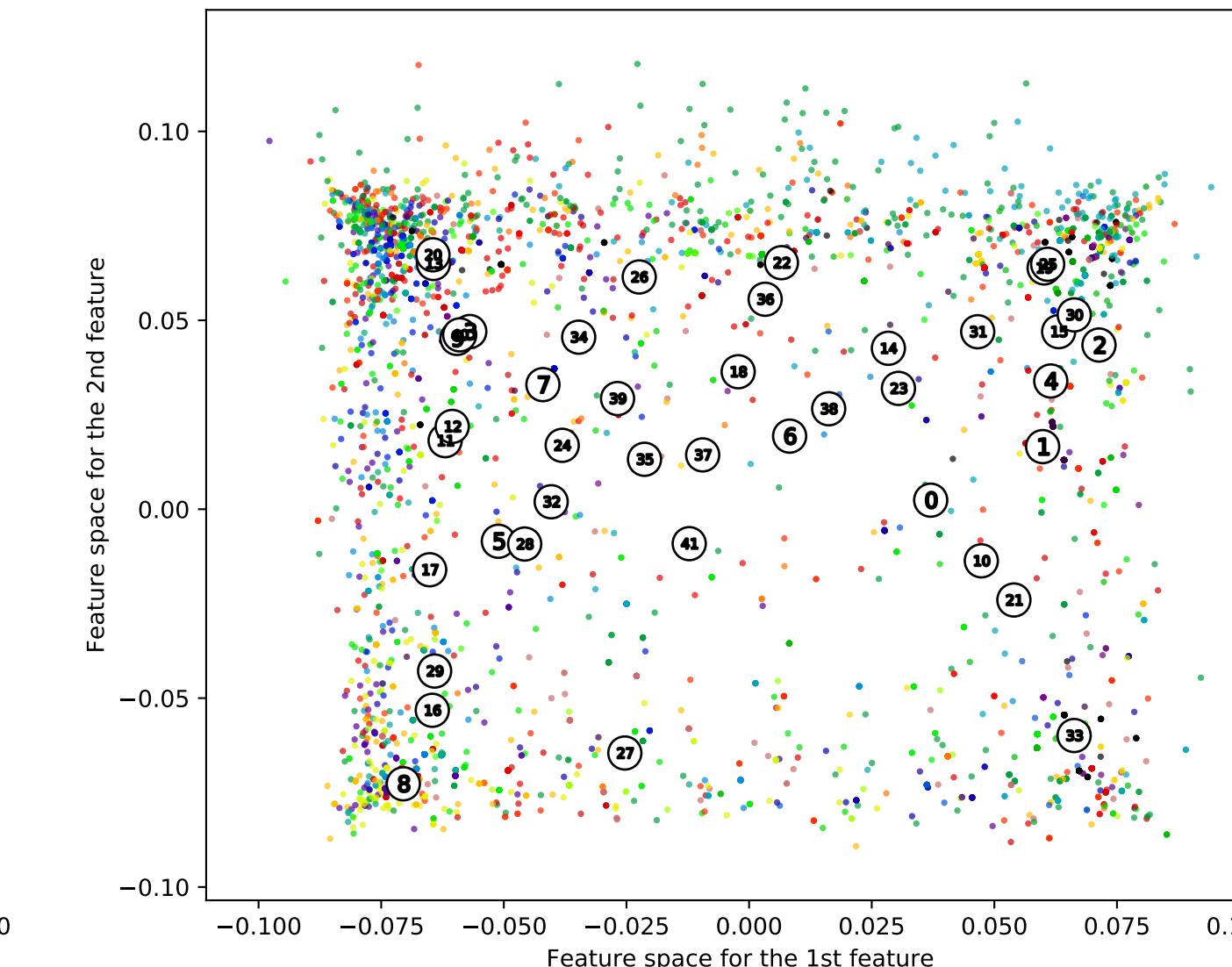


Silhouette analysis for KMeans clustering on sample data with n_clusters = 42 with Average Silhouette of: 0.3167894184589386

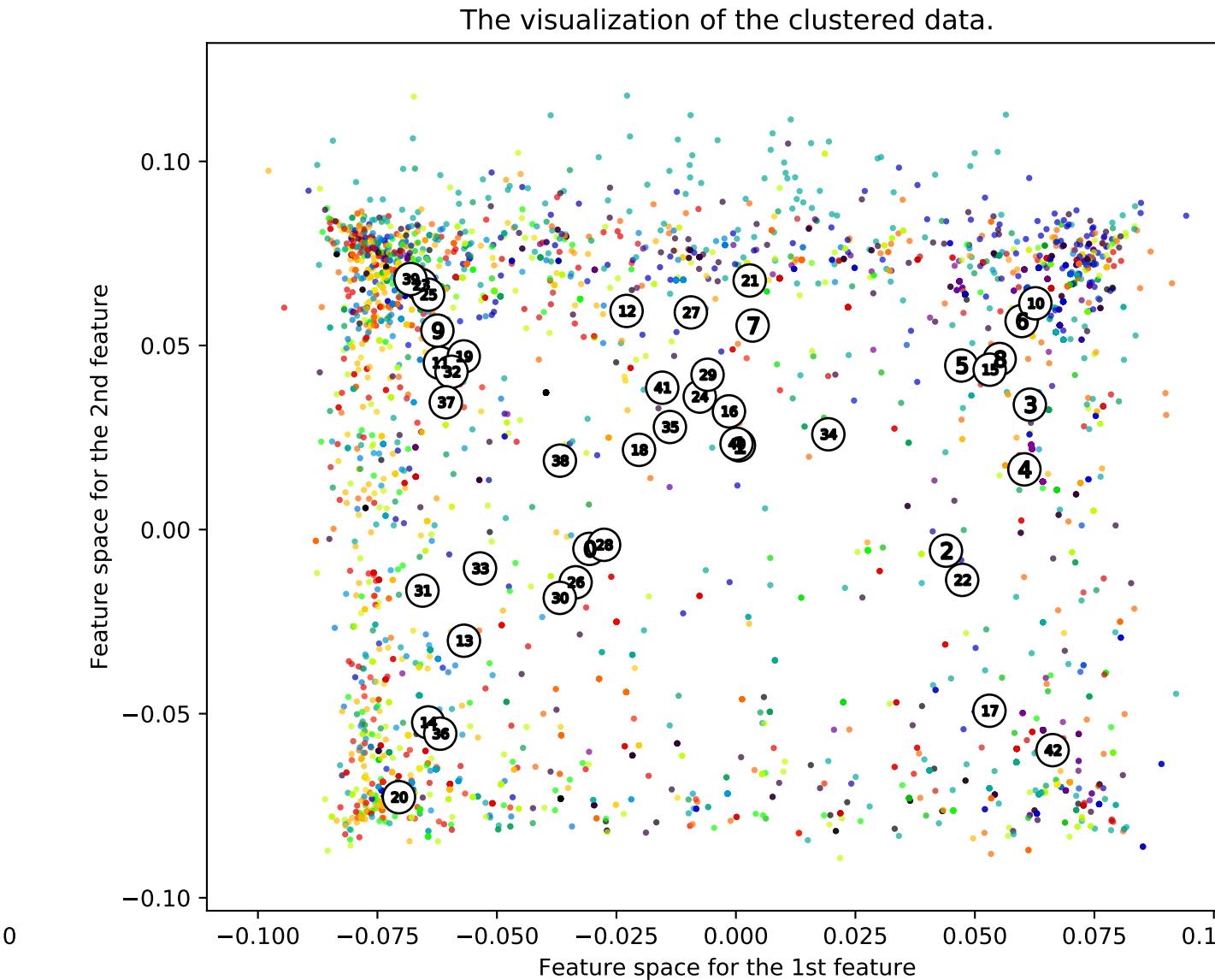
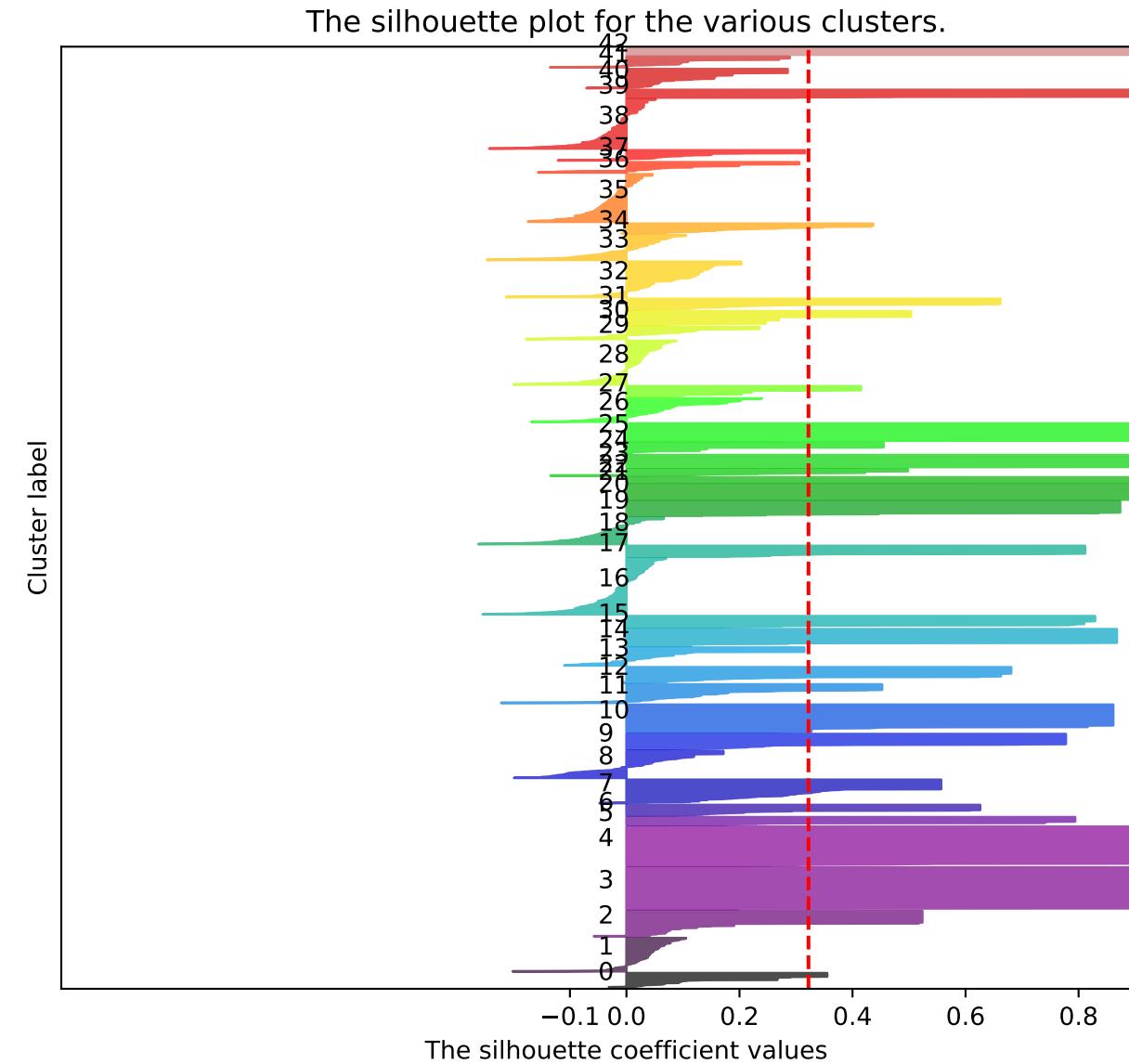
The silhouette plot for the various clusters.



The visualization of the clustered data.

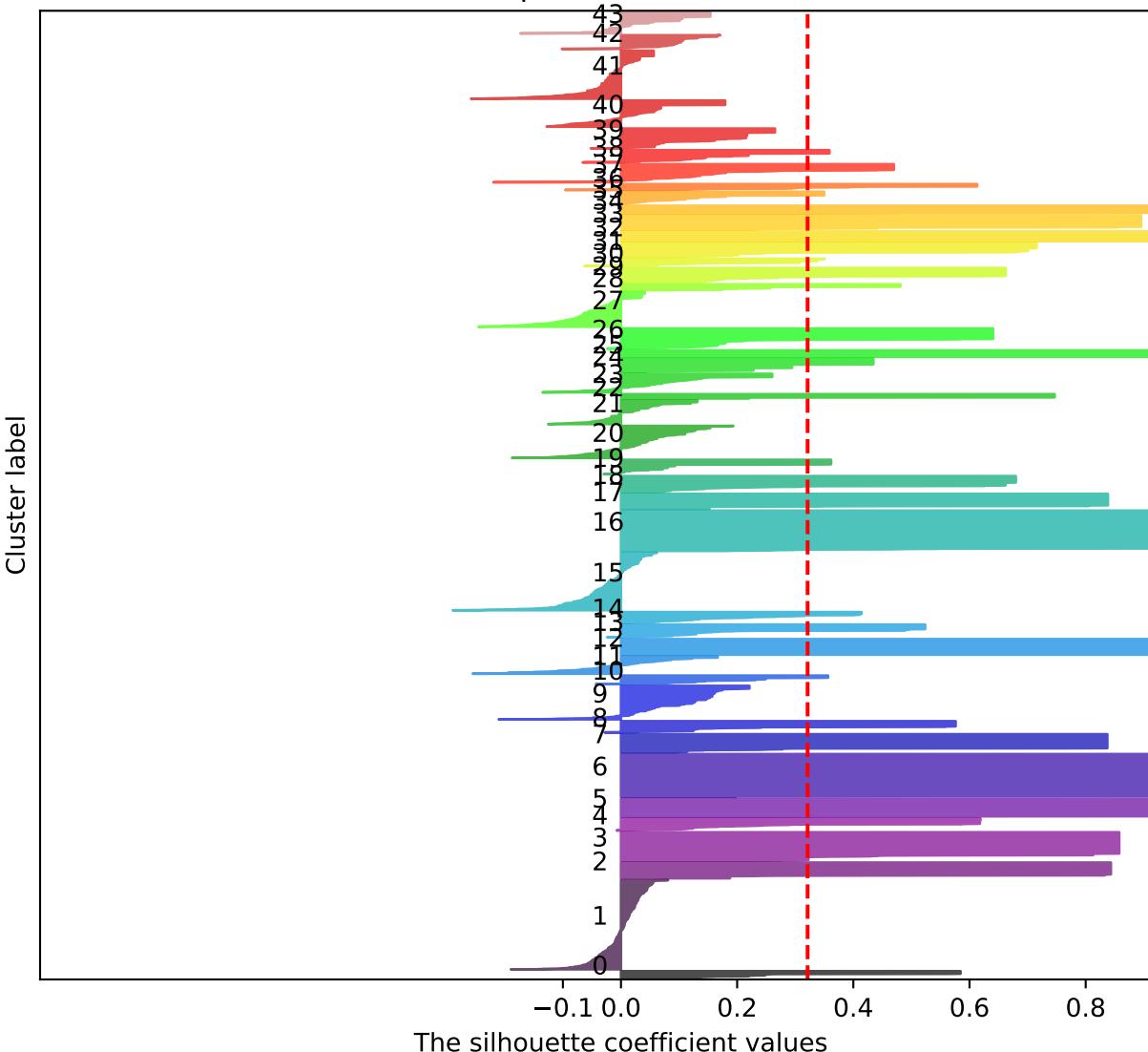


Silhouette analysis for KMeans clustering on sample data with n_clusters = 43 with Average Silhouette of: 0.32210278511047363

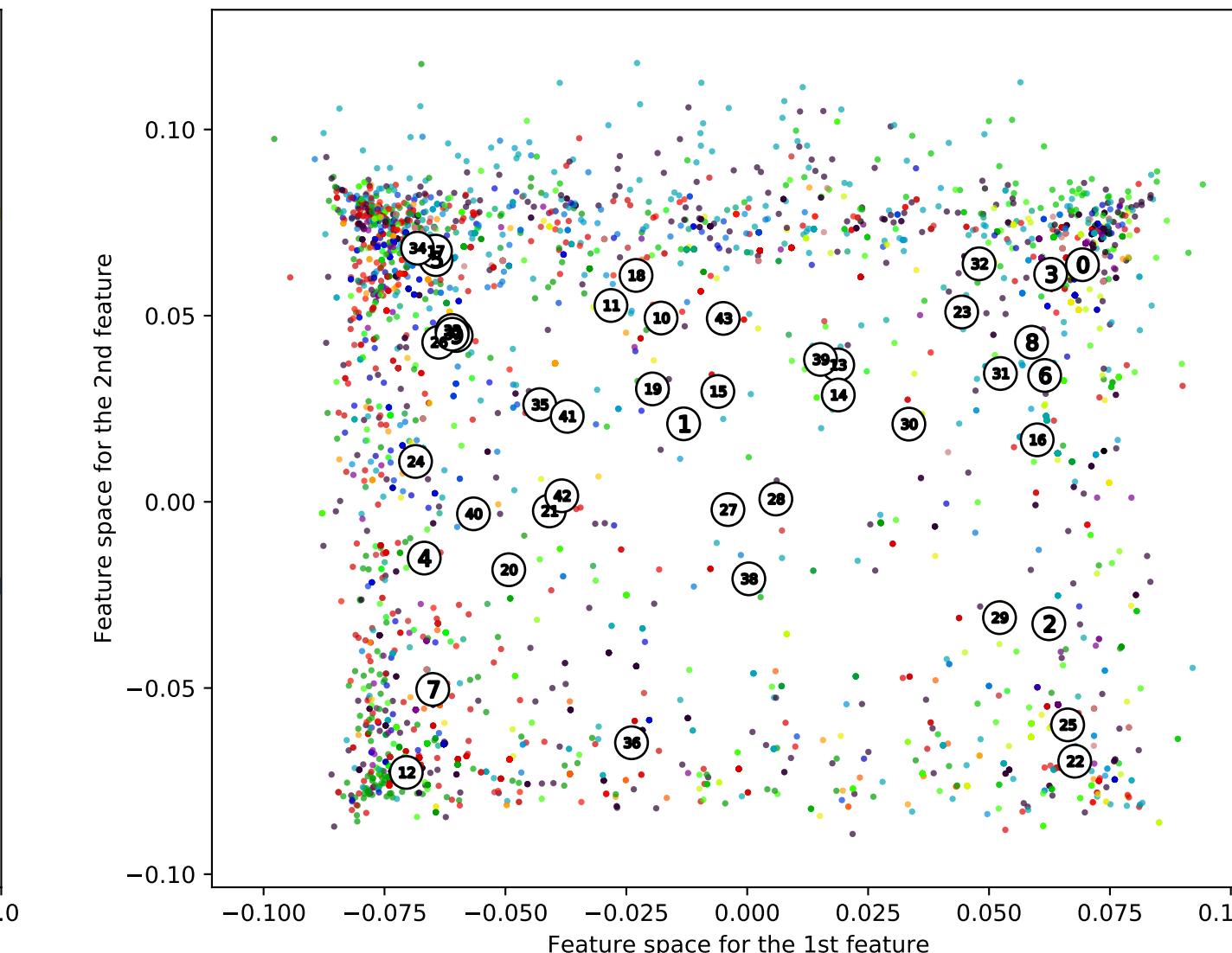


Silhouette analysis for KMeans clustering on sample data with n_clusters = 44 with Average Silhouette of: 0.3212771713733673

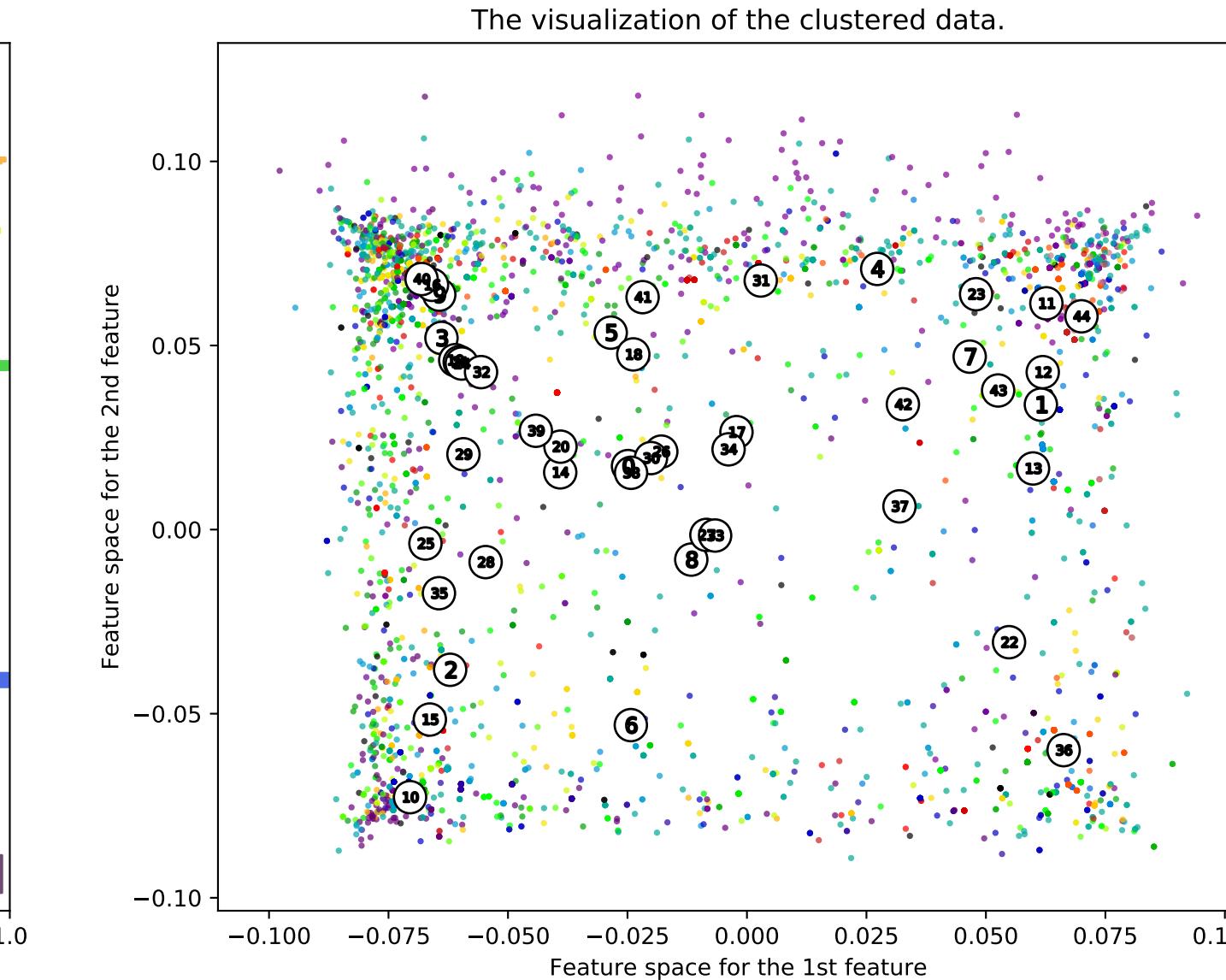
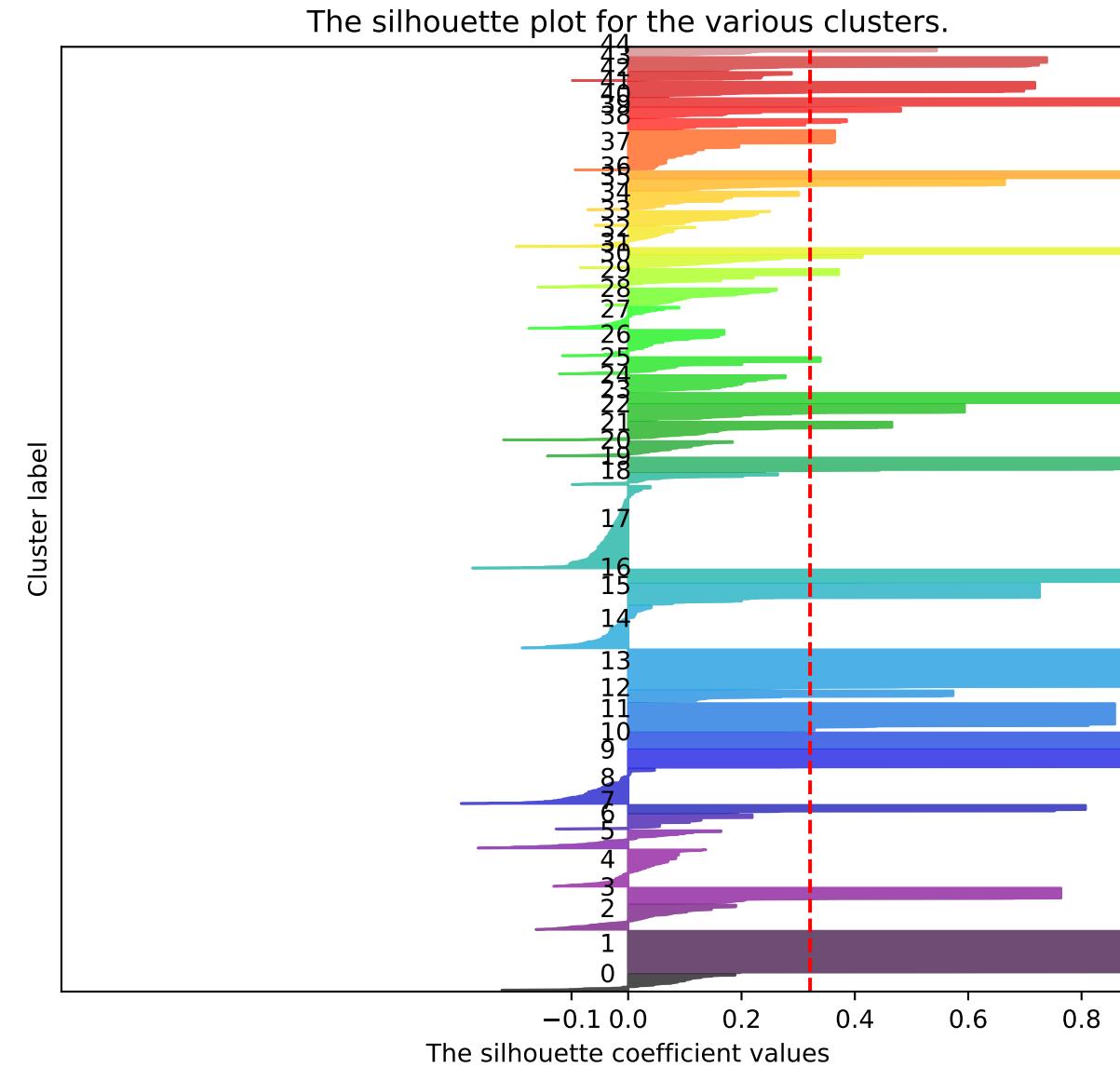
The silhouette plot for the various clusters.



The visualization of the clustered data.

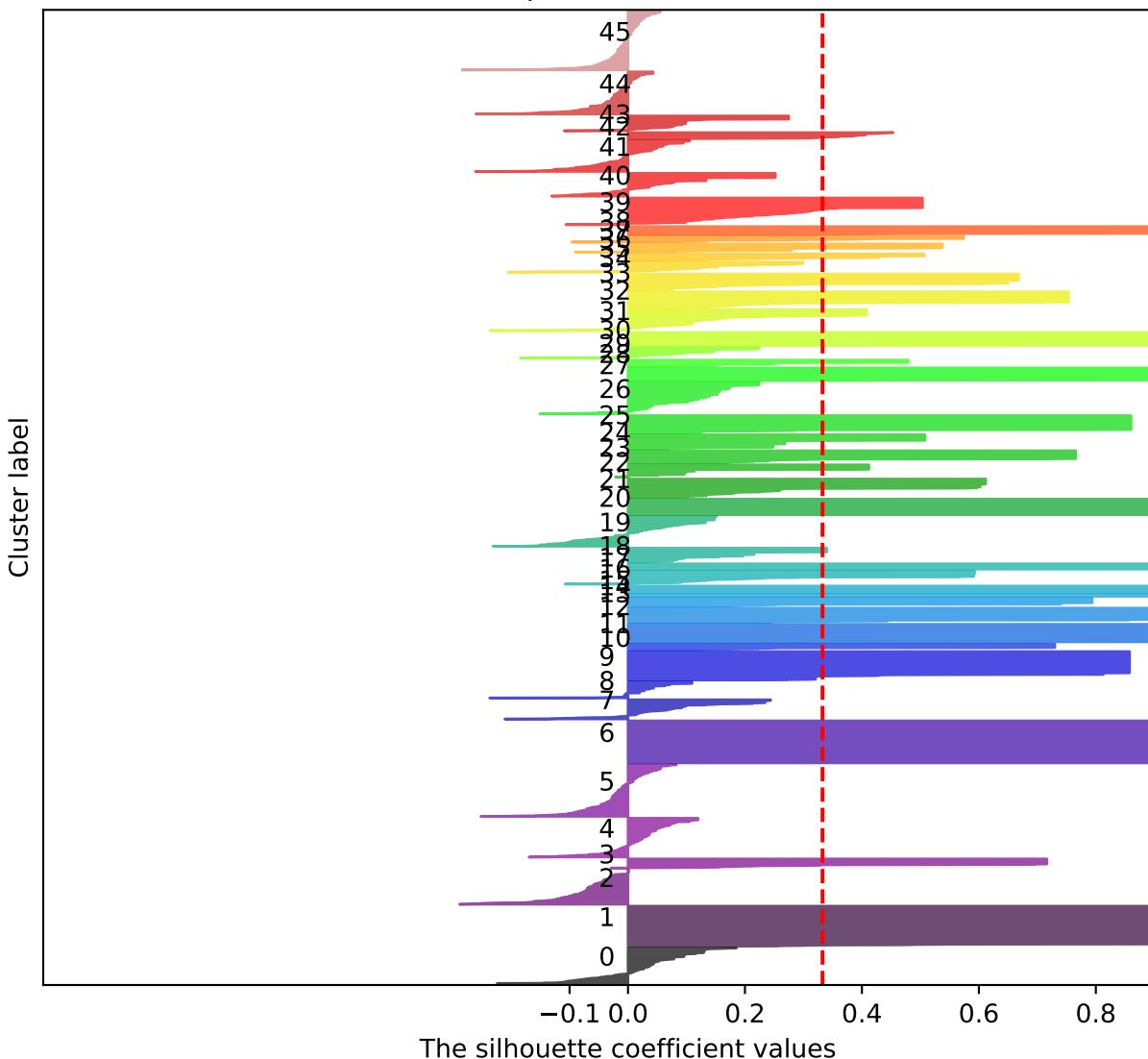


Silhouette analysis for KMeans clustering on sample data with n_clusters = 45 with Average Silhouette of: 0.32098615169525146

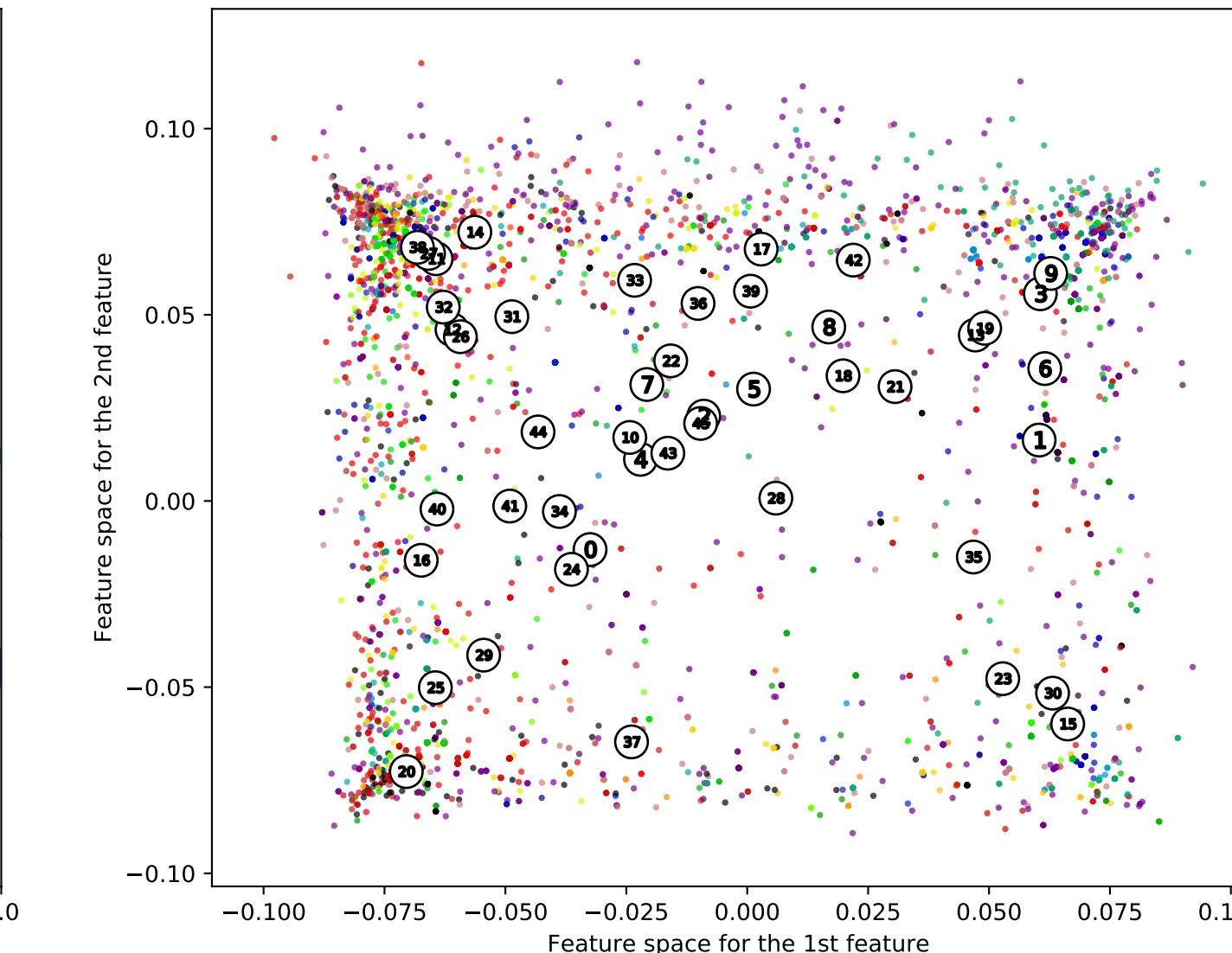


Silhouette analysis for KMeans clustering on sample data with n_clusters = 46 with Average Silhouette of: 0.3325955867767334

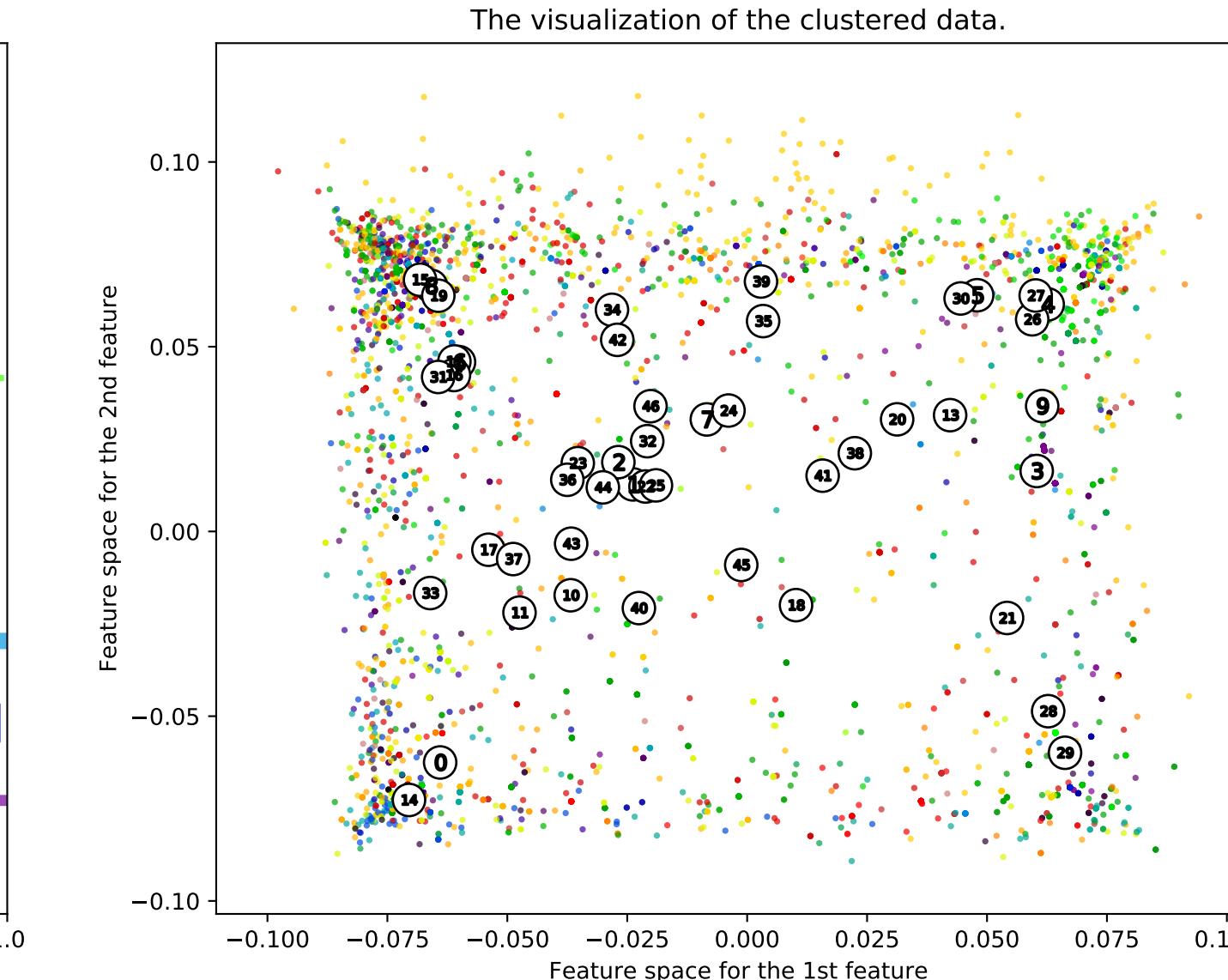
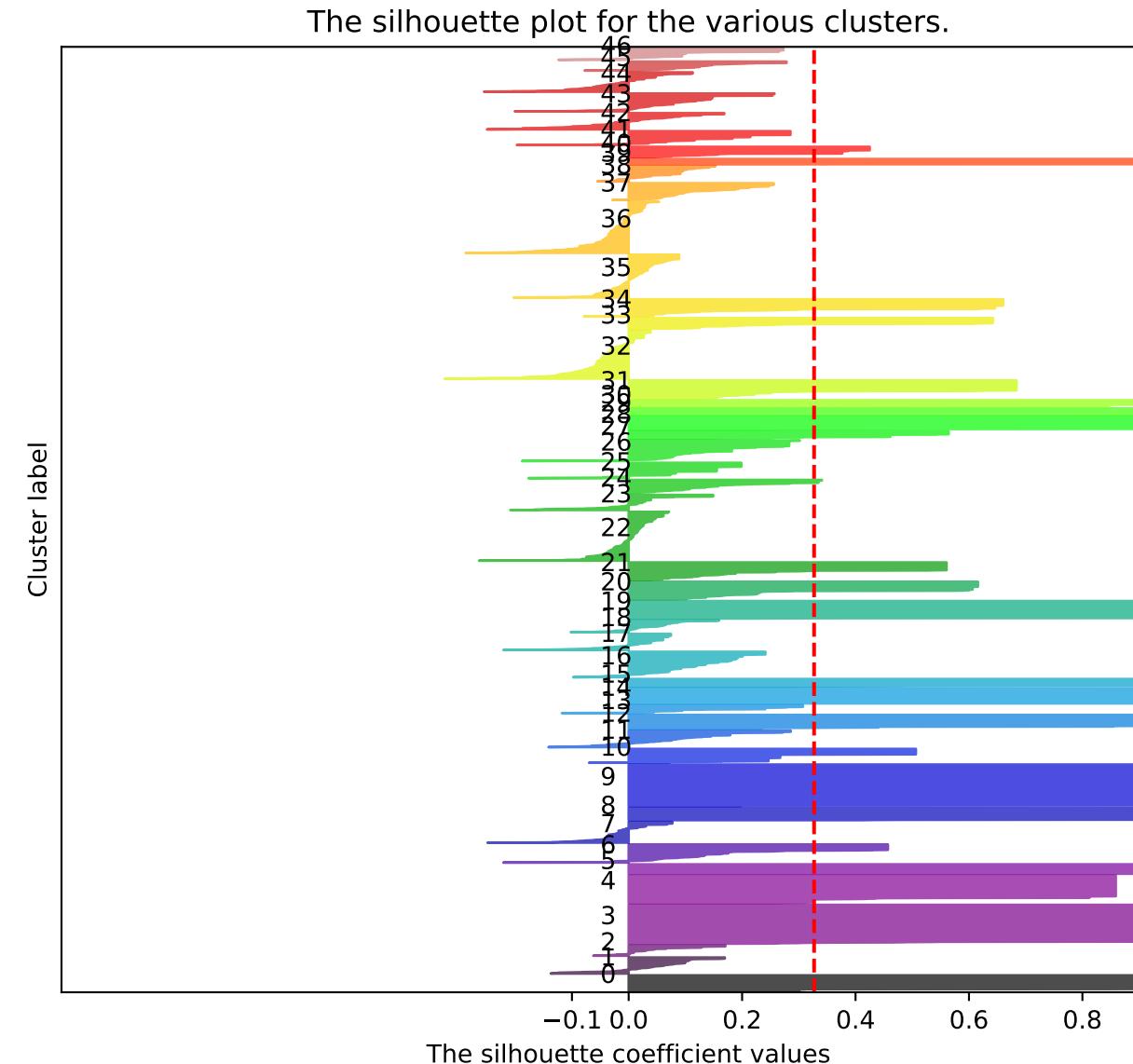
The silhouette plot for the various clusters.



The visualization of the clustered data.

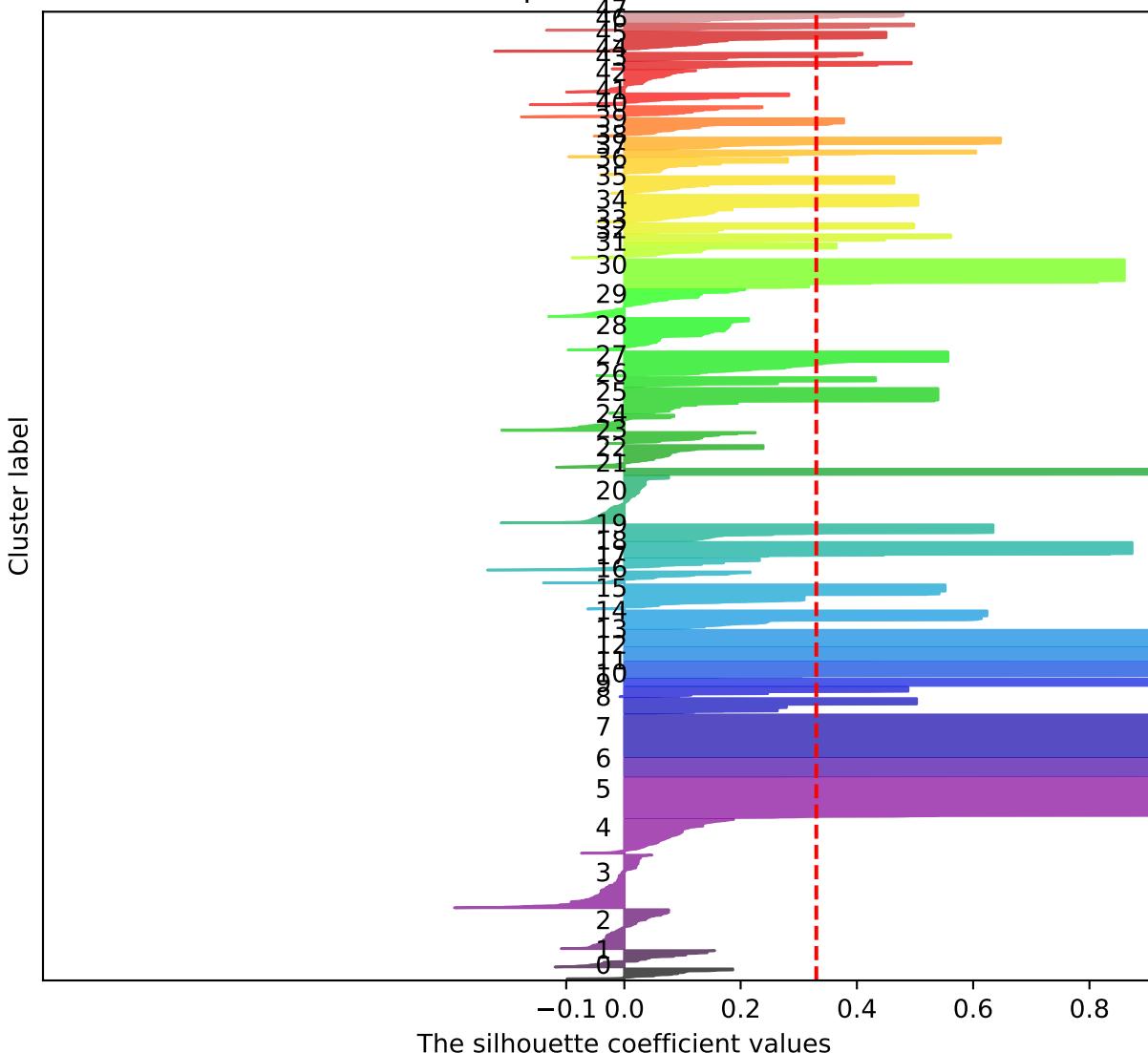


Silhouette analysis for KMeans clustering on sample data with n_clusters = 47 with Average Silhouette of: 0.32693150639533997

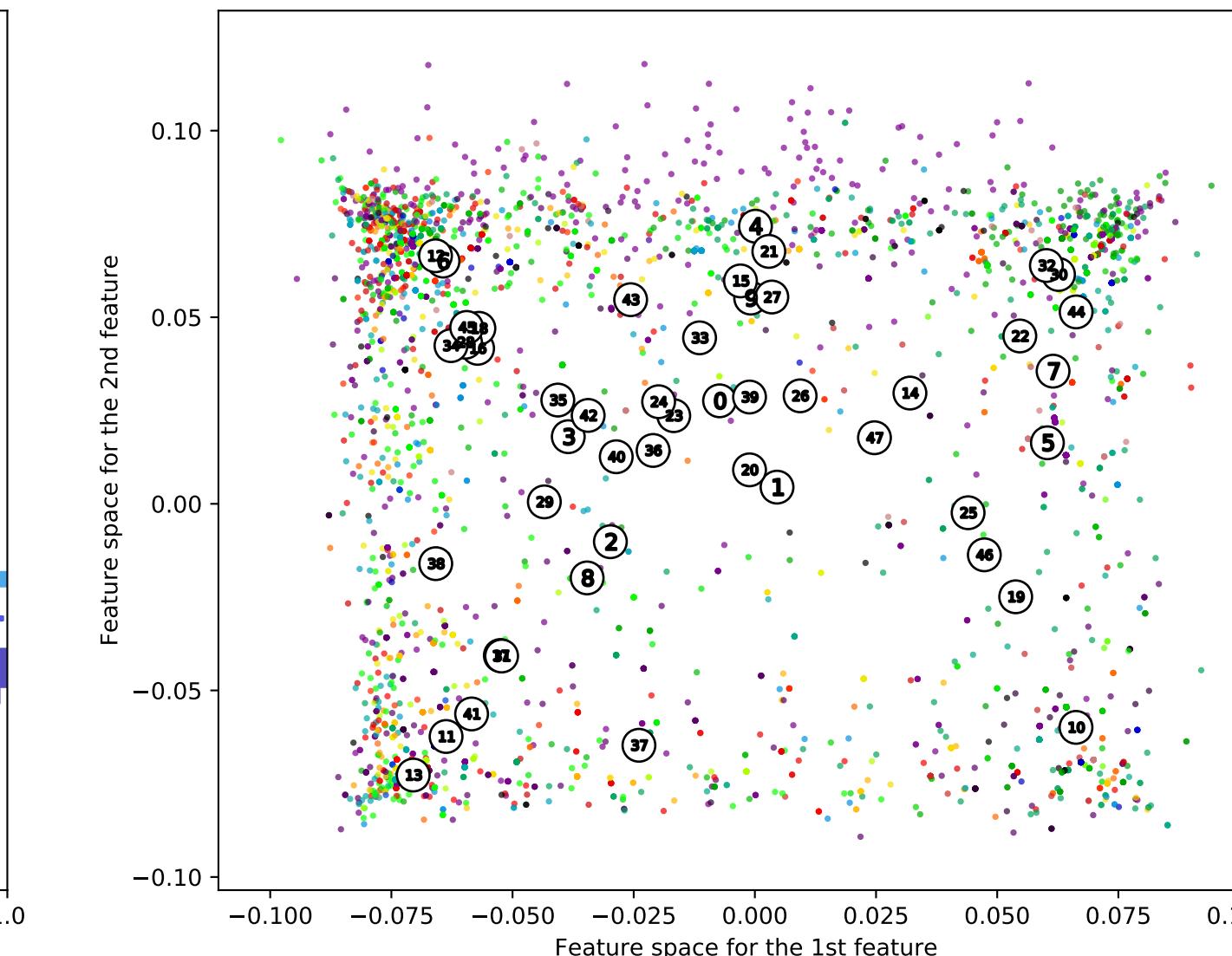


Silhouette analysis for KMeans clustering on sample data with n_clusters = 48 with Average Silhouette of: 0.3301948606967926

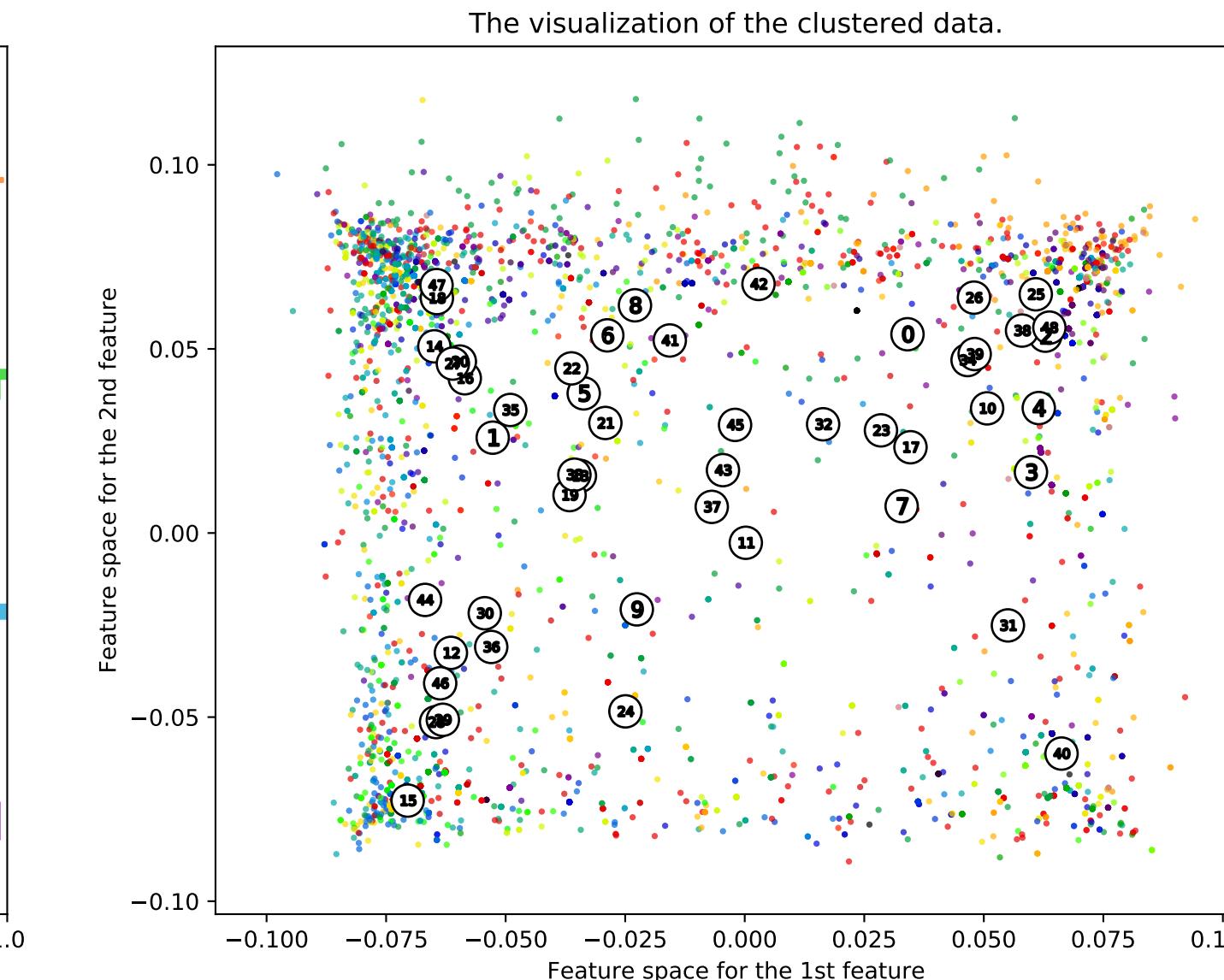
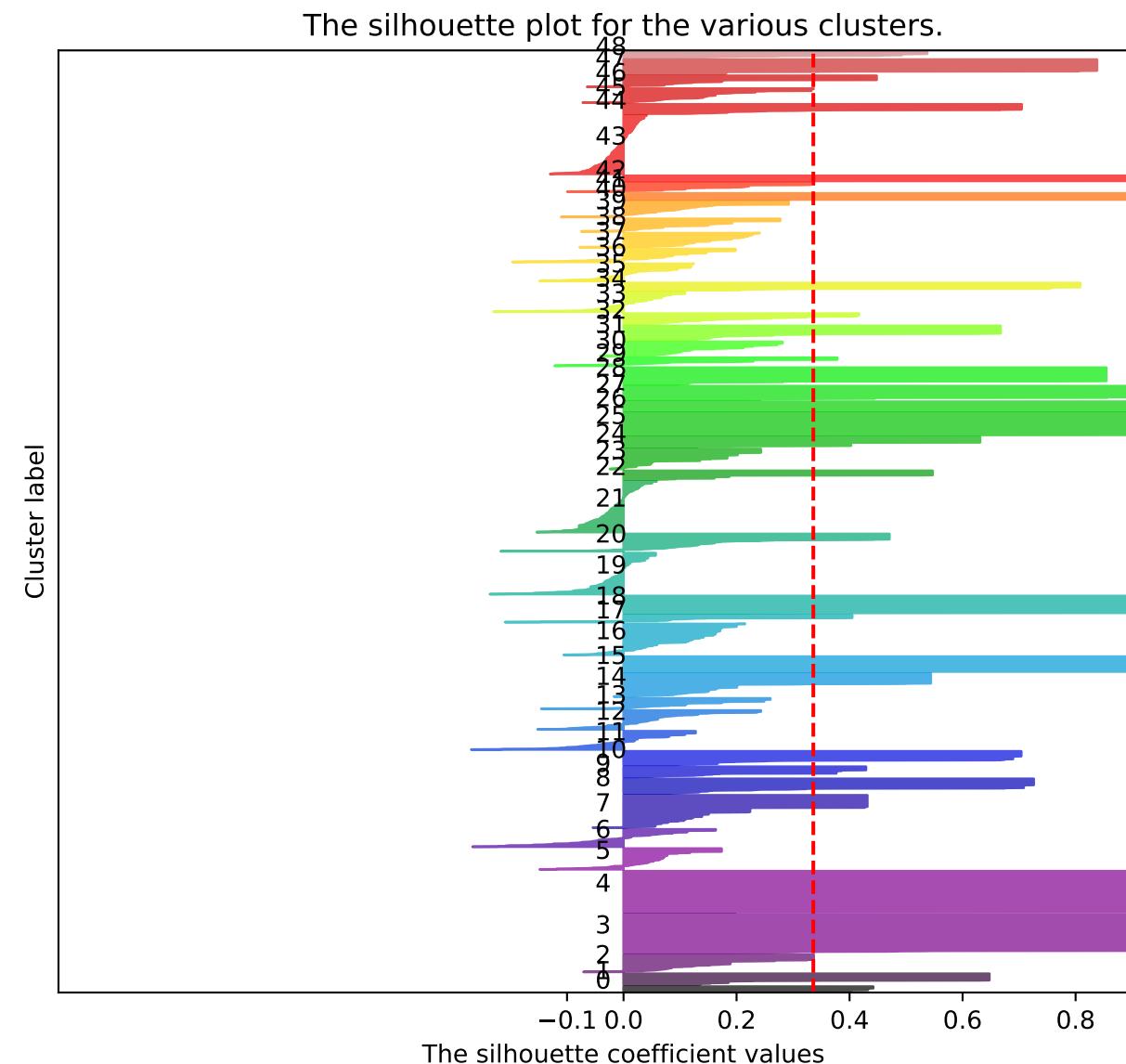
The silhouette plot for the various clusters.



The visualization of the clustered data.

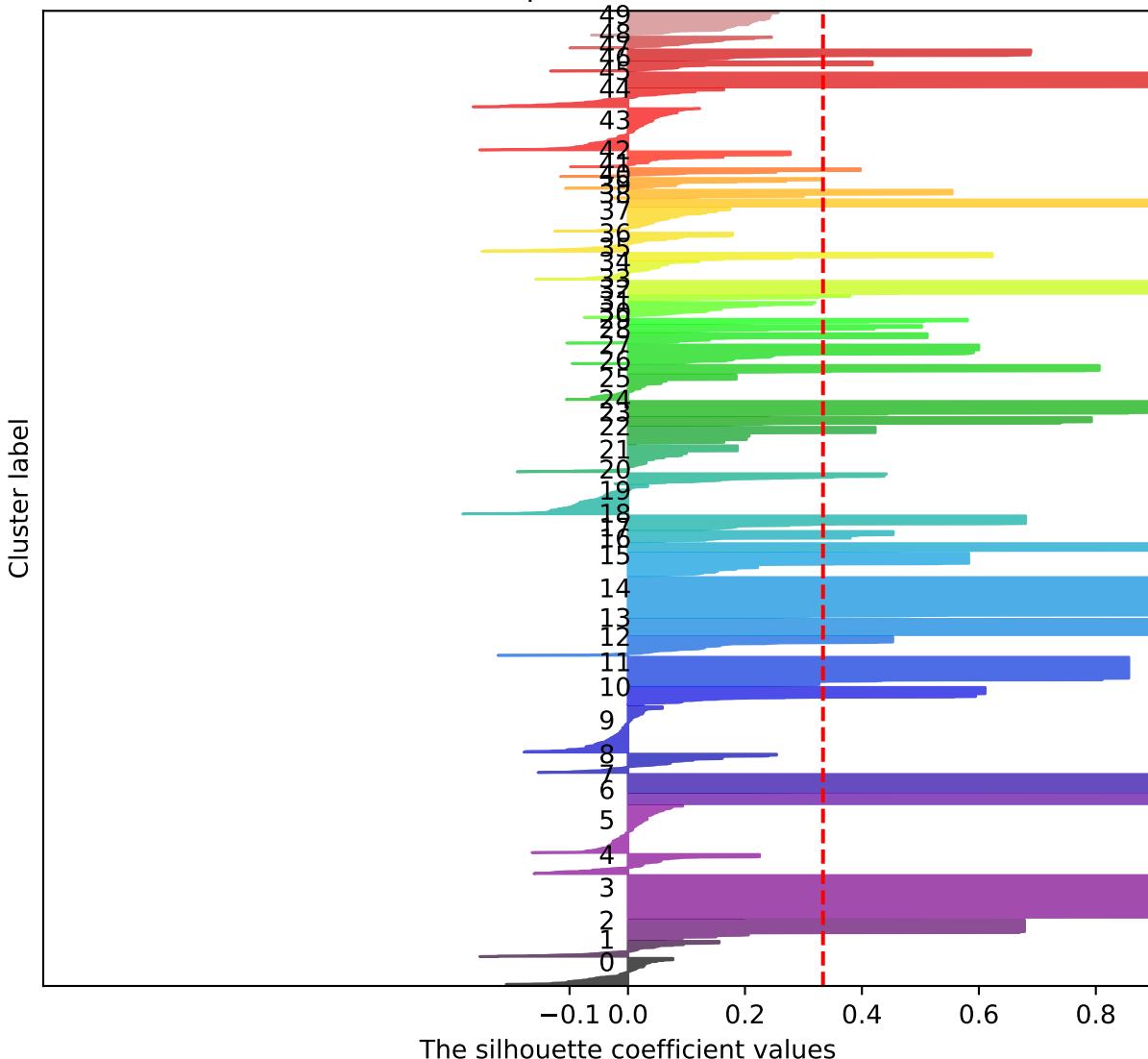


Silhouette analysis for KMeans clustering on sample data with n_clusters = 49 with Average Silhouette of: 0.3358602225780487

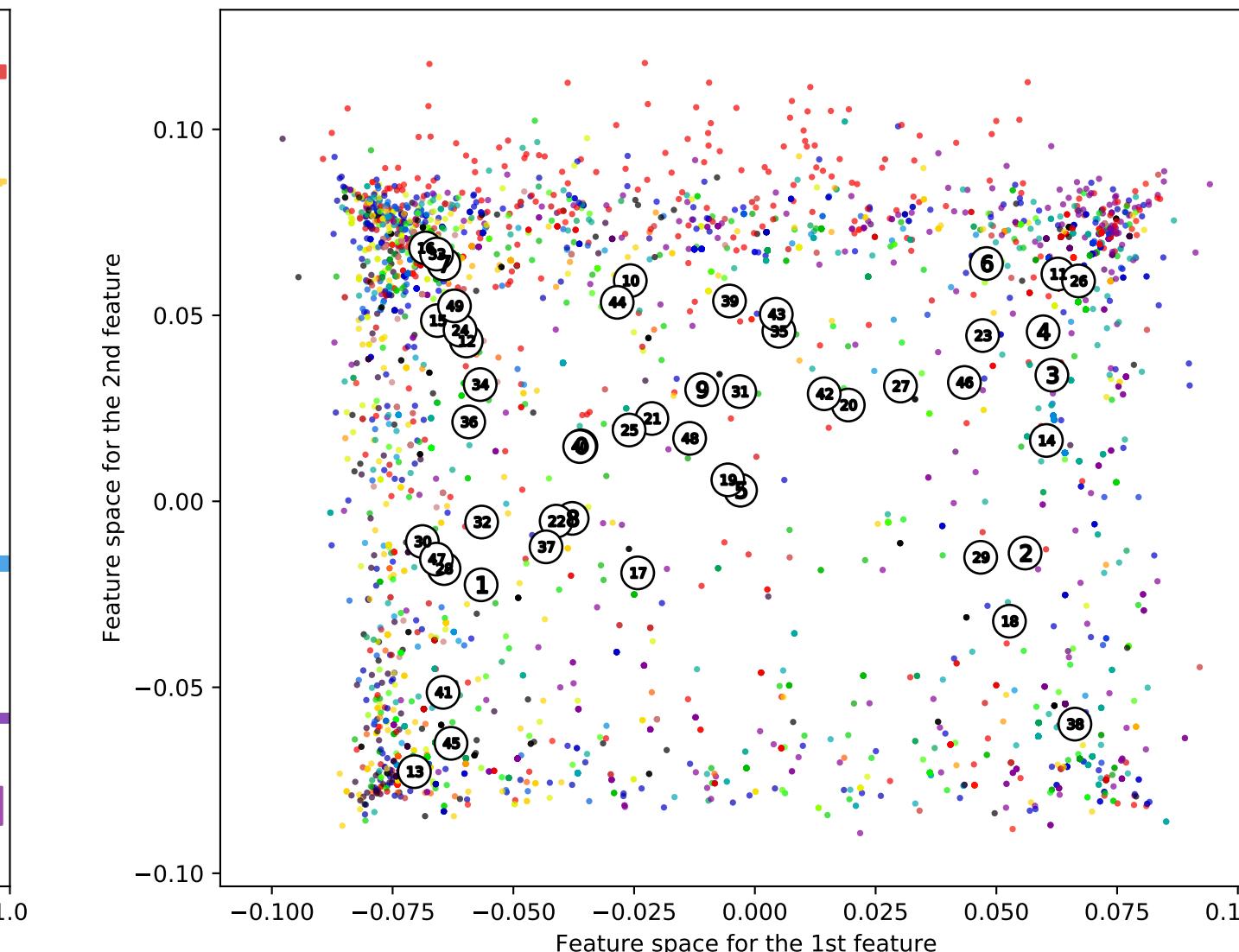


Silhouette analysis for KMeans clustering on sample data with n_clusters = 50 with Average Silhouette of: 0.3335058093070984

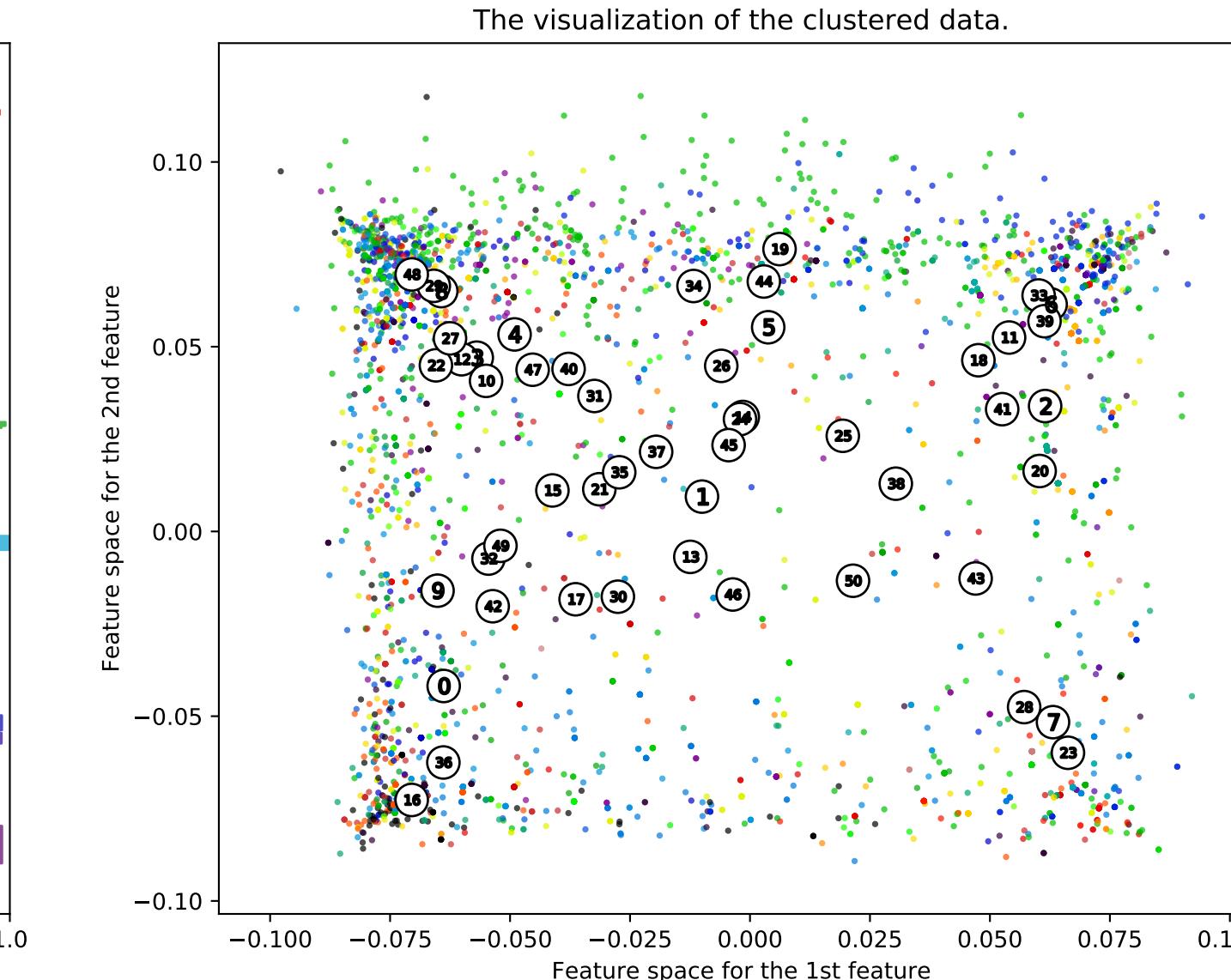
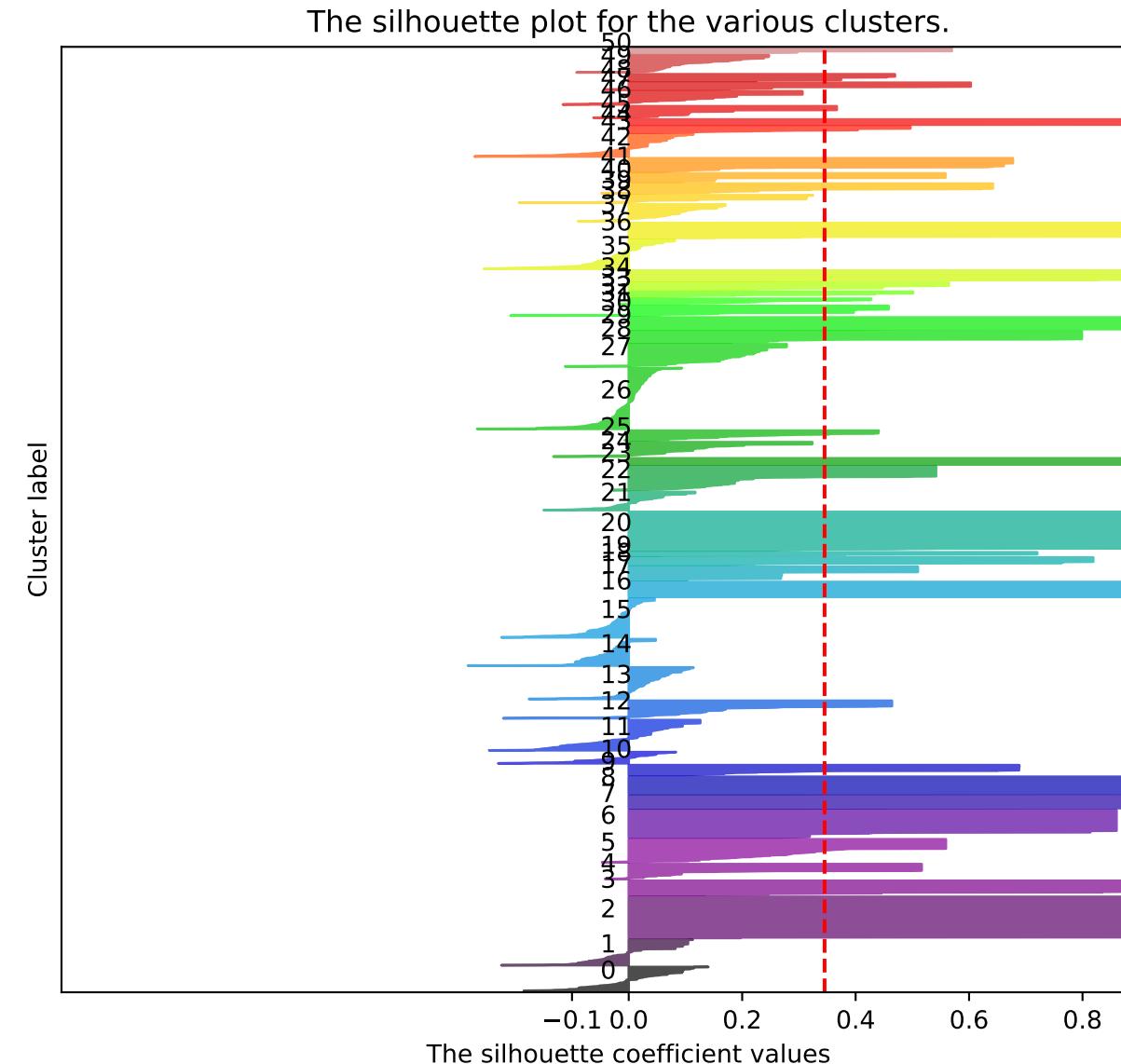
The silhouette plot for the various clusters.



The visualization of the clustered data.

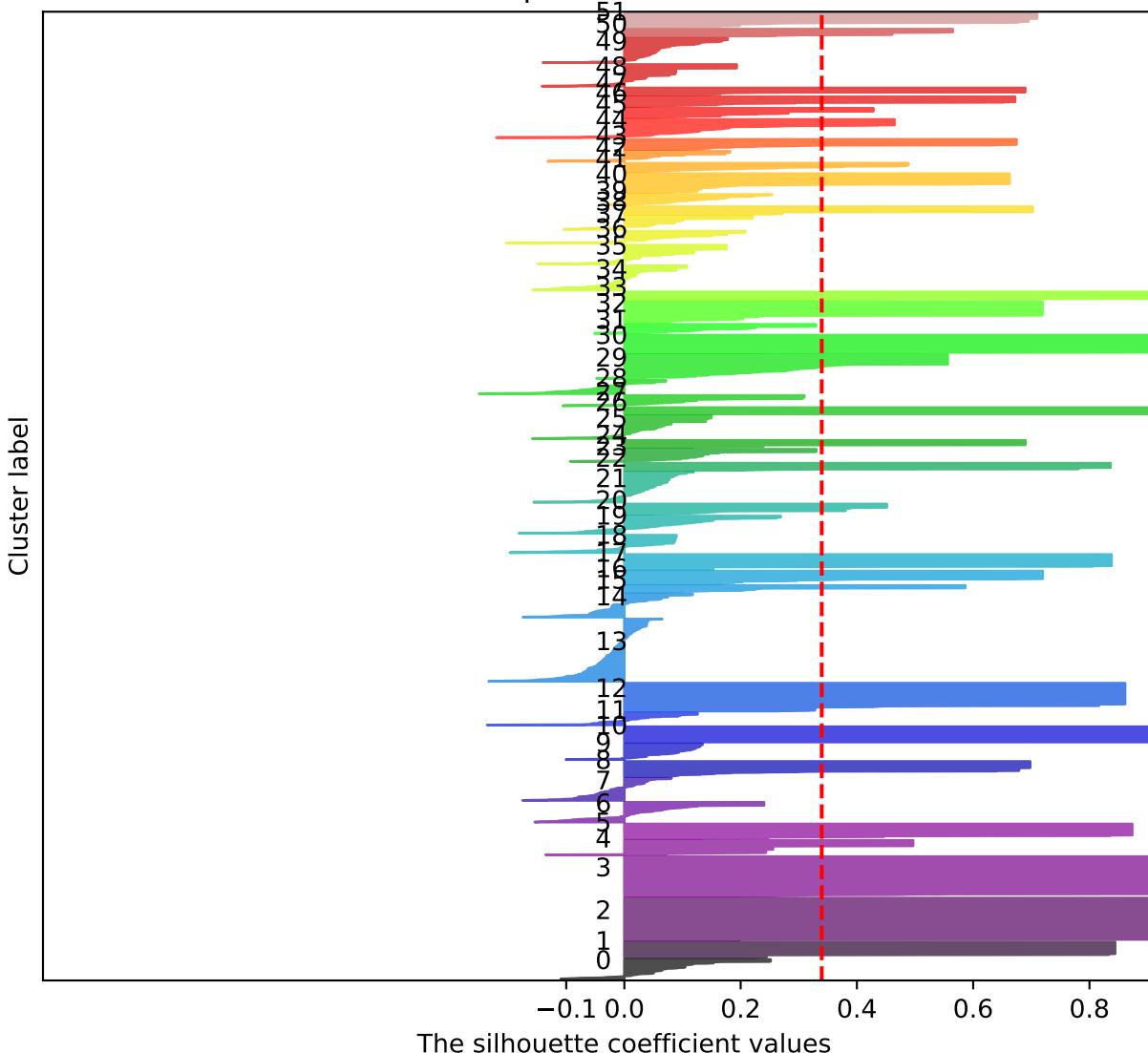


Silhouette analysis for KMeans clustering on sample data with n_clusters = 51 with Average Silhouette of: 0.34528663754463196

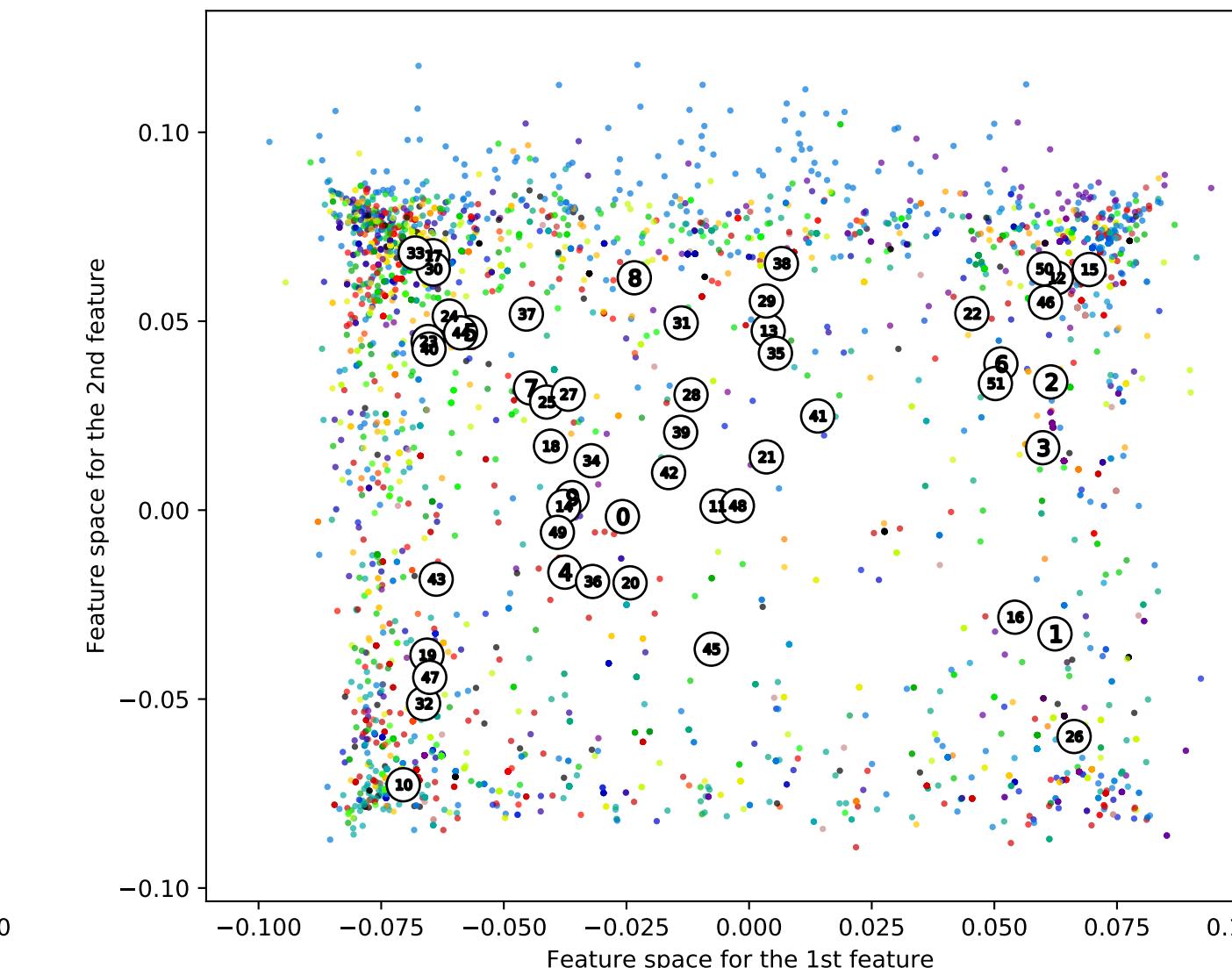


Silhouette analysis for KMeans clustering on sample data with n_clusters = 52 with Average Silhouette of: 0.3395279347896576

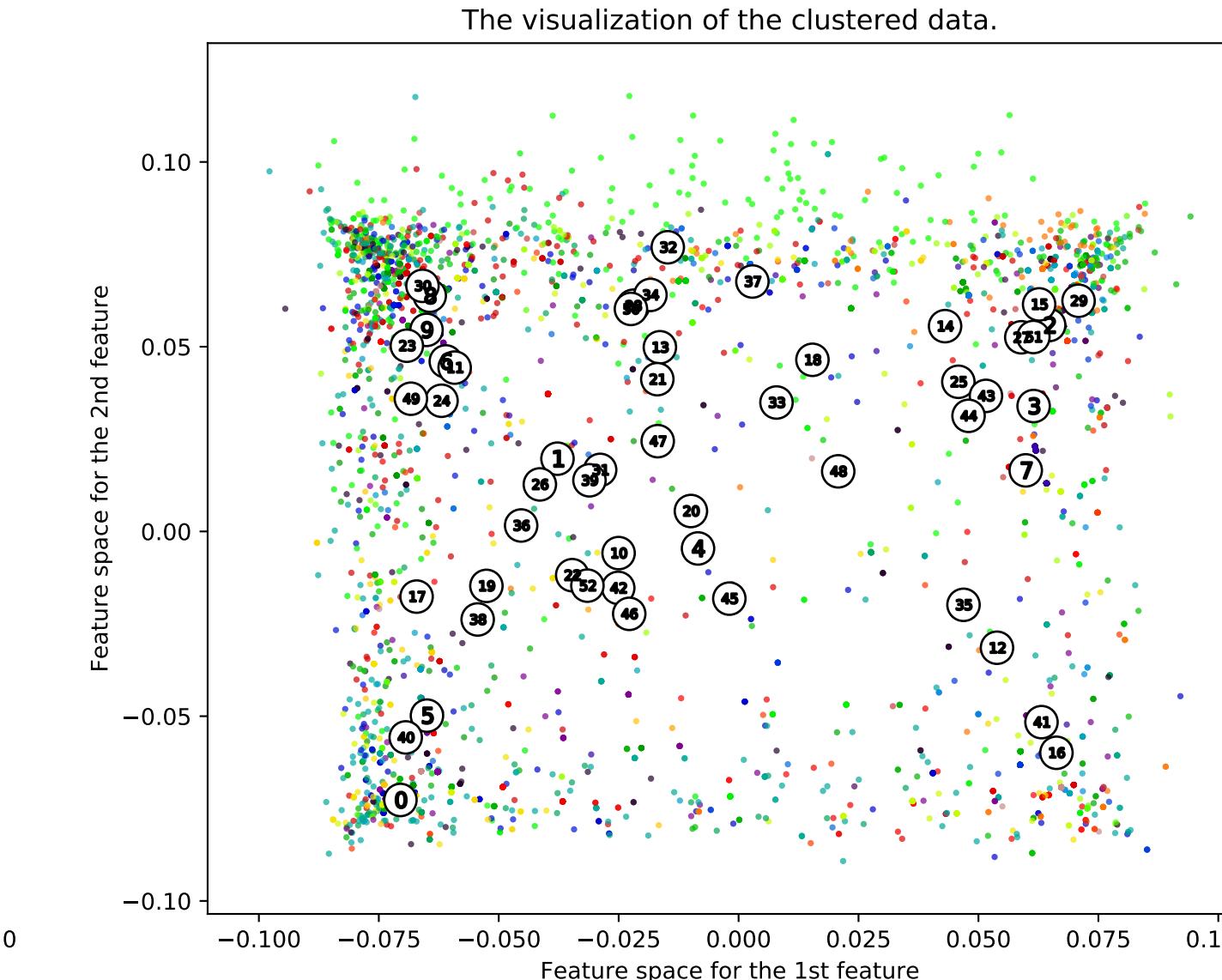
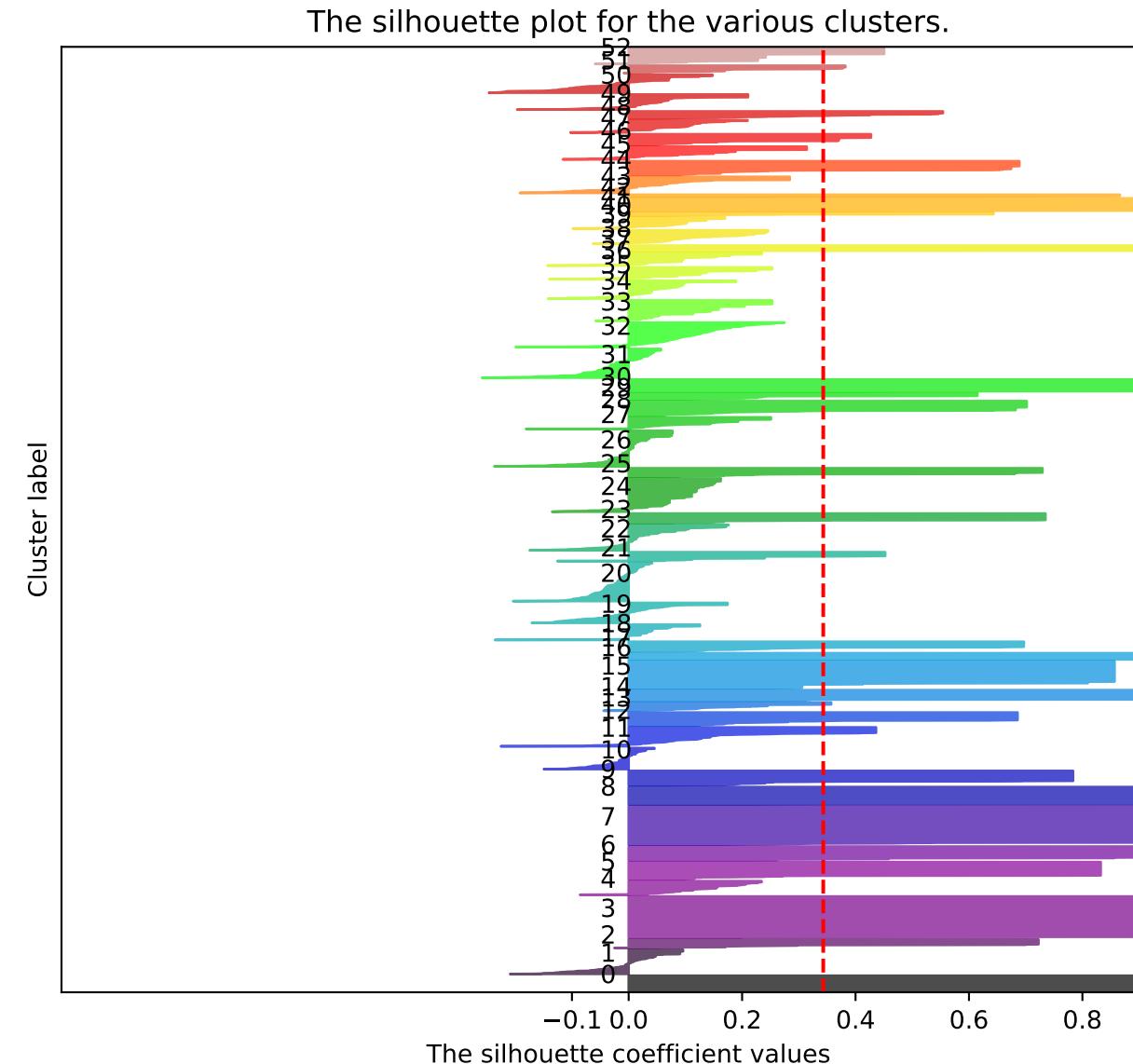
The silhouette plot for the various clusters.



The visualization of the clustered data.

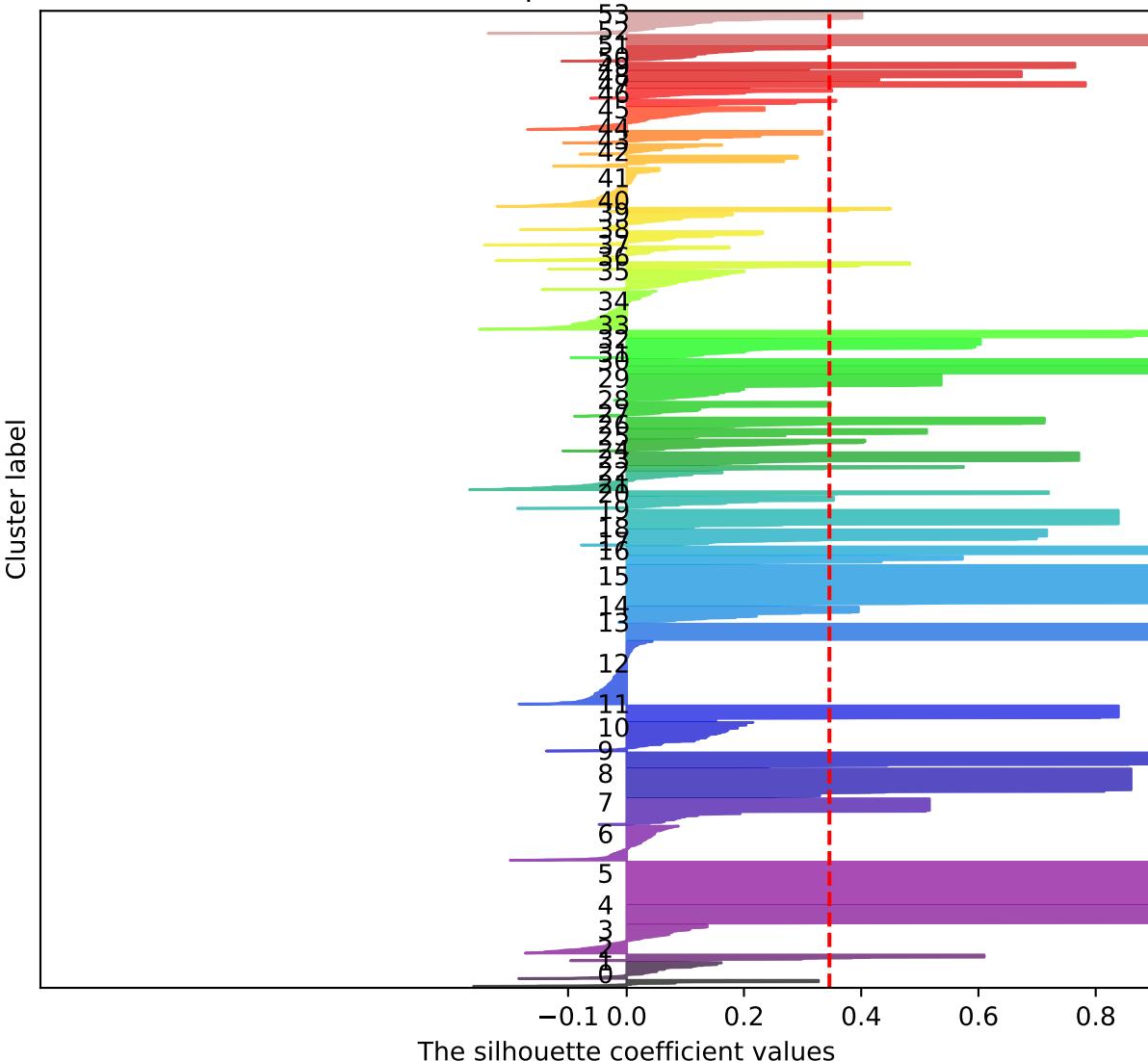


Silhouette analysis for KMeans clustering on sample data with n_clusters = 53 with Average Silhouette of: 0.34307342767715454

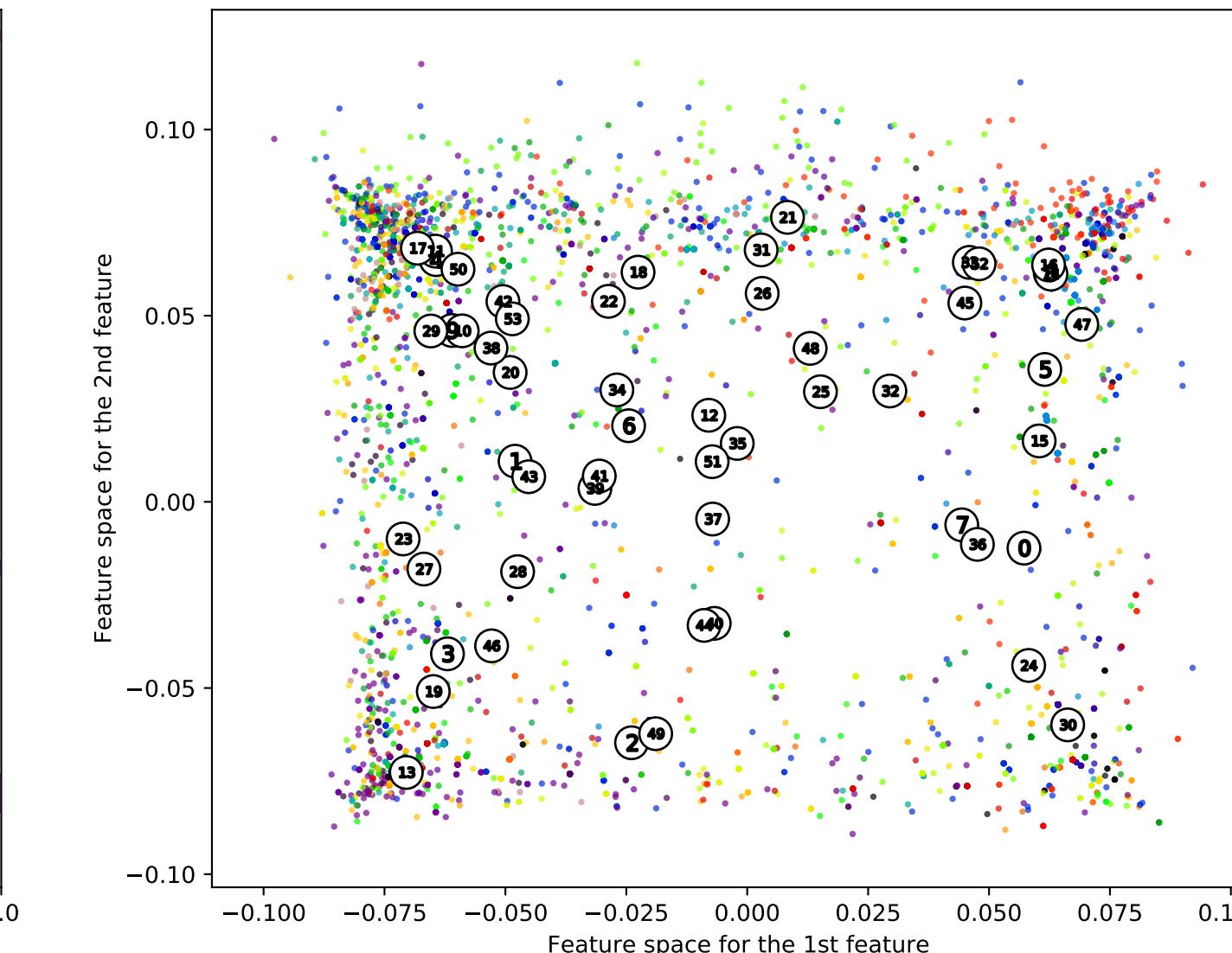


Silhouette analysis for KMeans clustering on sample data with n_clusters = 54 with Average Silhouette of: 0.3457719385623932

The silhouette plot for the various clusters.

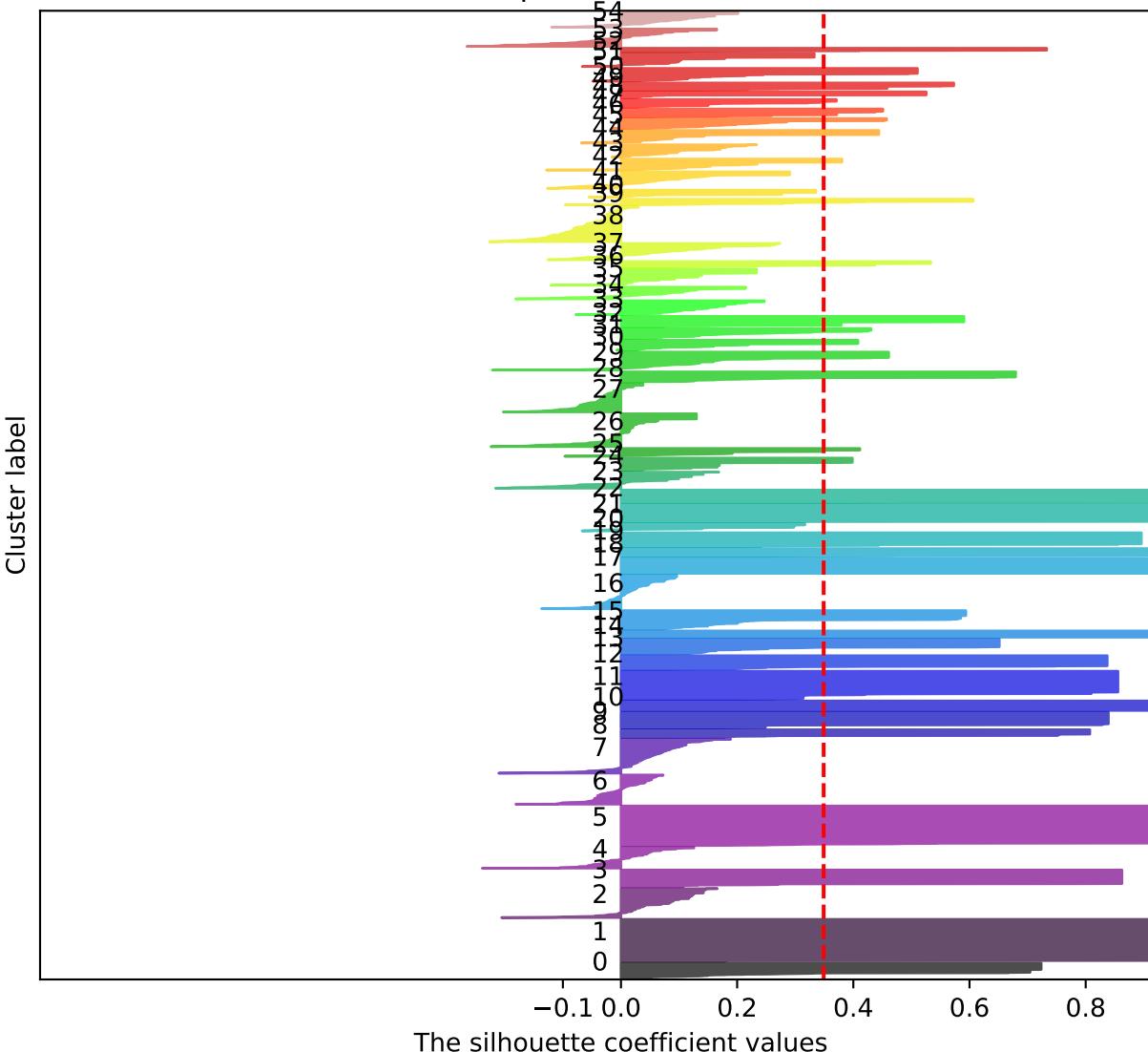


The visualization of the clustered data.

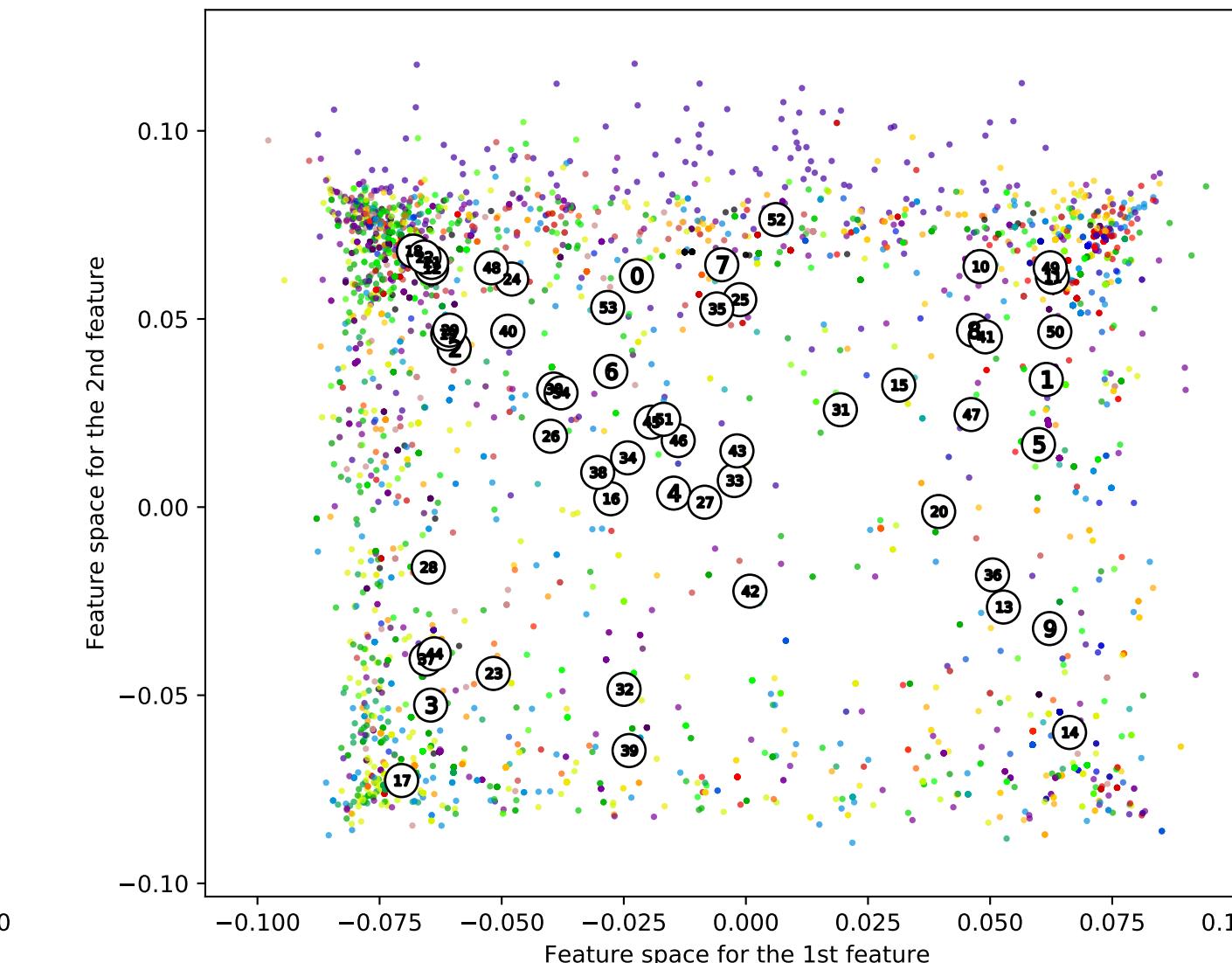


Silhouette analysis for KMeans clustering on sample data with n_clusters = 55 with Average Silhouette of: 0.3489183187484741

The silhouette plot for the various clusters.

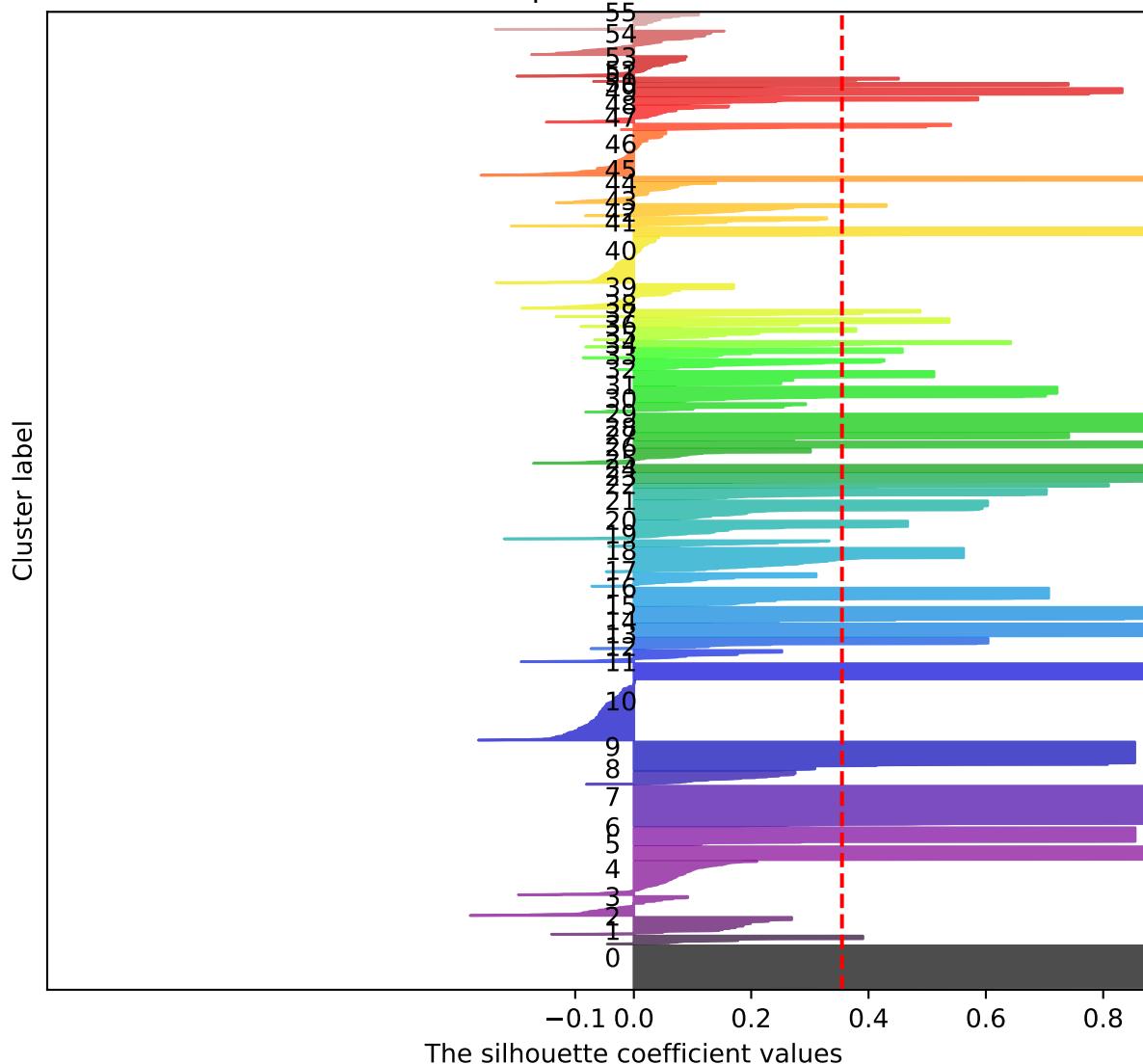


The visualization of the clustered data.

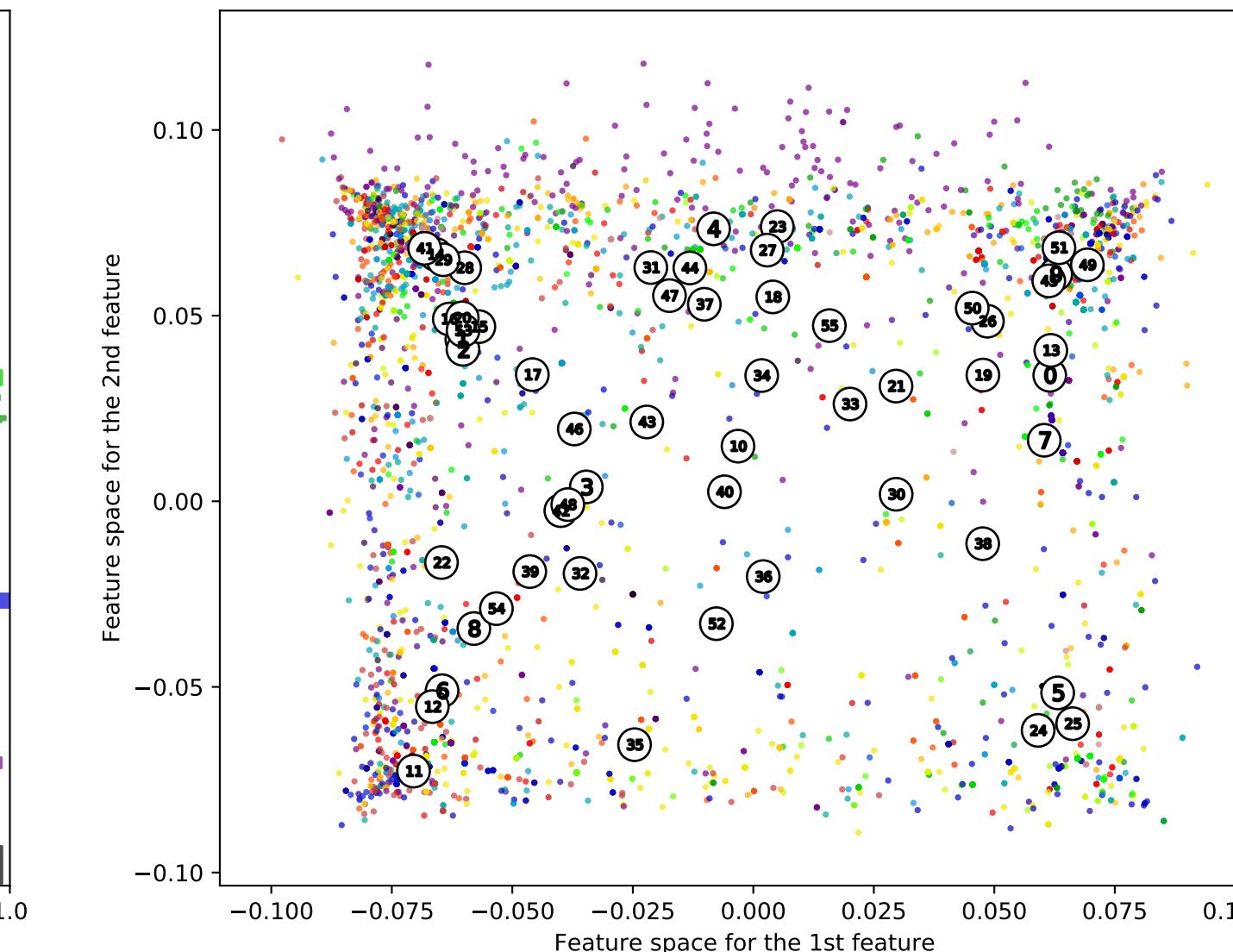


Silhouette analysis for KMeans clustering on sample data with n_clusters = 56 with Average Silhouette of: 0.354713499546051

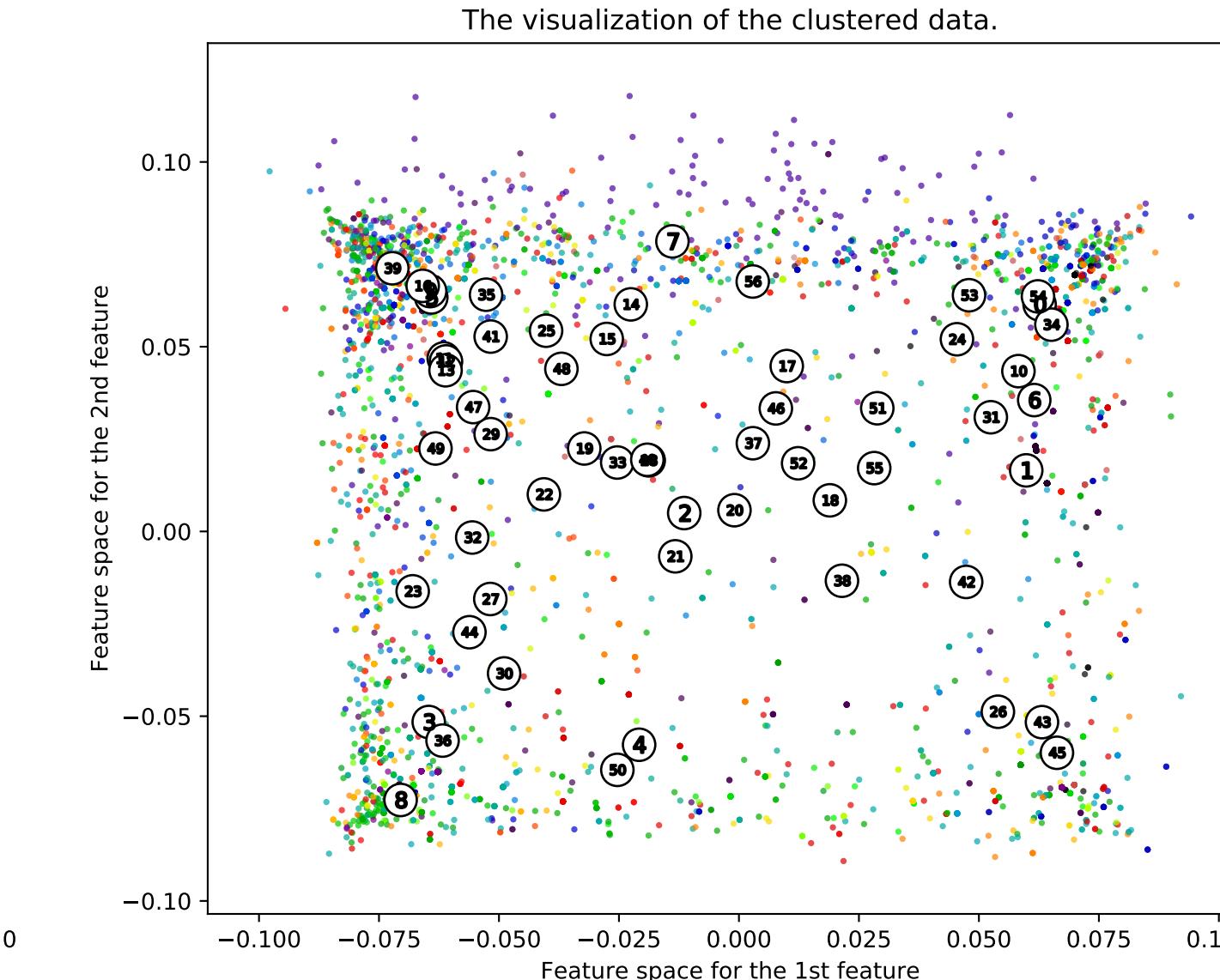
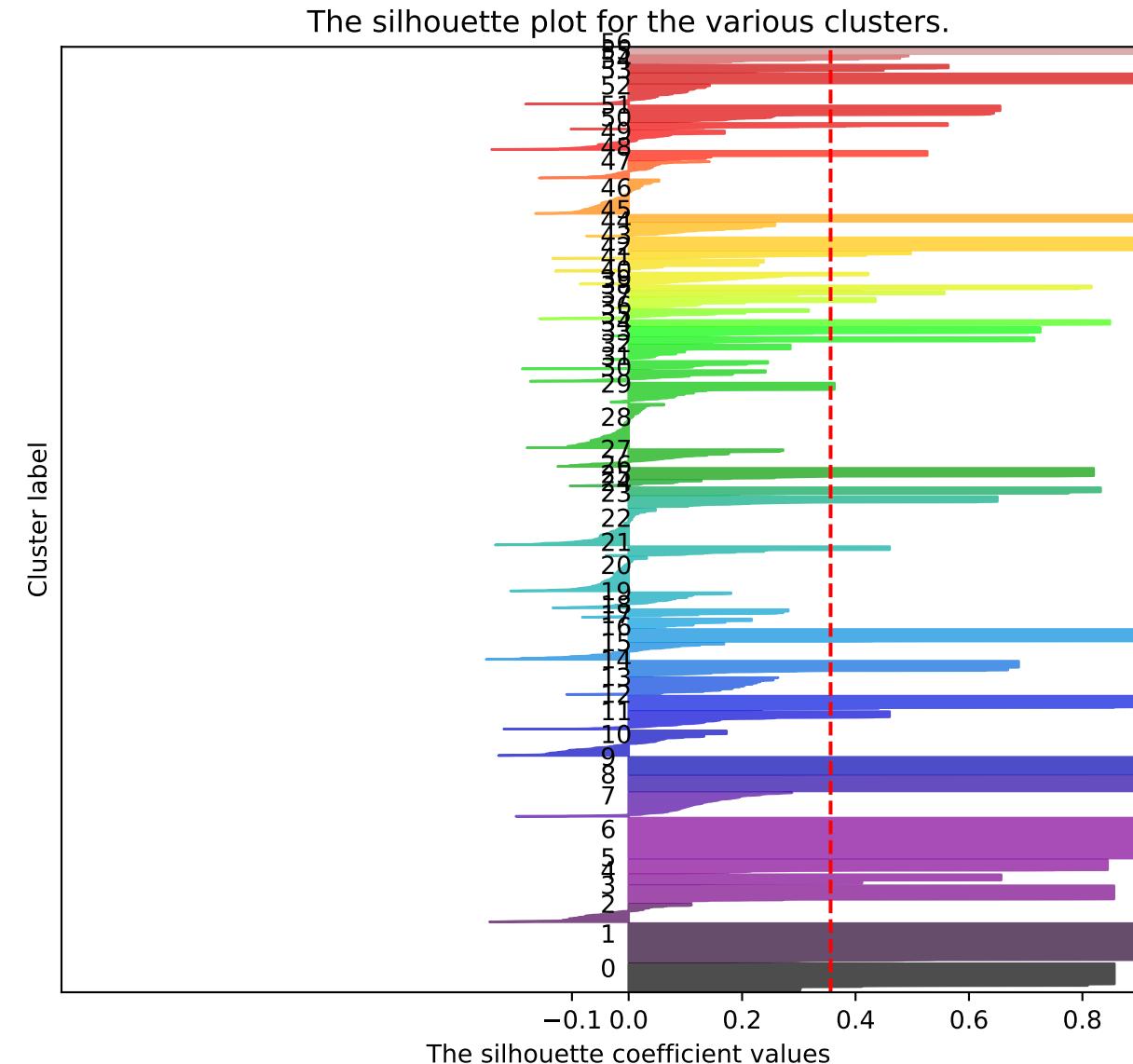
The silhouette plot for the various clusters.



The visualization of the clustered data.

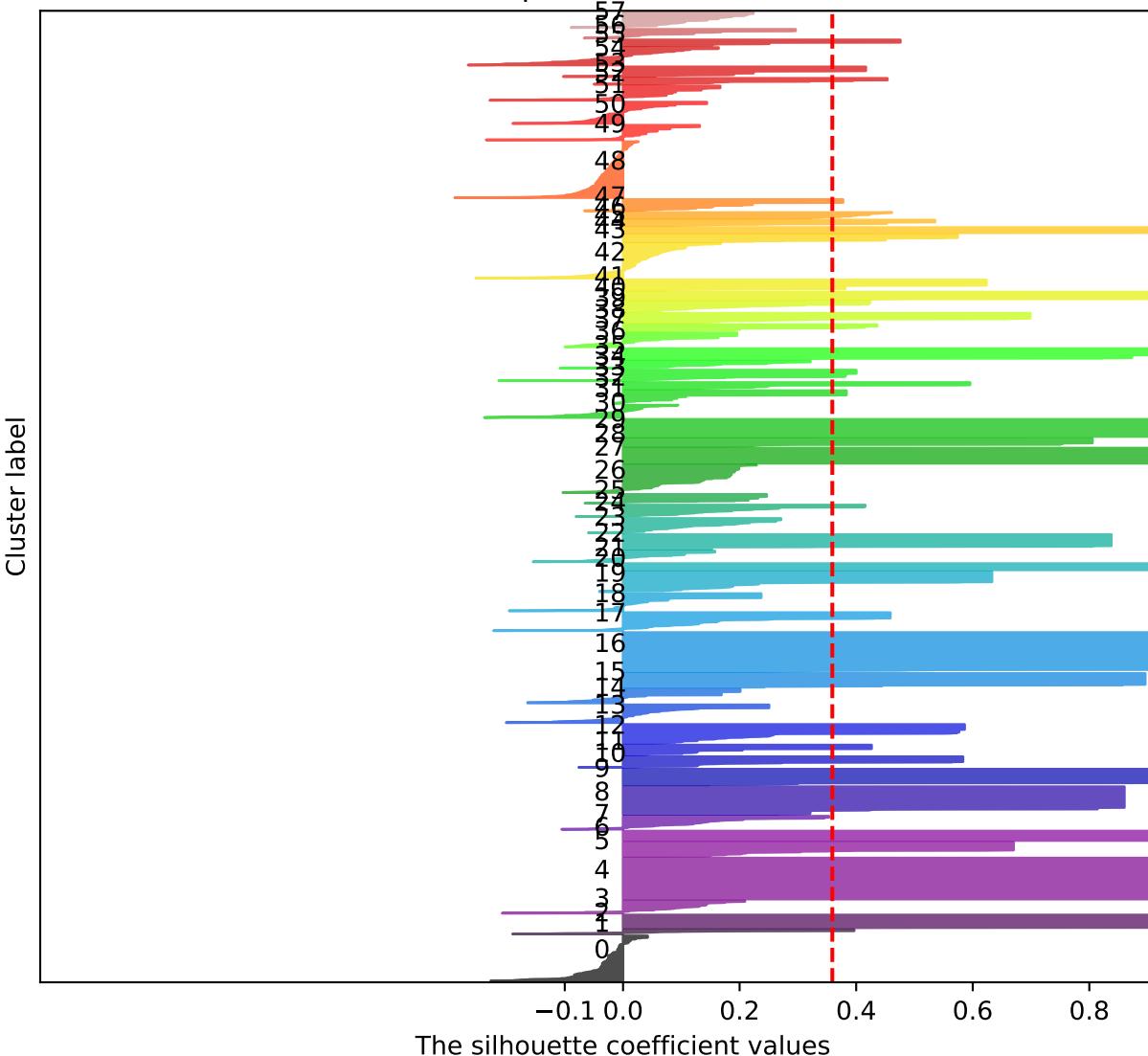


Silhouette analysis for KMeans clustering on sample data with n_clusters = 57 with Average Silhouette of: 0.35599958896636963

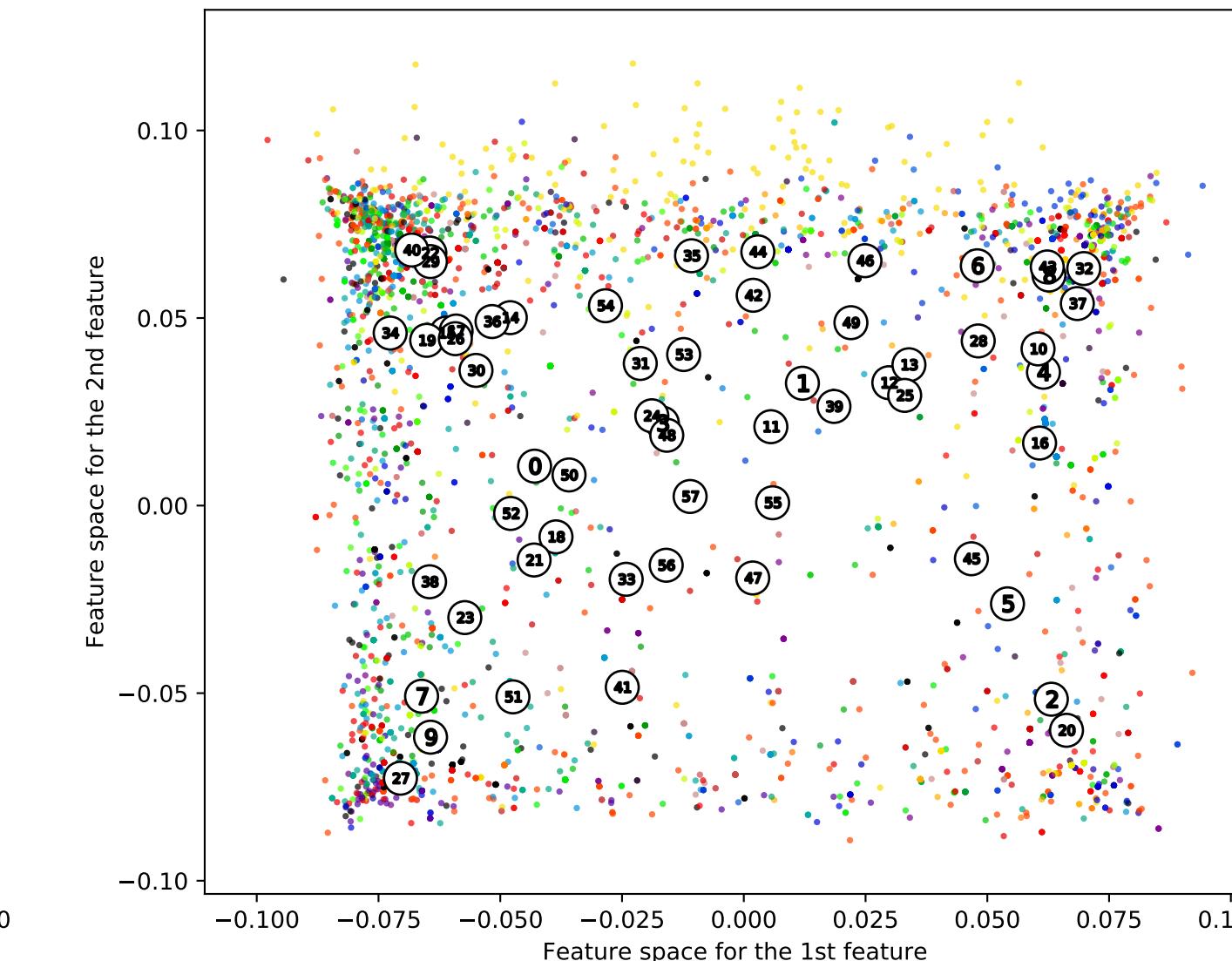


Silhouette analysis for KMeans clustering on sample data with n_clusters = 58 with Average Silhouette of: 0.3590283989906311

The silhouette plot for the various clusters.

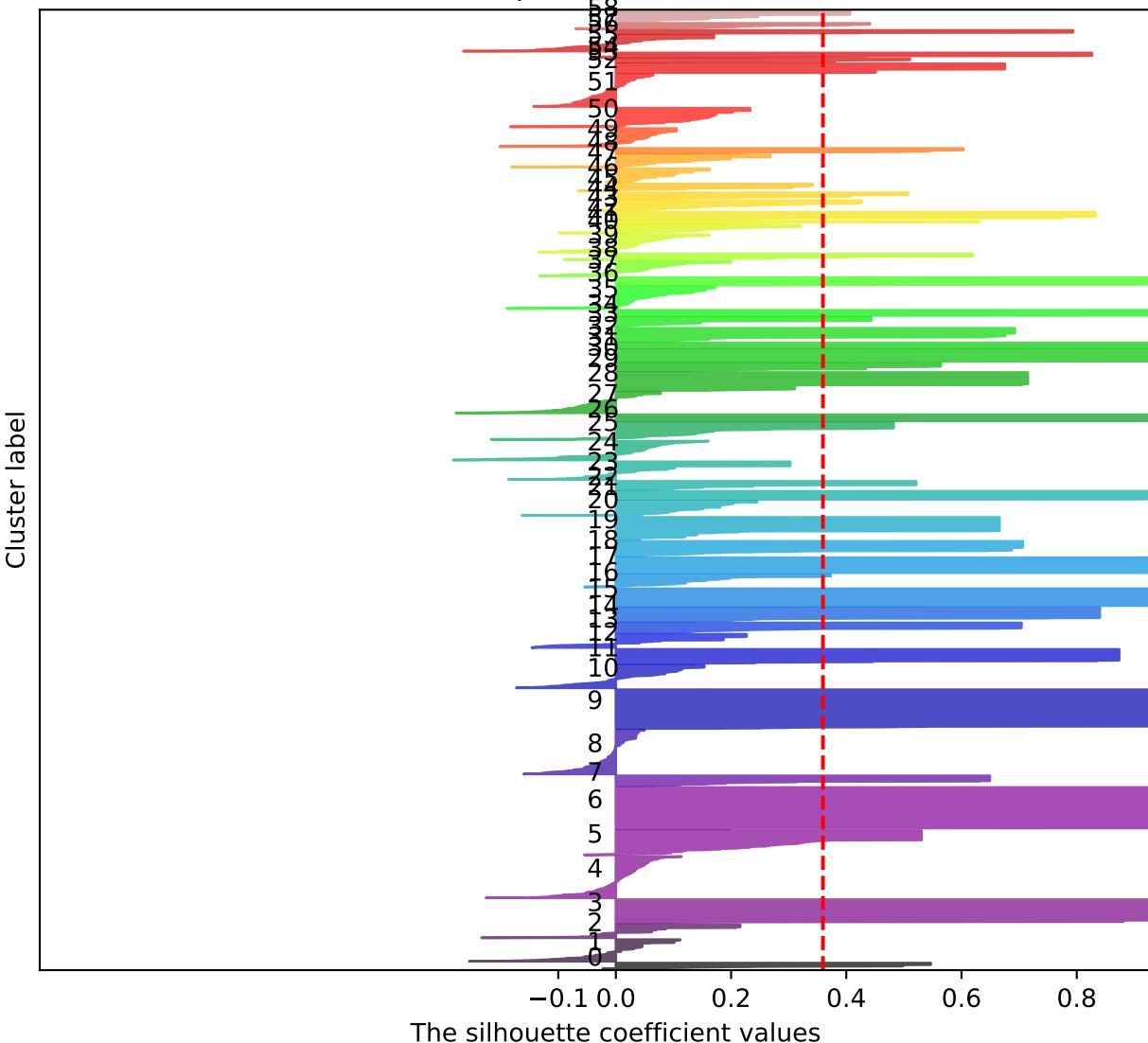


The visualization of the clustered data.

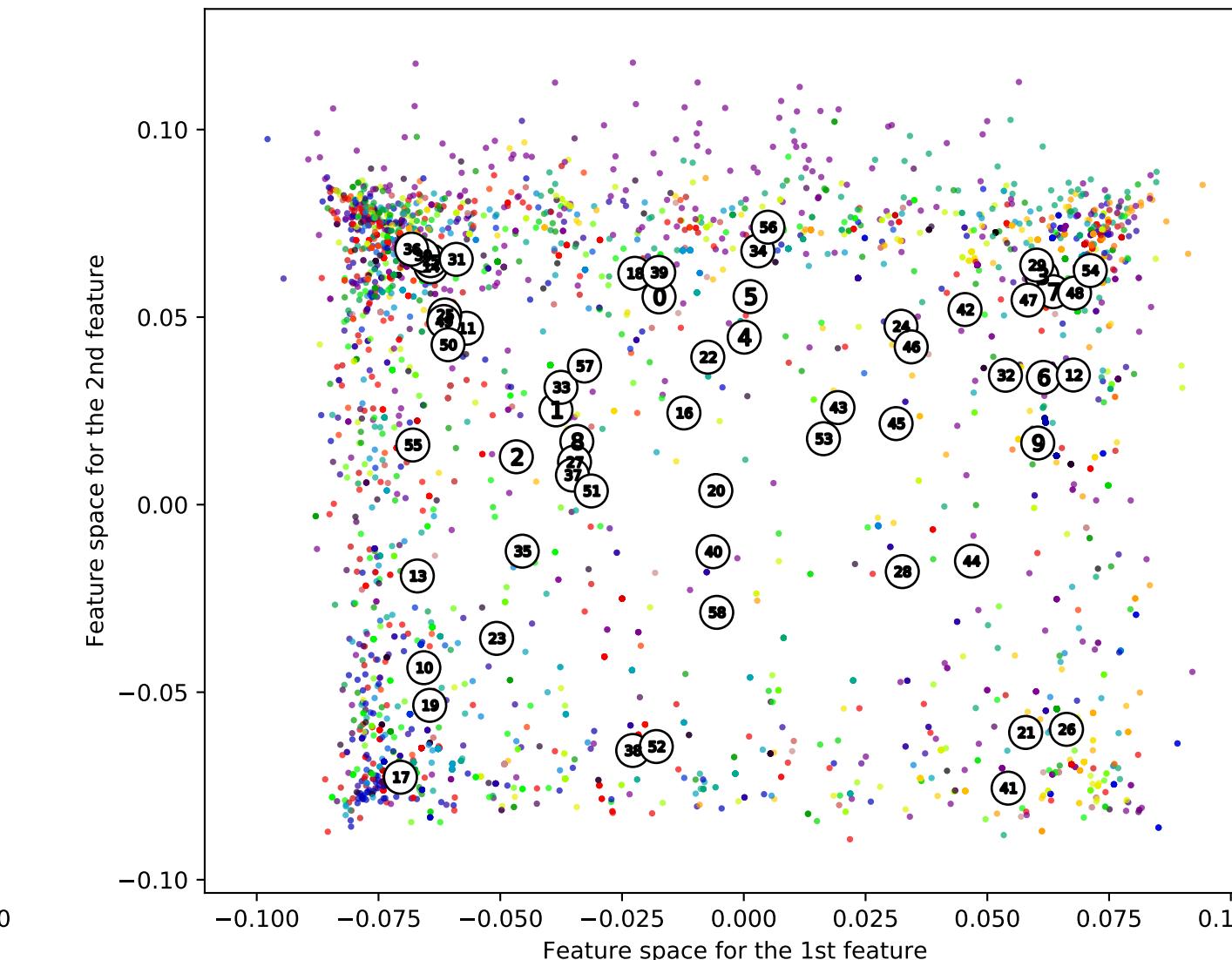


Silhouette analysis for KMeans clustering on sample data with n_clusters = 59 with Average Silhouette of: 0.35946154594421387

The silhouette plot for the various clusters.

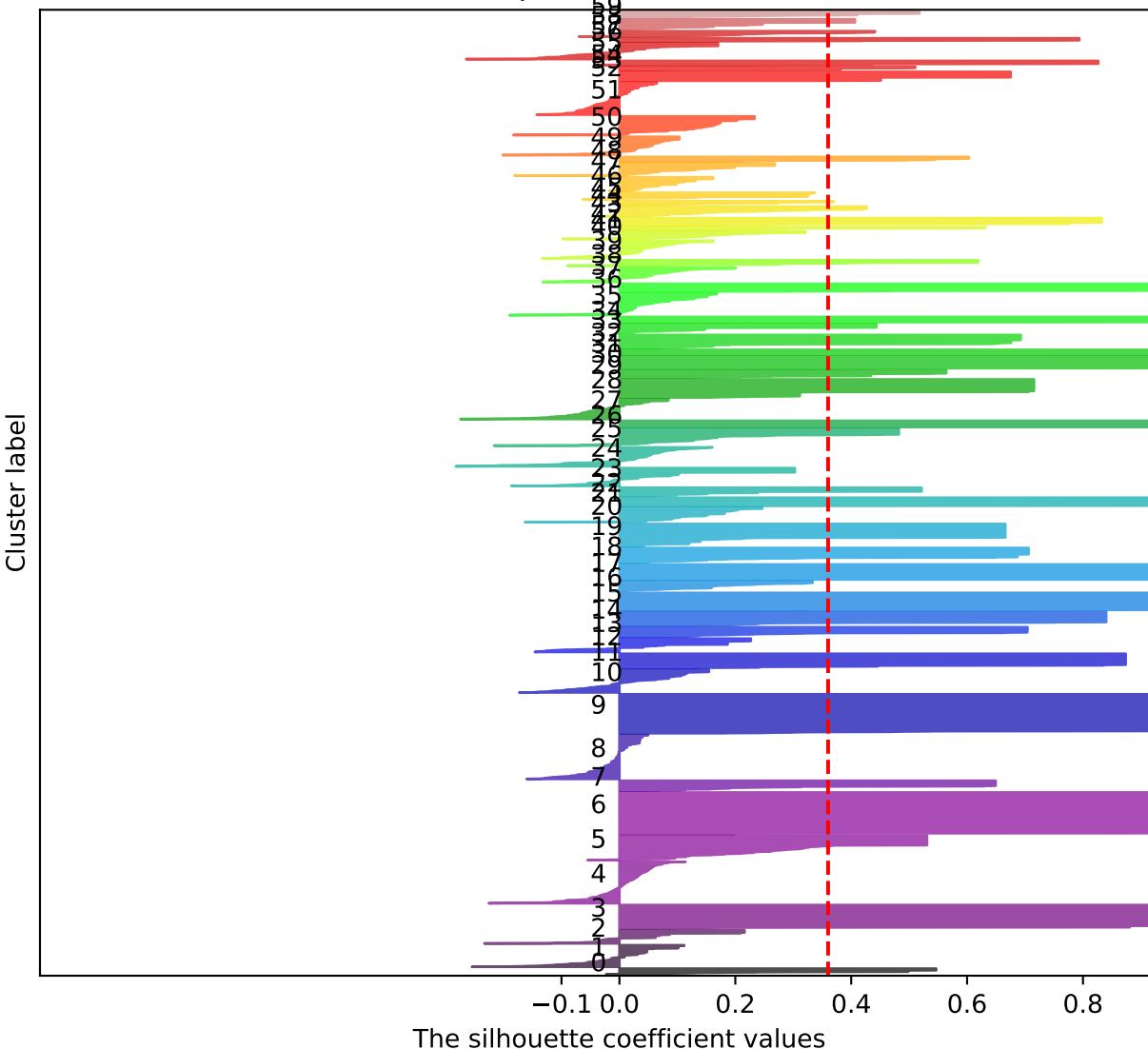


The visualization of the clustered data.

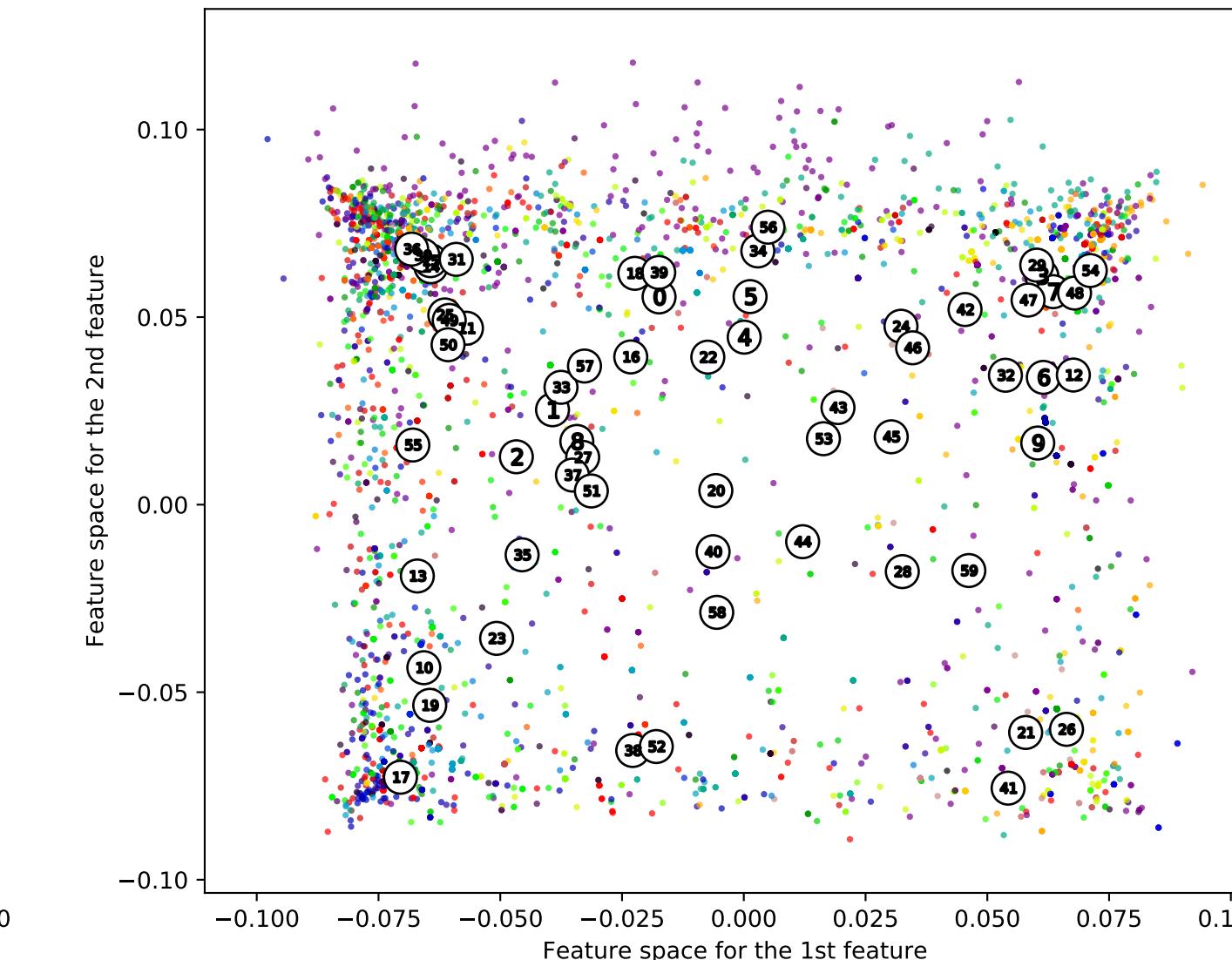


Silhouette analysis for KMeans clustering on sample data with n_clusters = 60 with Average Silhouette of: 0.36008894443511963

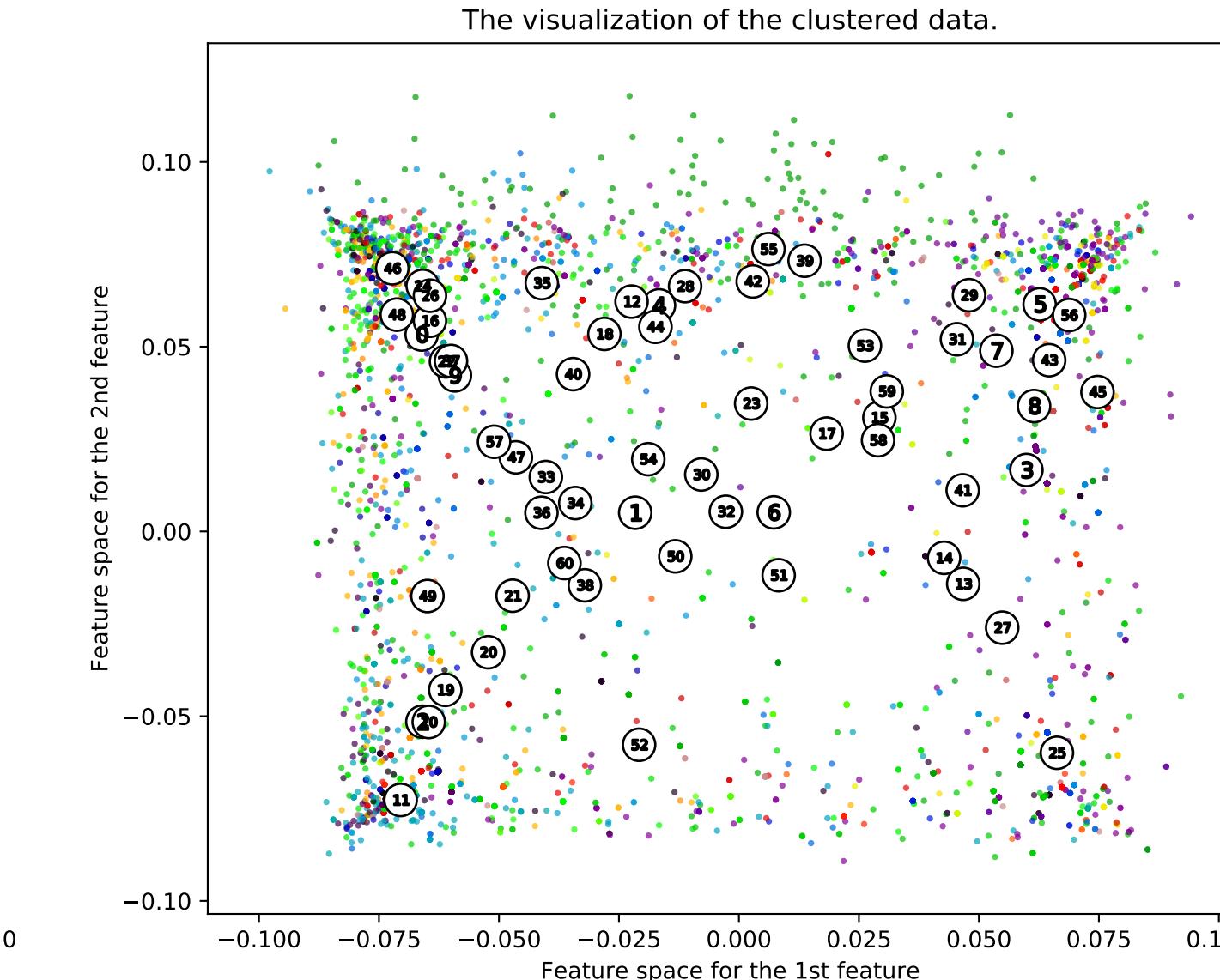
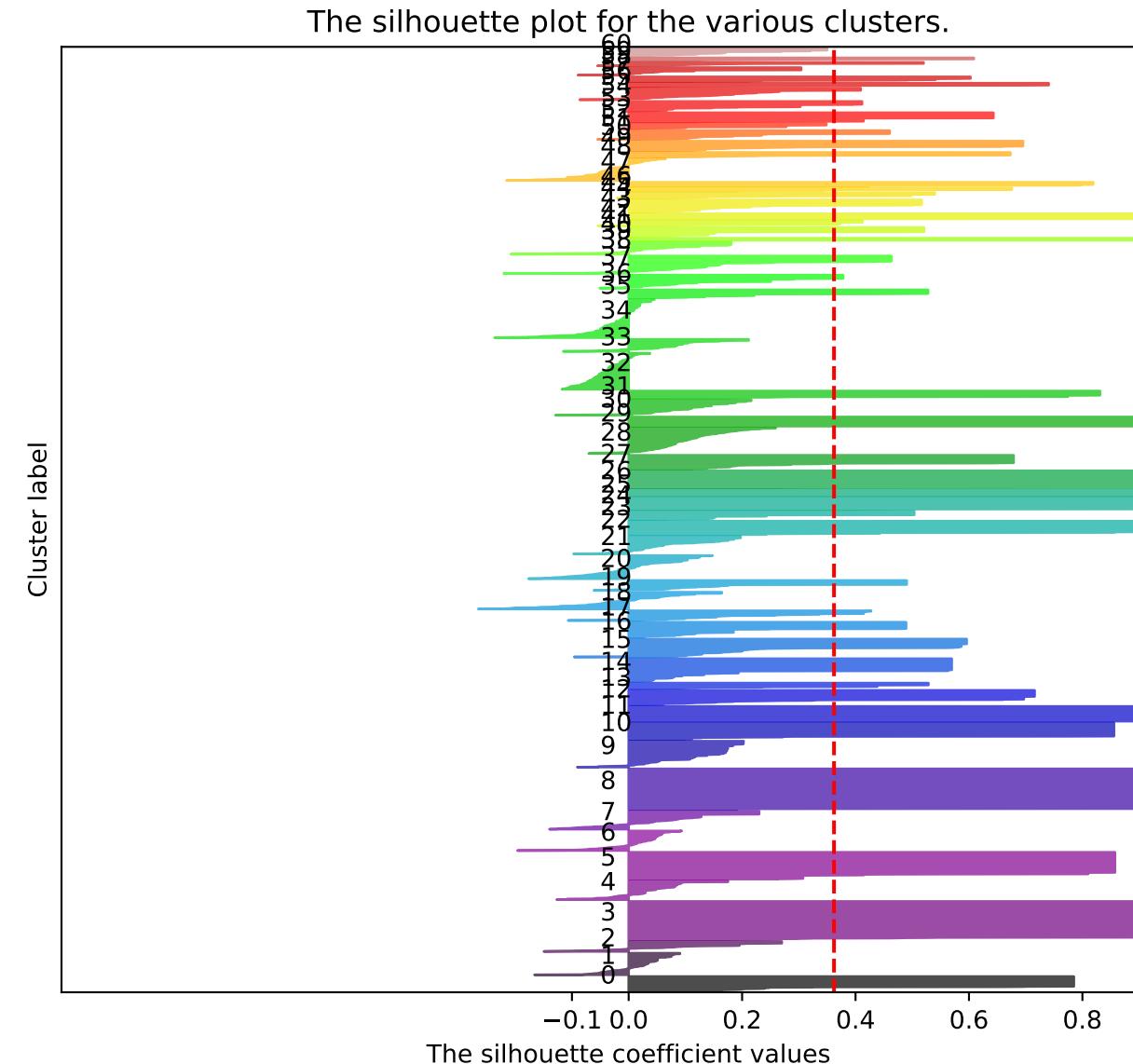
The silhouette plot for the various clusters.



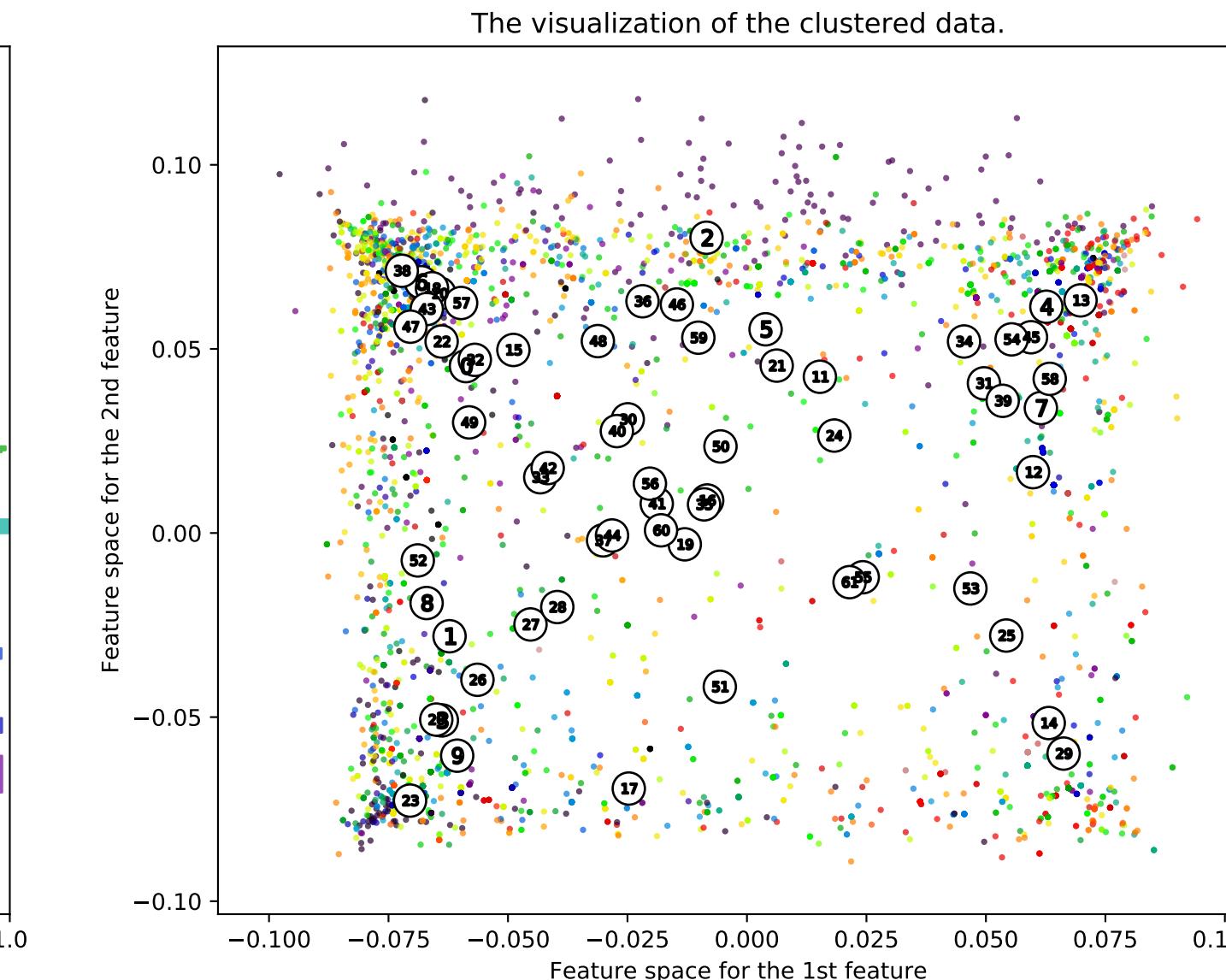
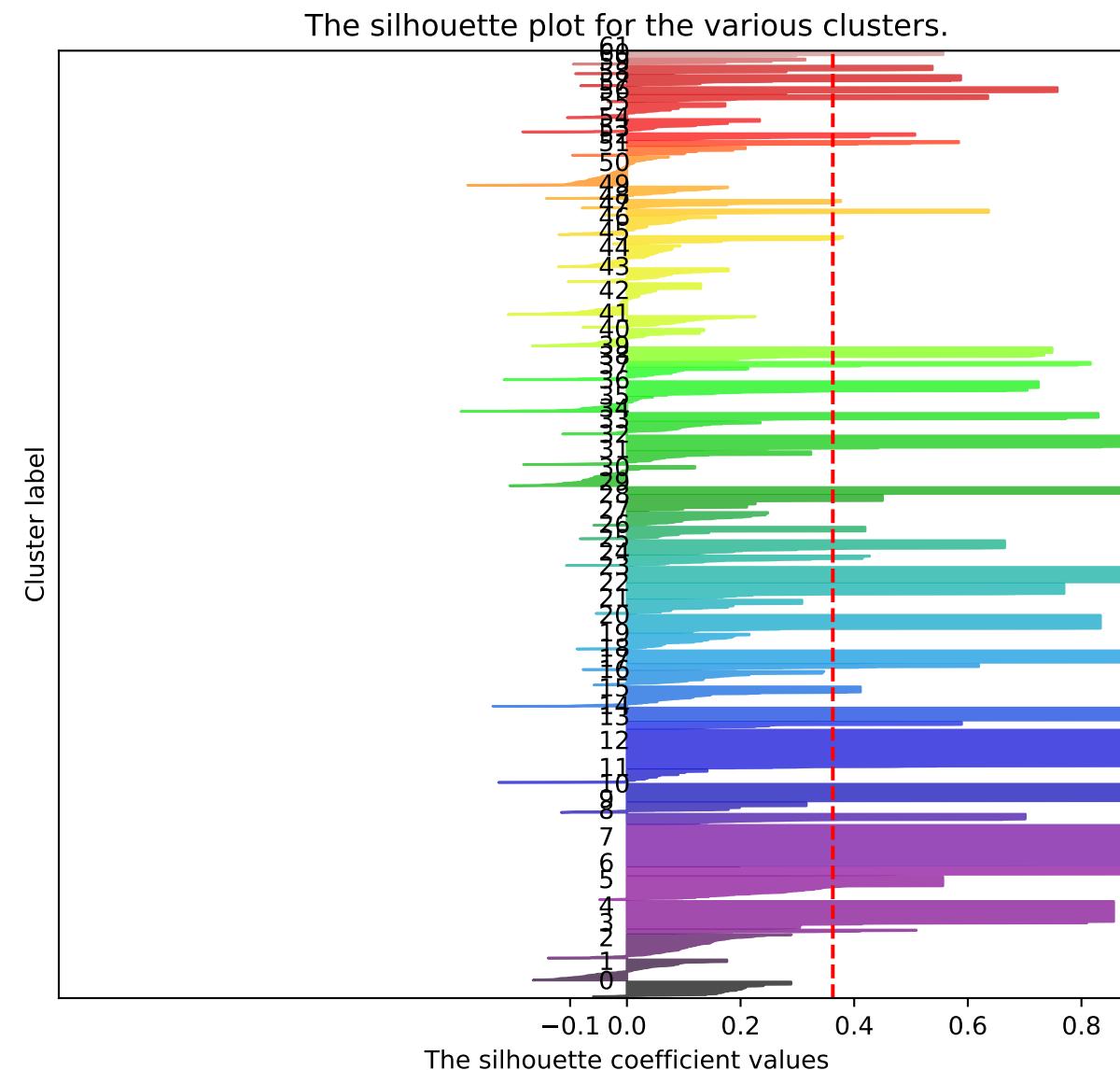
The visualization of the clustered data.



Silhouette analysis for KMeans clustering on sample data with n_clusters = 61 with Average Silhouette of: 0.36203184723854065

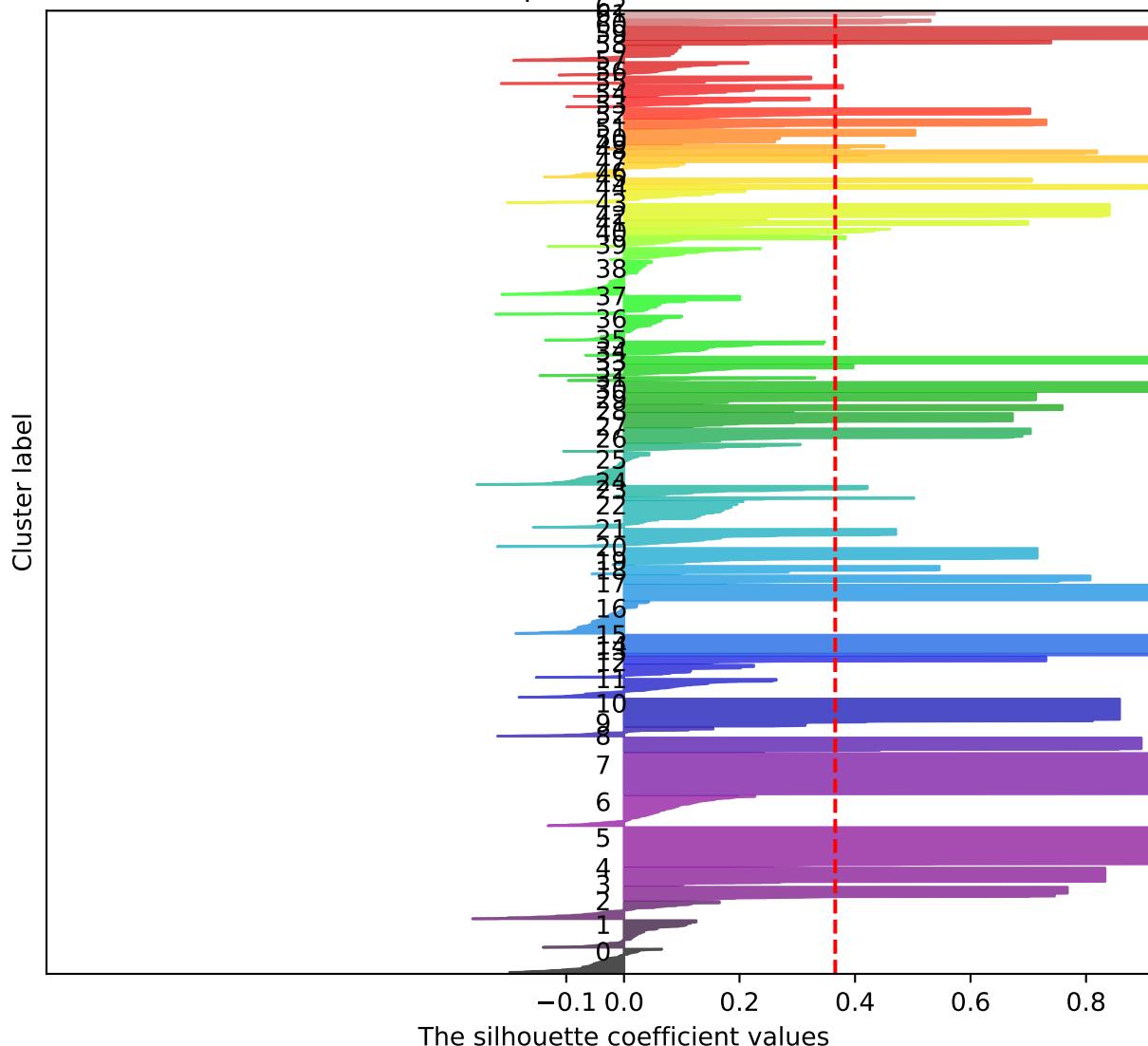


Silhouette analysis for KMeans clustering on sample data with n_clusters = 62 with Average Silhouette of: 0.3623819649219513

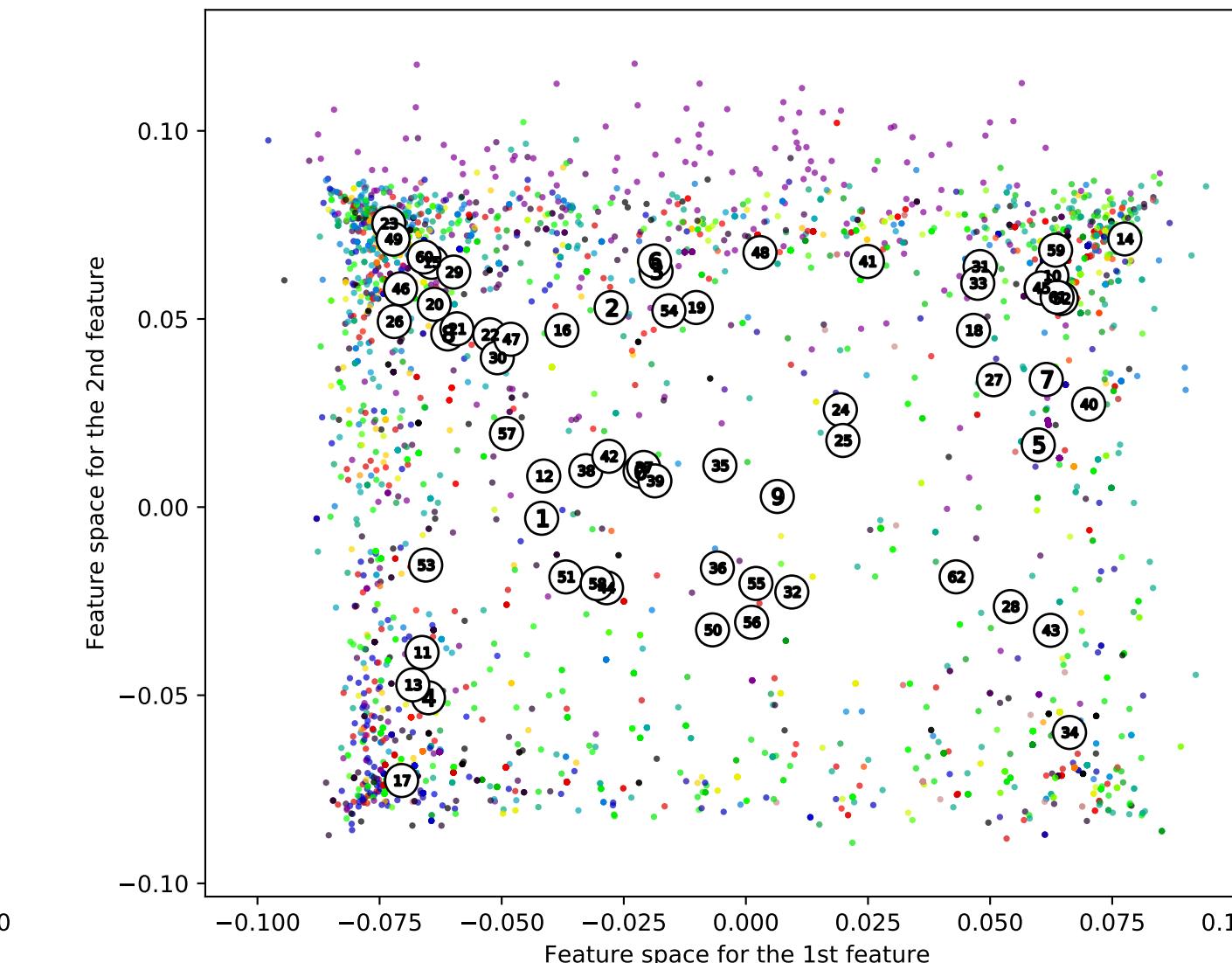


Silhouette analysis for KMeans clustering on sample data with n_clusters = 63 with Average Silhouette of: 0.3657267987728119

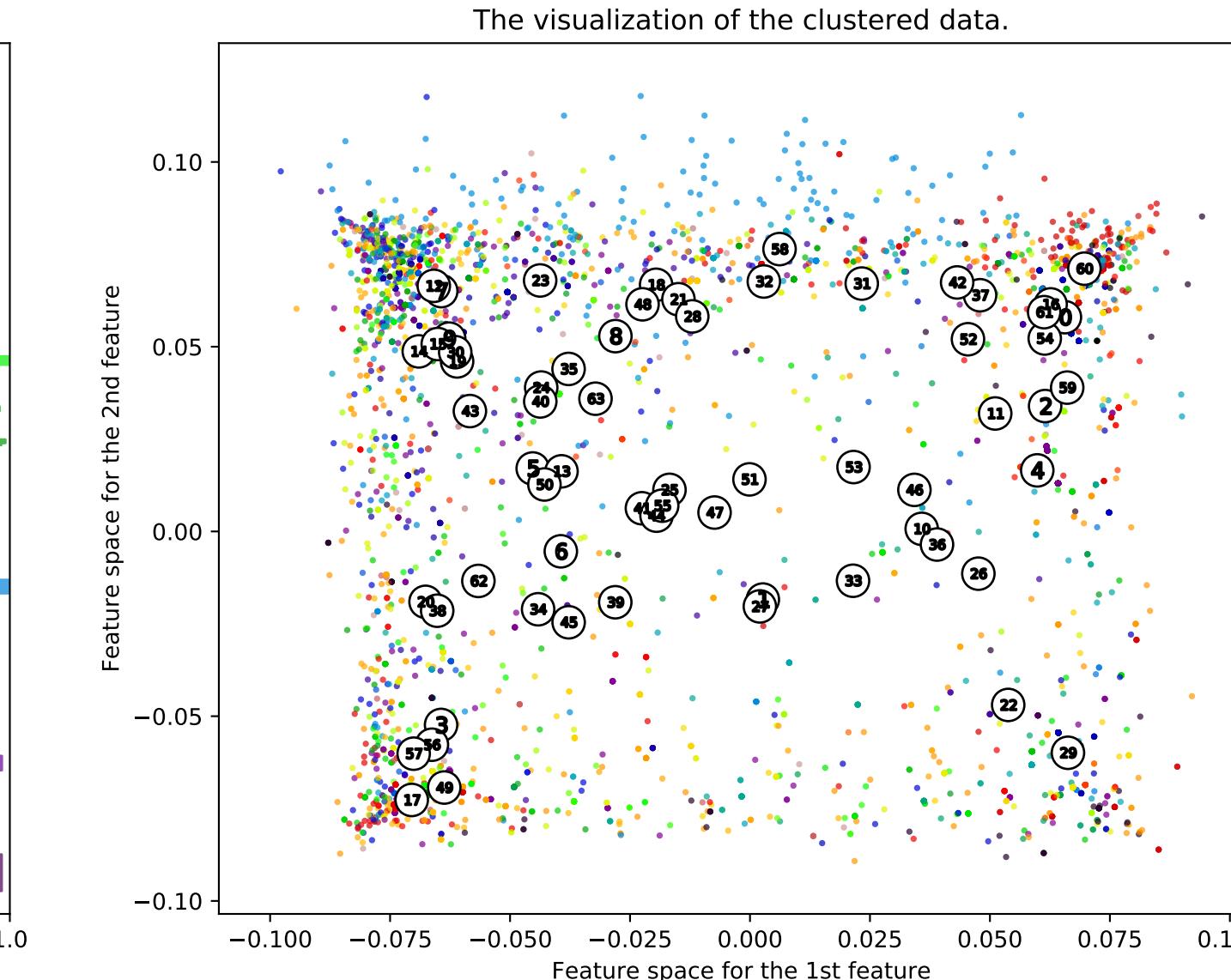
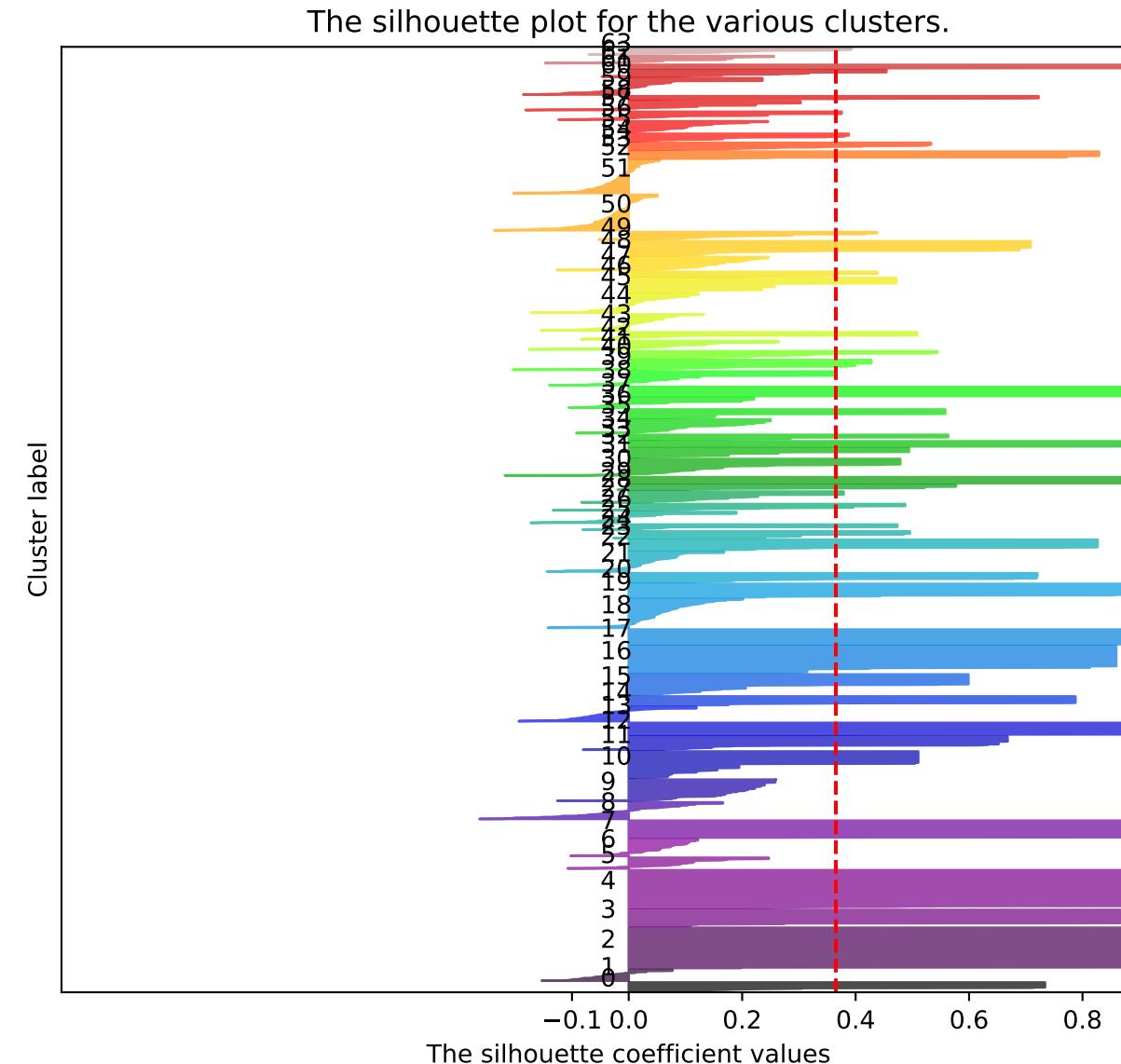
The silhouette plot for the various clusters.



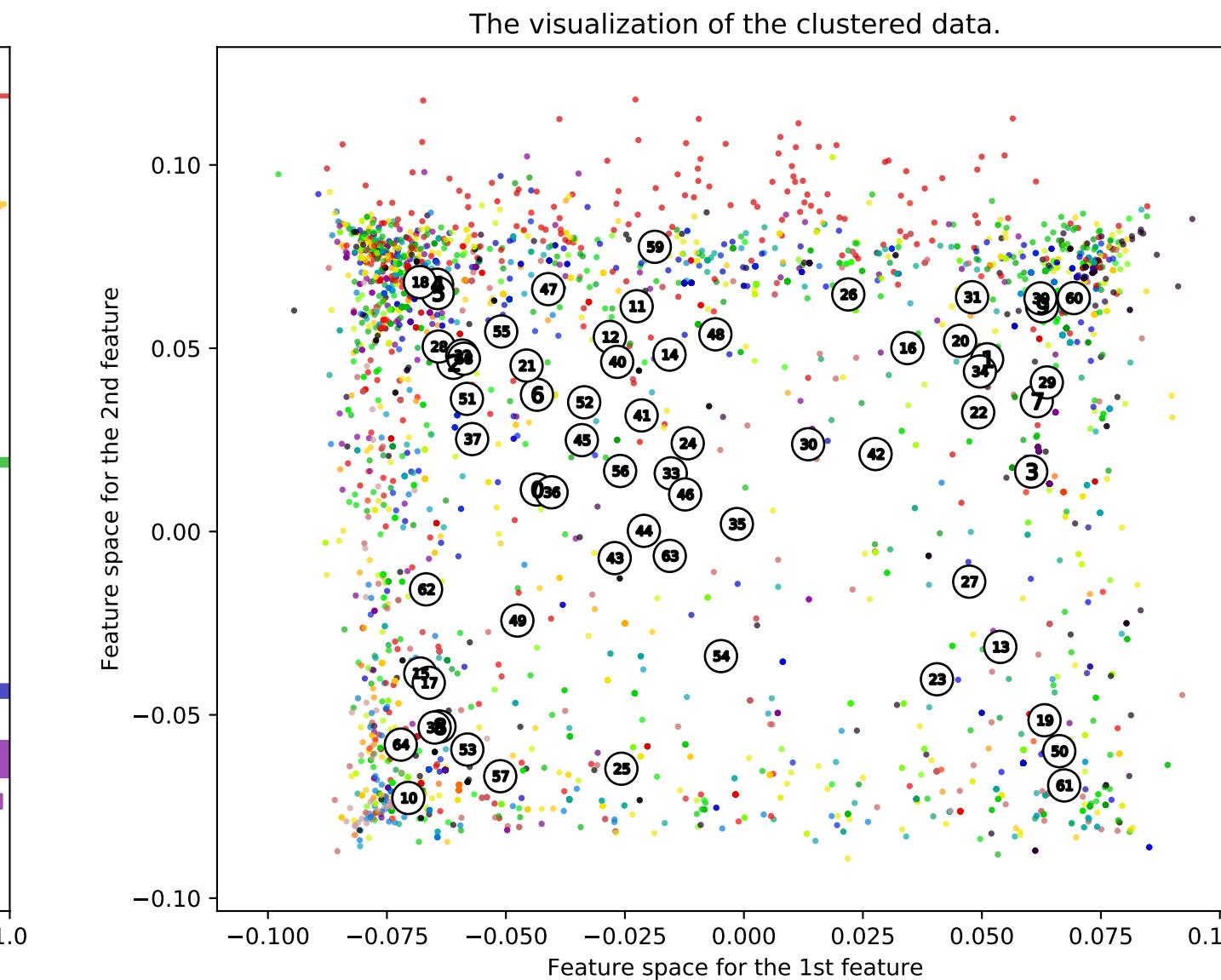
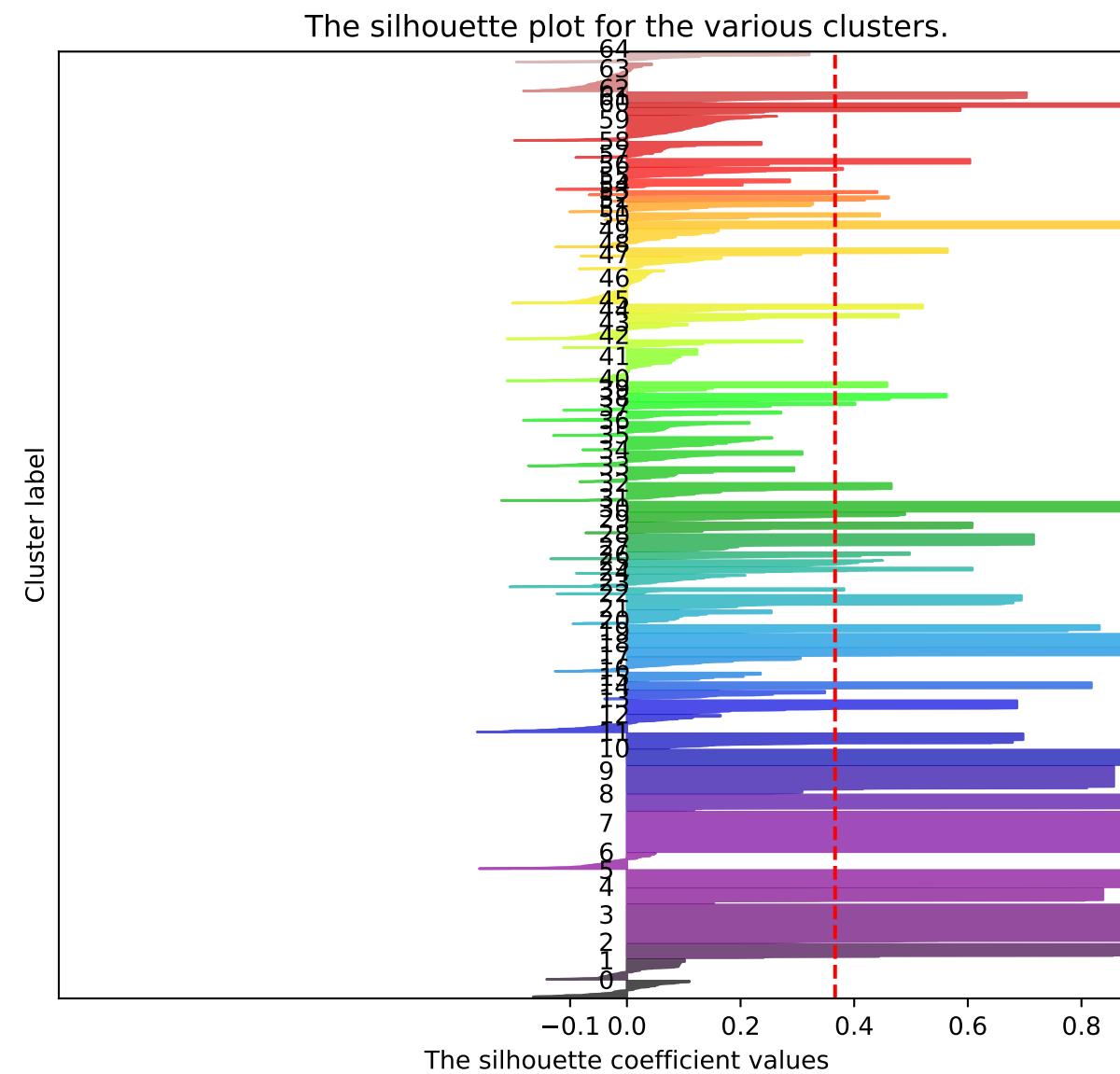
The visualization of the clustered data.



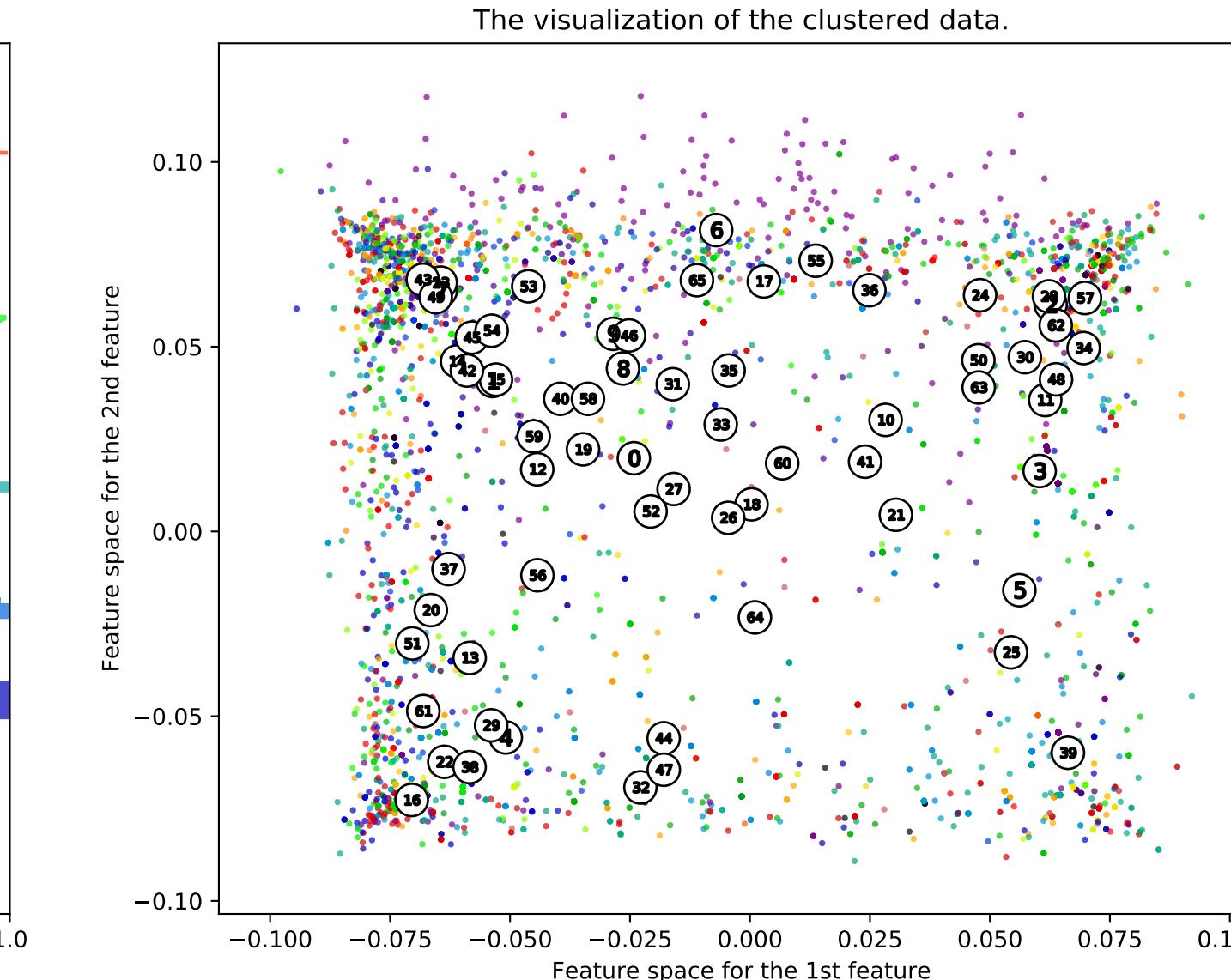
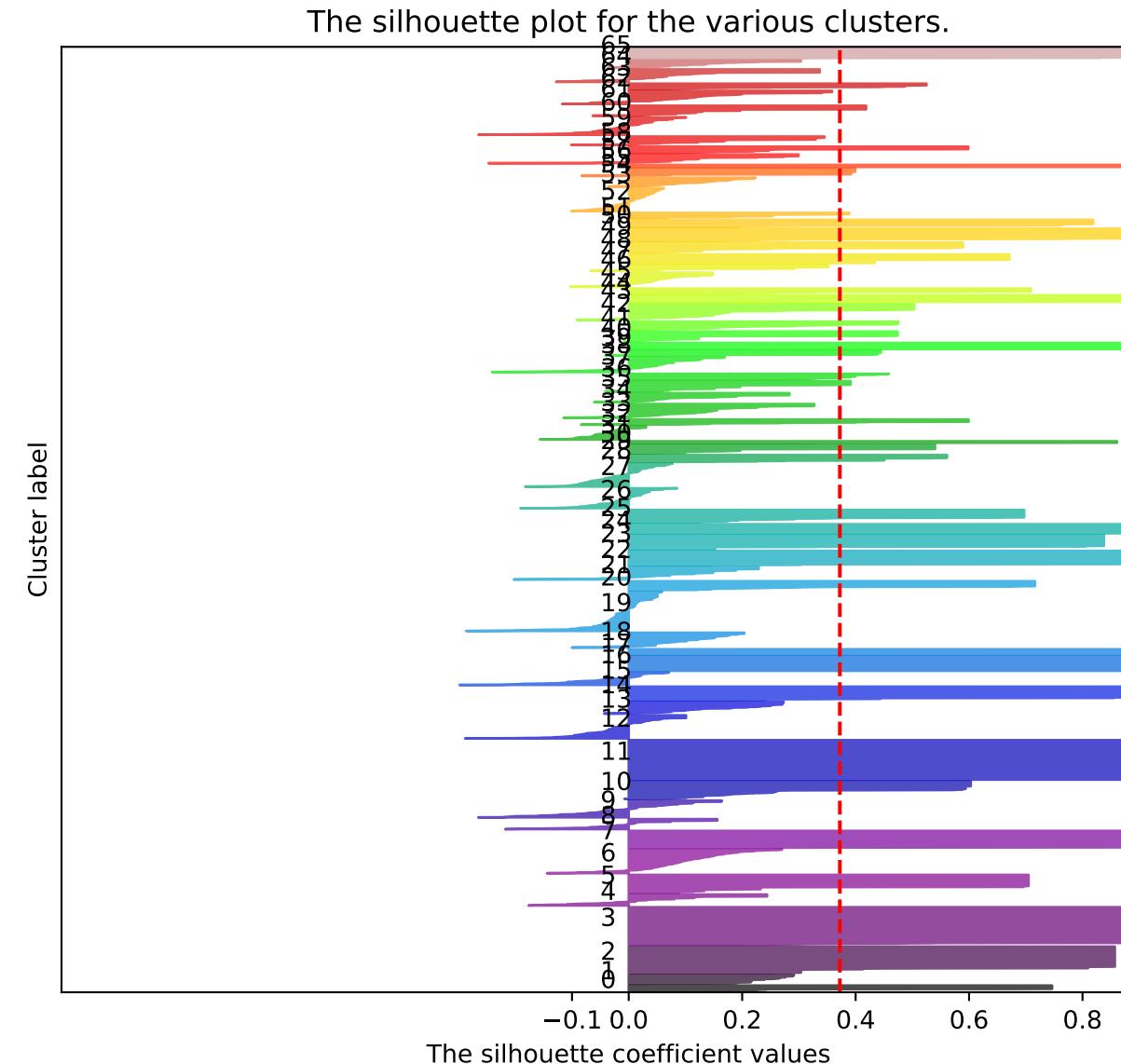
Silhouette analysis for KMeans clustering on sample data with n_clusters = 64 with Average Silhouette of: 0.36514613032341003



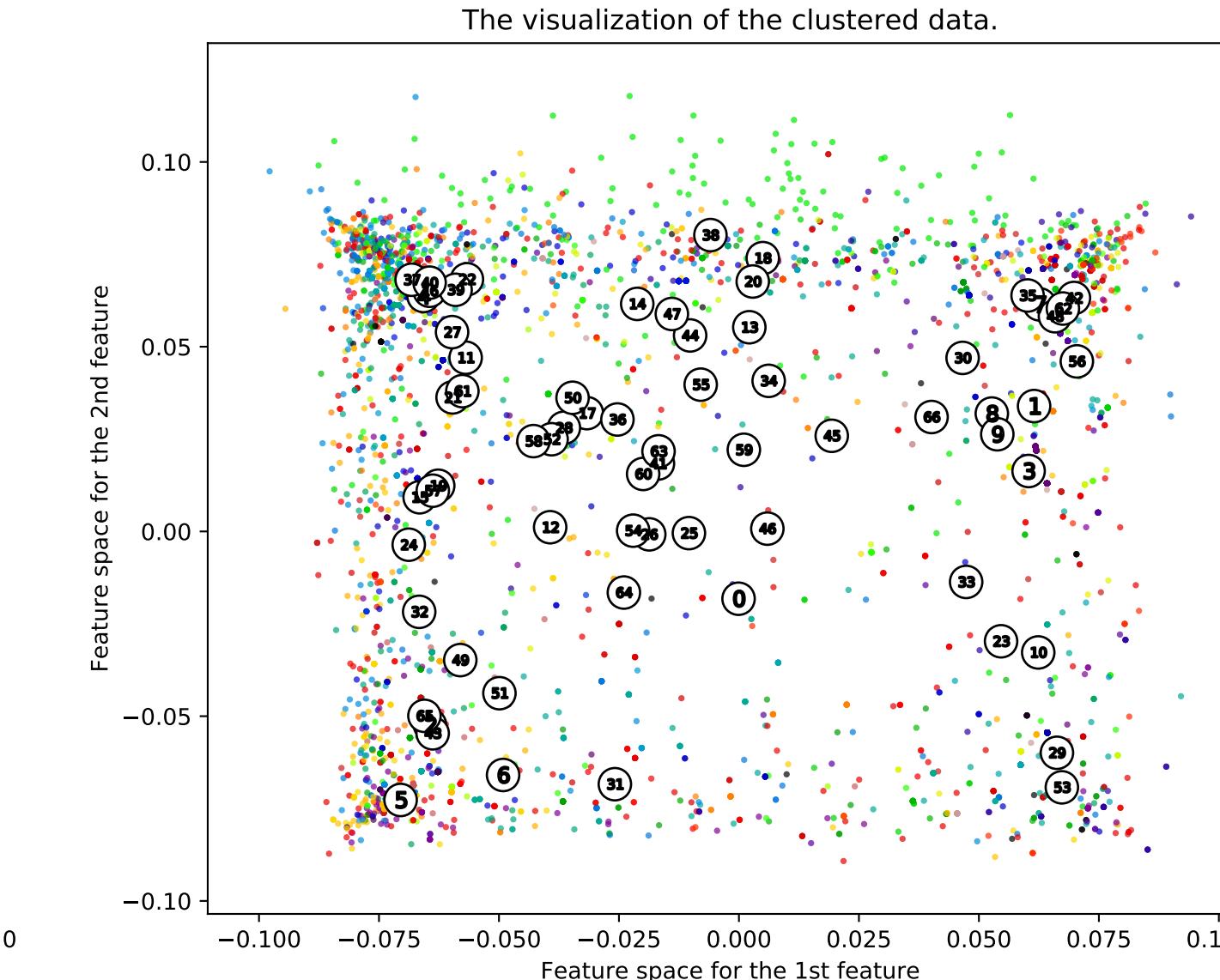
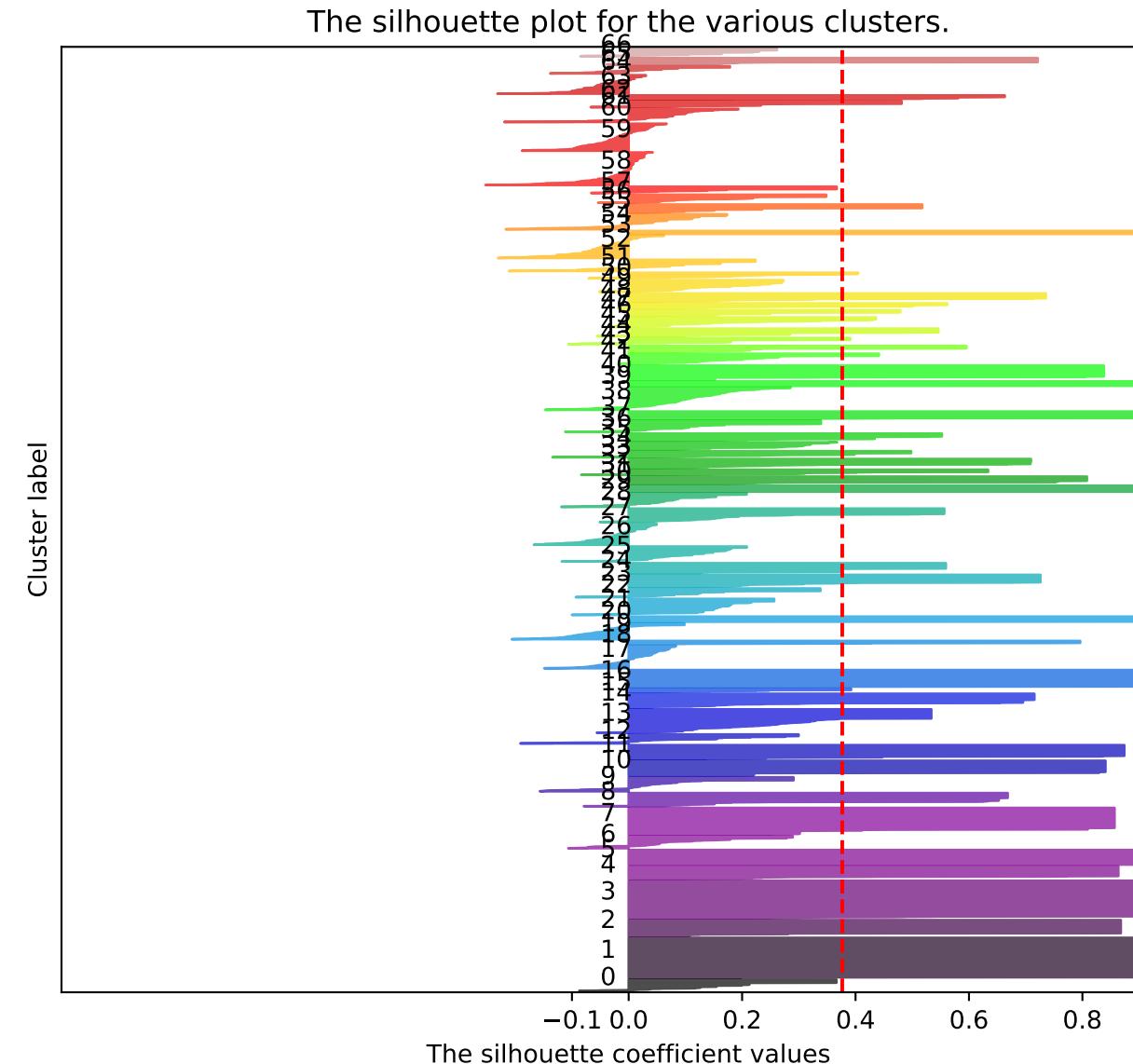
Silhouette analysis for KMeans clustering on sample data with n_clusters = 65 with Average Silhouette of: 0.366408109664917



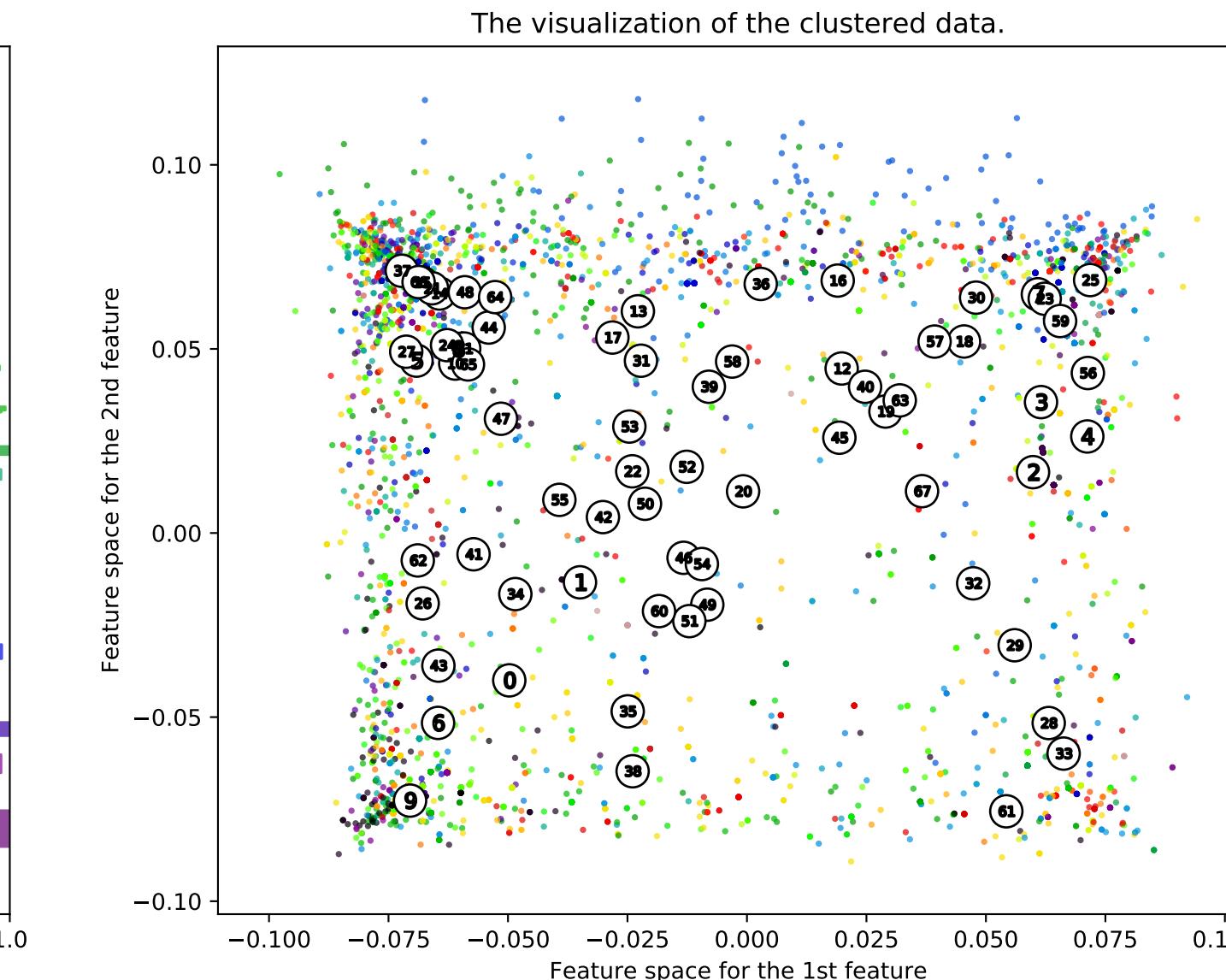
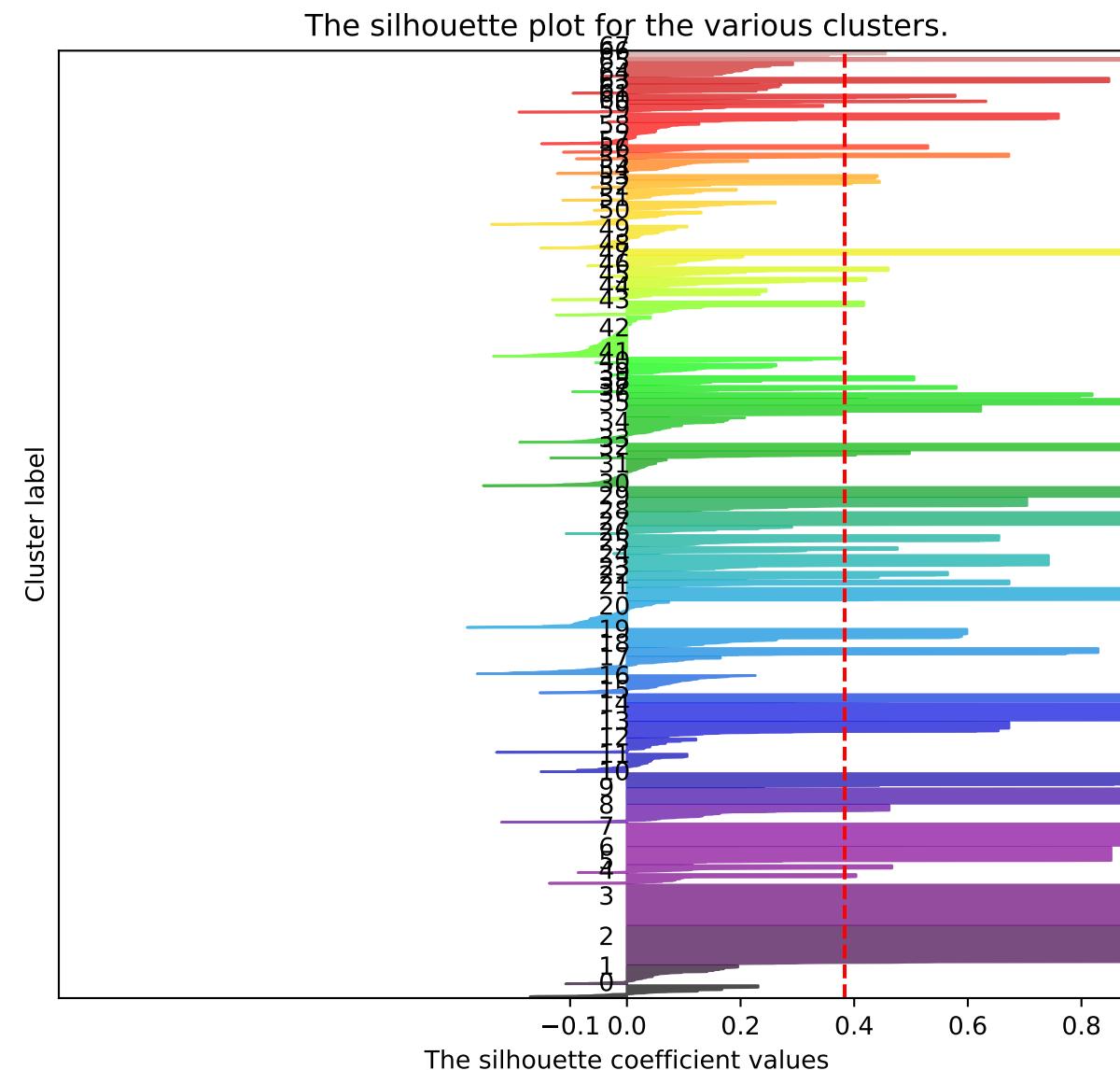
Silhouette analysis for KMeans clustering on sample data with n_clusters = 66 with Average Silhouette of: 0.37218087911605835



Silhouette analysis for KMeans clustering on sample data with n_clusters = 67 with Average Silhouette of: 0.37652018666267395

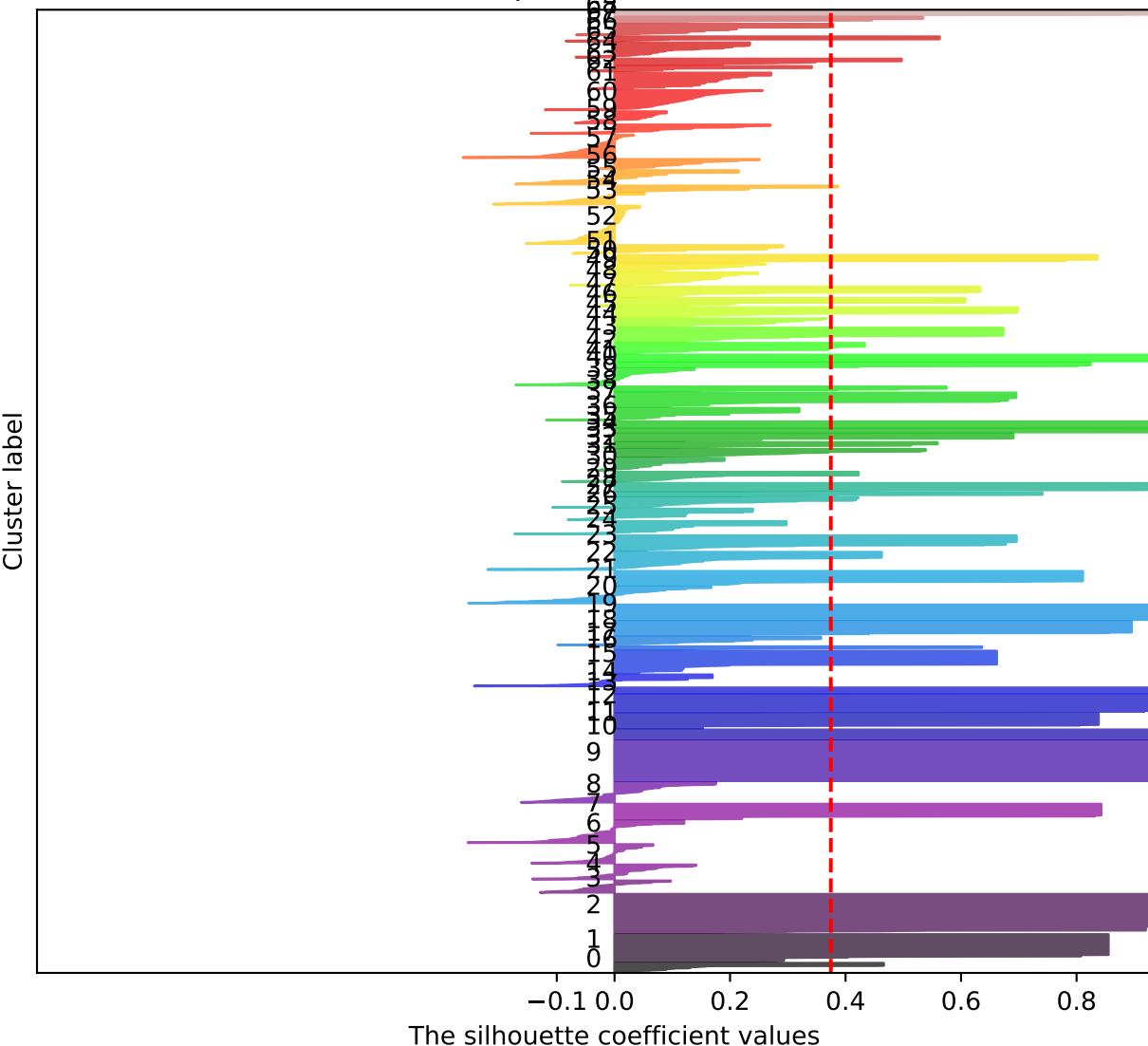


Silhouette analysis for KMeans clustering on sample data with n_clusters = 68 with Average Silhouette of: 0.3832482397556305

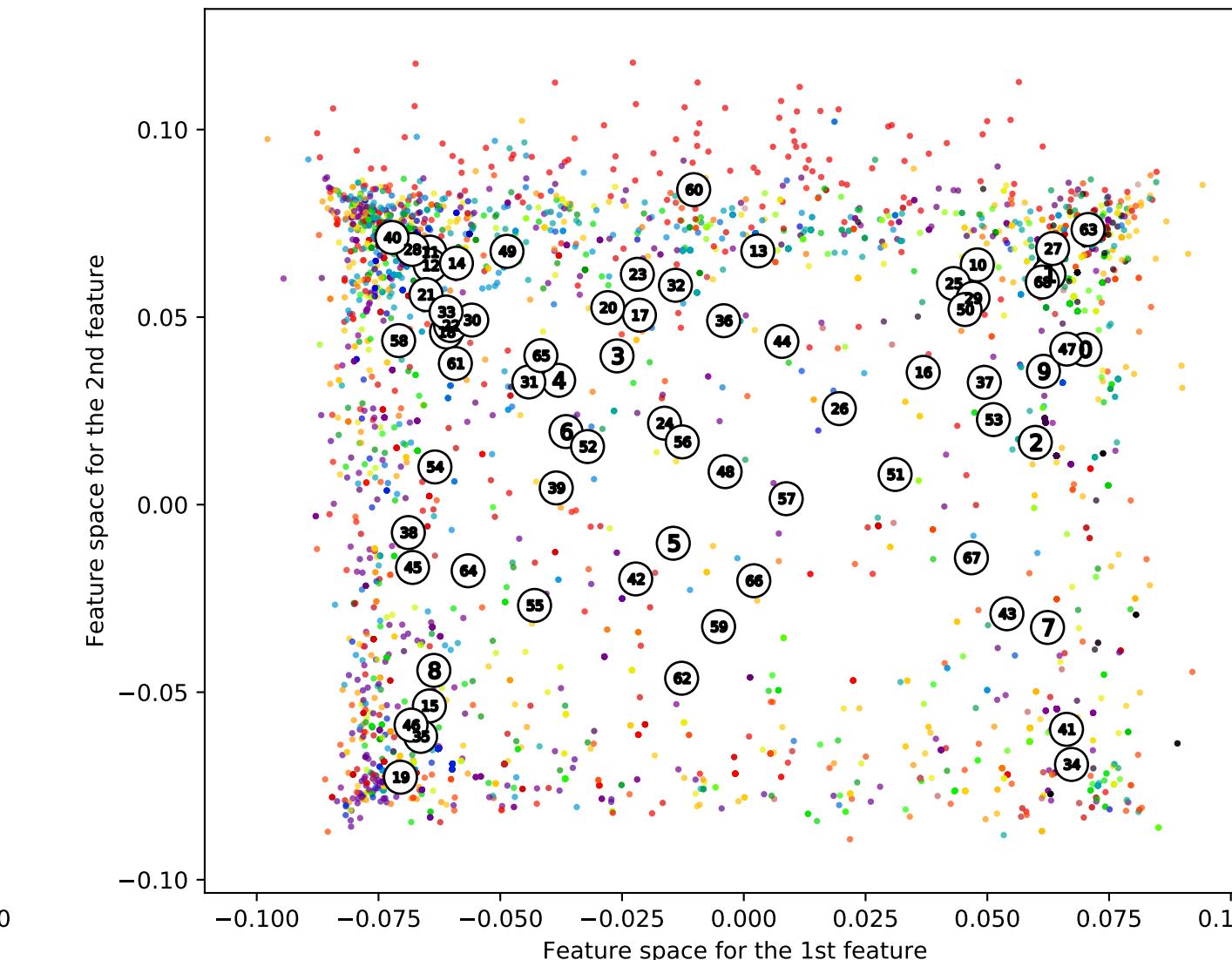


Silhouette analysis for KMeans clustering on sample data with n_clusters = 69 with Average Silhouette of: 0.37453392148017883

The silhouette plot for the various clusters.

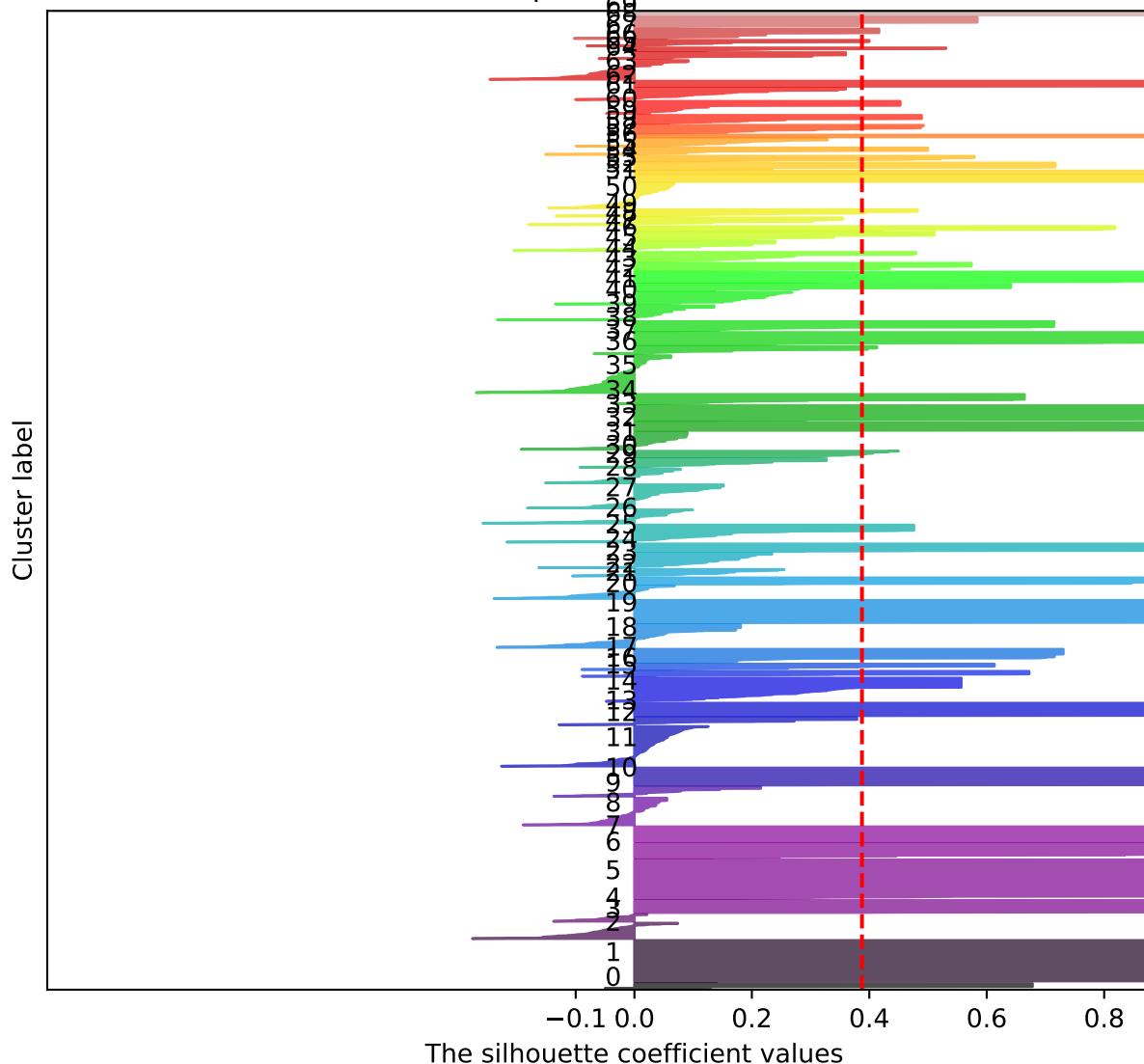


The visualization of the clustered data.

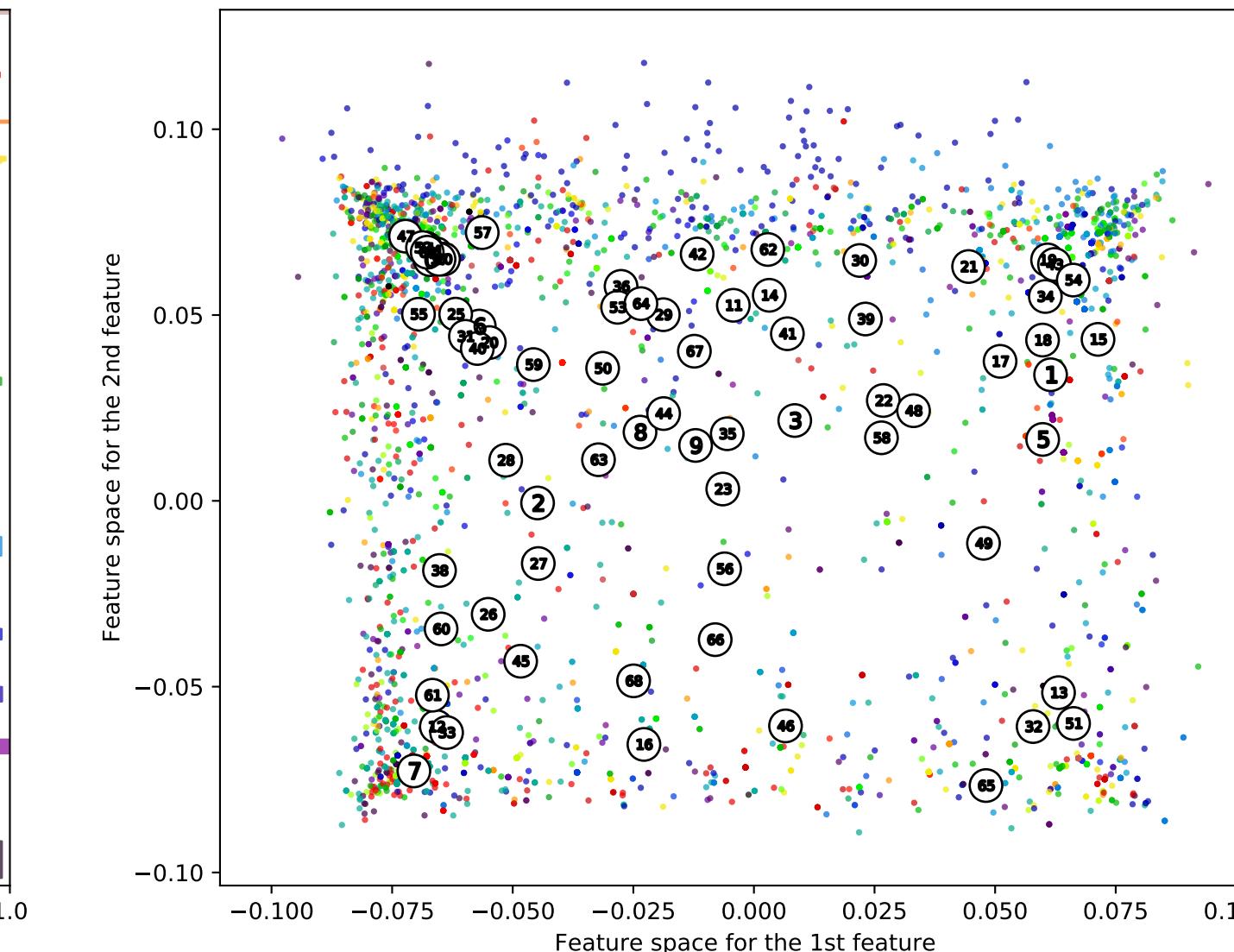


Silhouette analysis for KMeans clustering on sample data with n_clusters = 70 with Average Silhouette of: 0.38751307129859924

The silhouette plot for the various clusters.

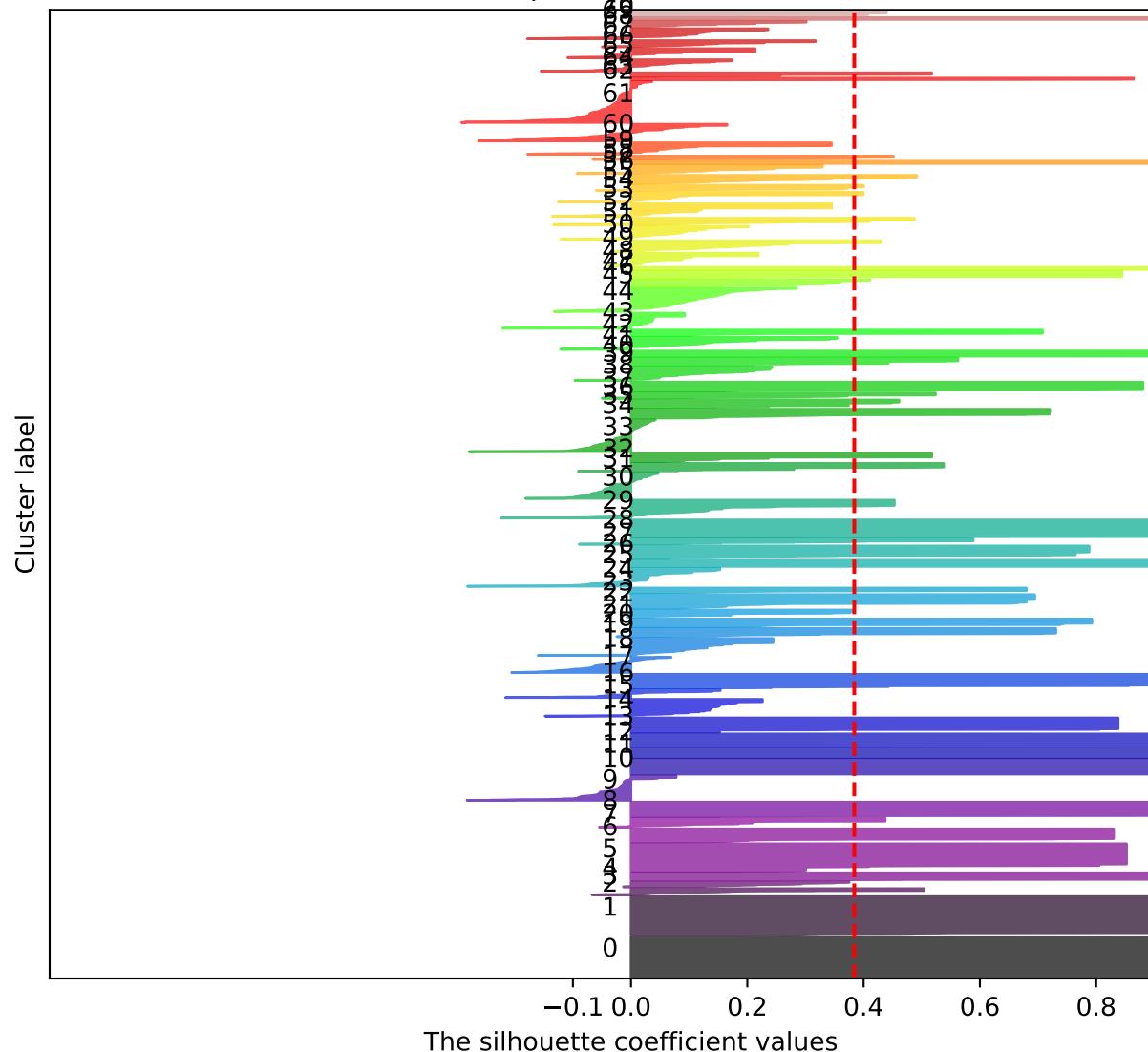


The visualization of the clustered data.

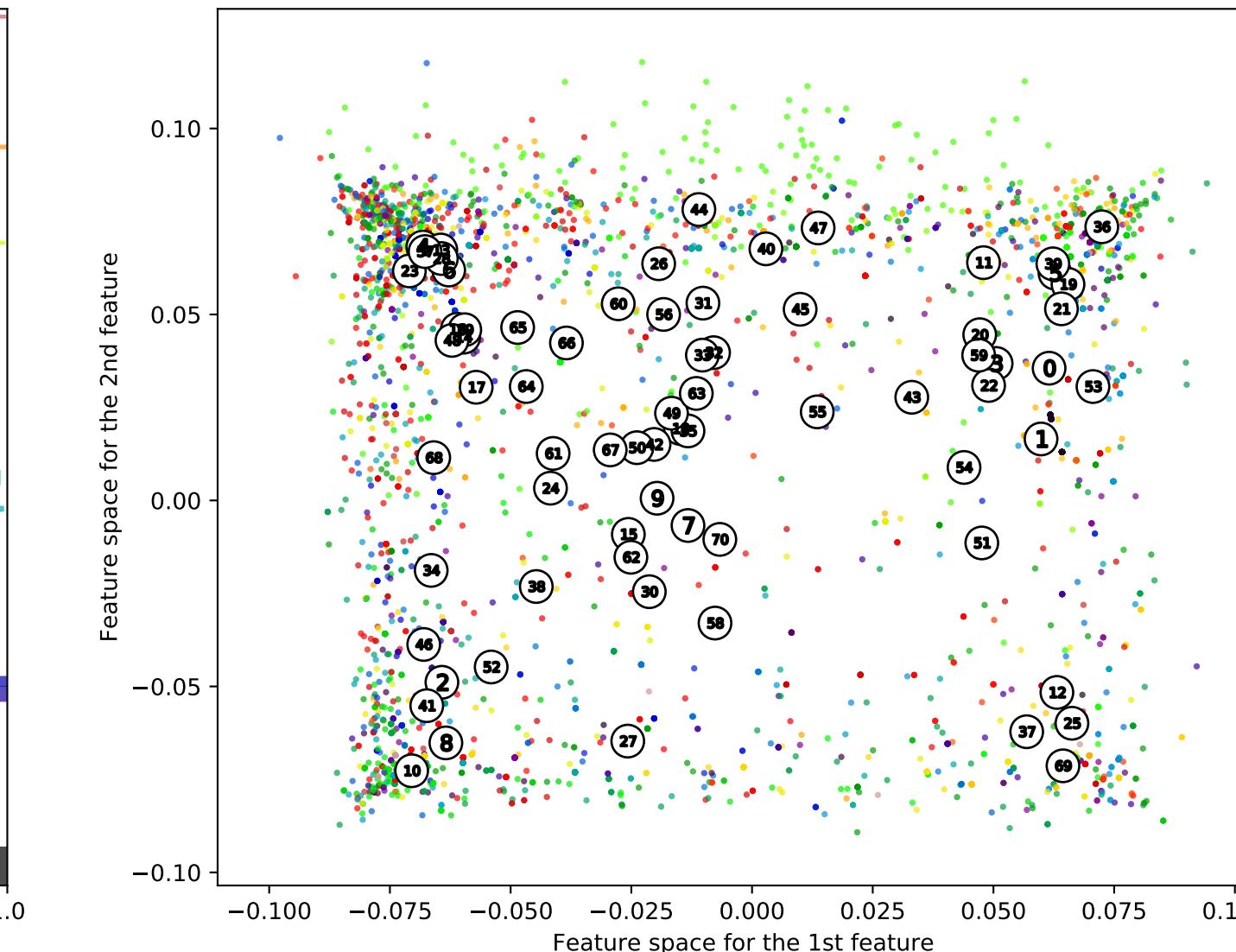


Silhouette analysis for KMeans clustering on sample data with n_clusters = 71 with Average Silhouette of: 0.38398391008377075

The silhouette plot for the various clusters.

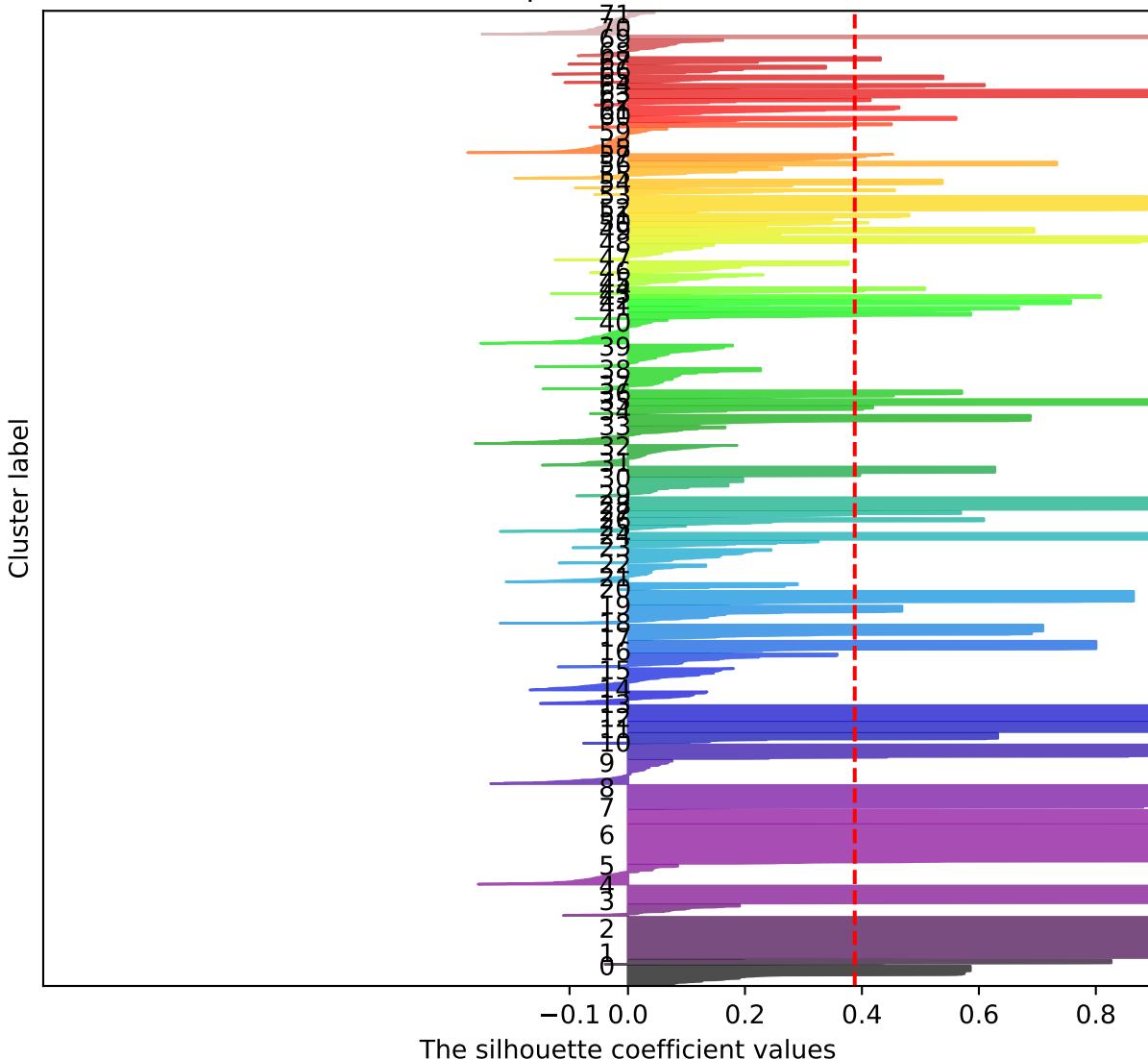


The visualization of the clustered data.

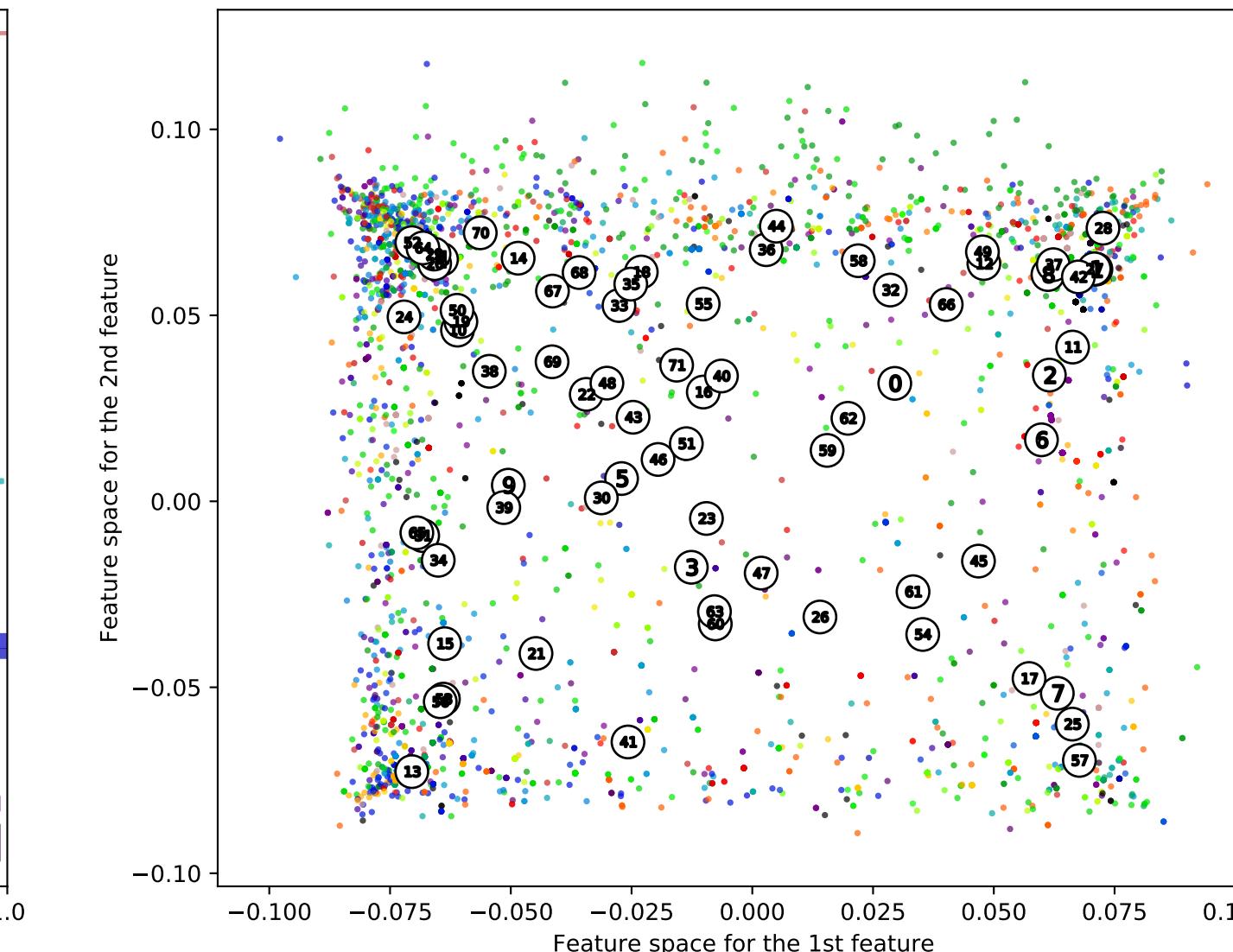


Silhouette analysis for KMeans clustering on sample data with n_clusters = 72 with Average Silhouette of: 0.3877311050891876

The silhouette plot for the various clusters.

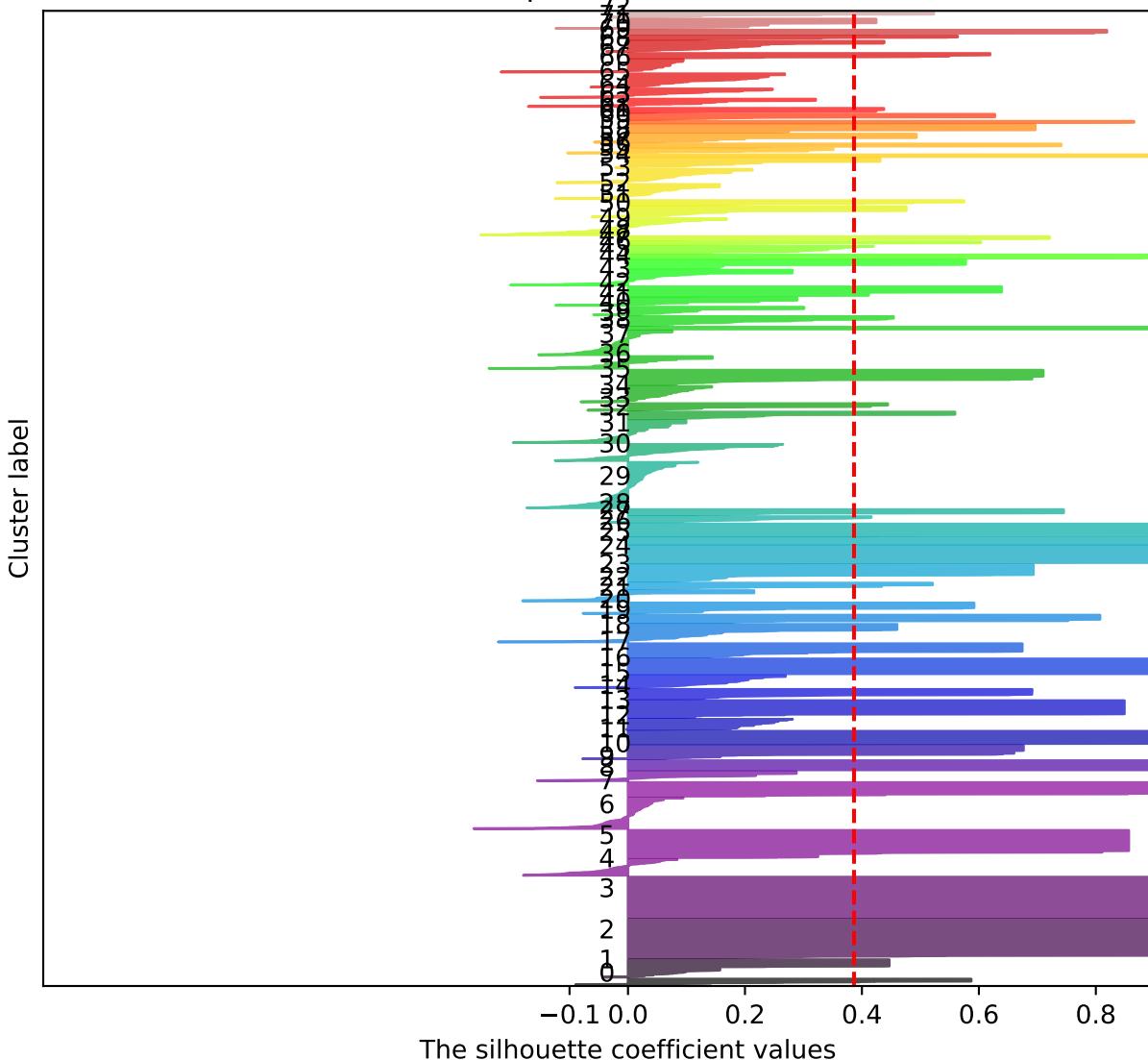


The visualization of the clustered data.

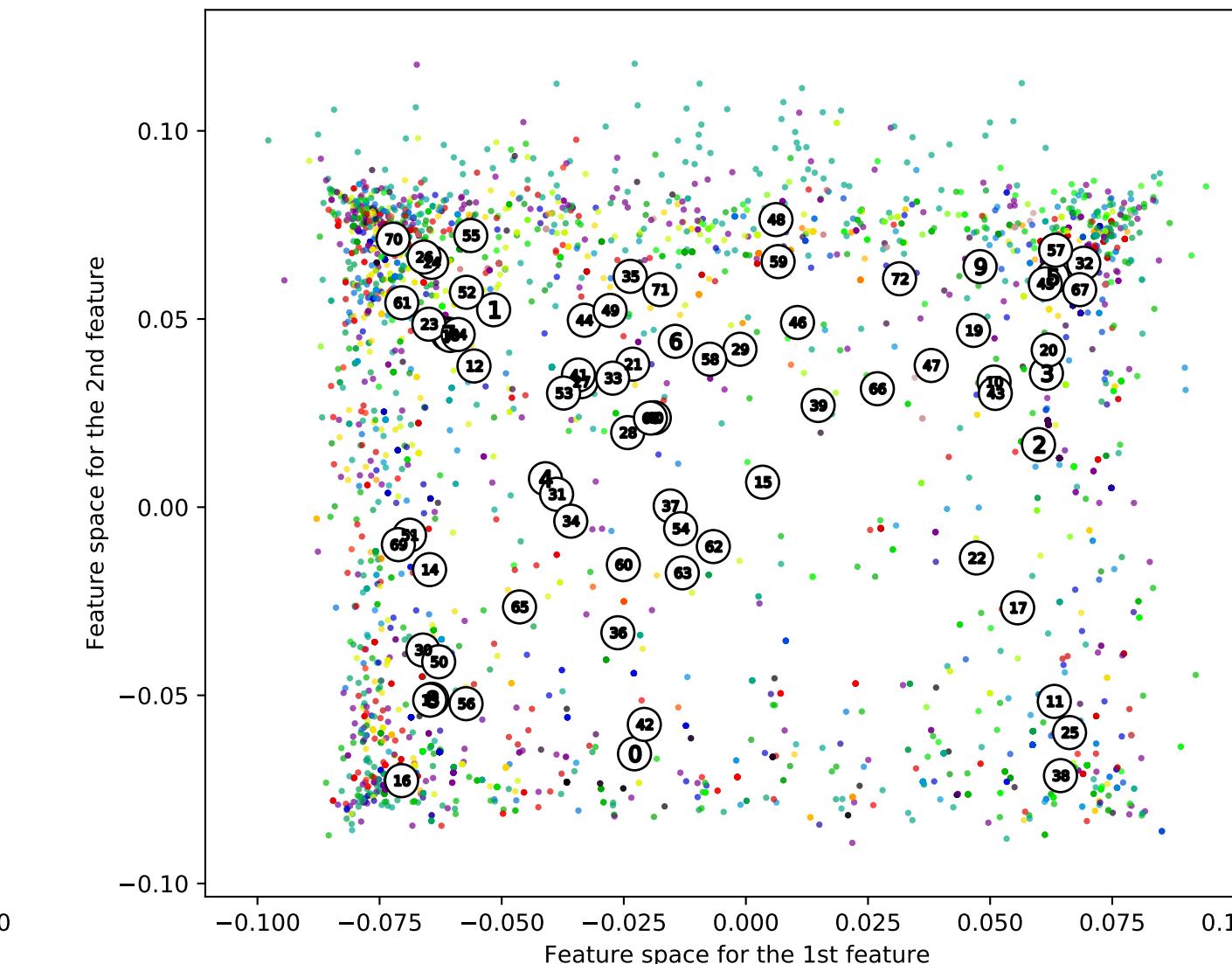


Silhouette analysis for KMeans clustering on sample data with n_clusters = 73 with Average Silhouette of: 0.3865073025226593

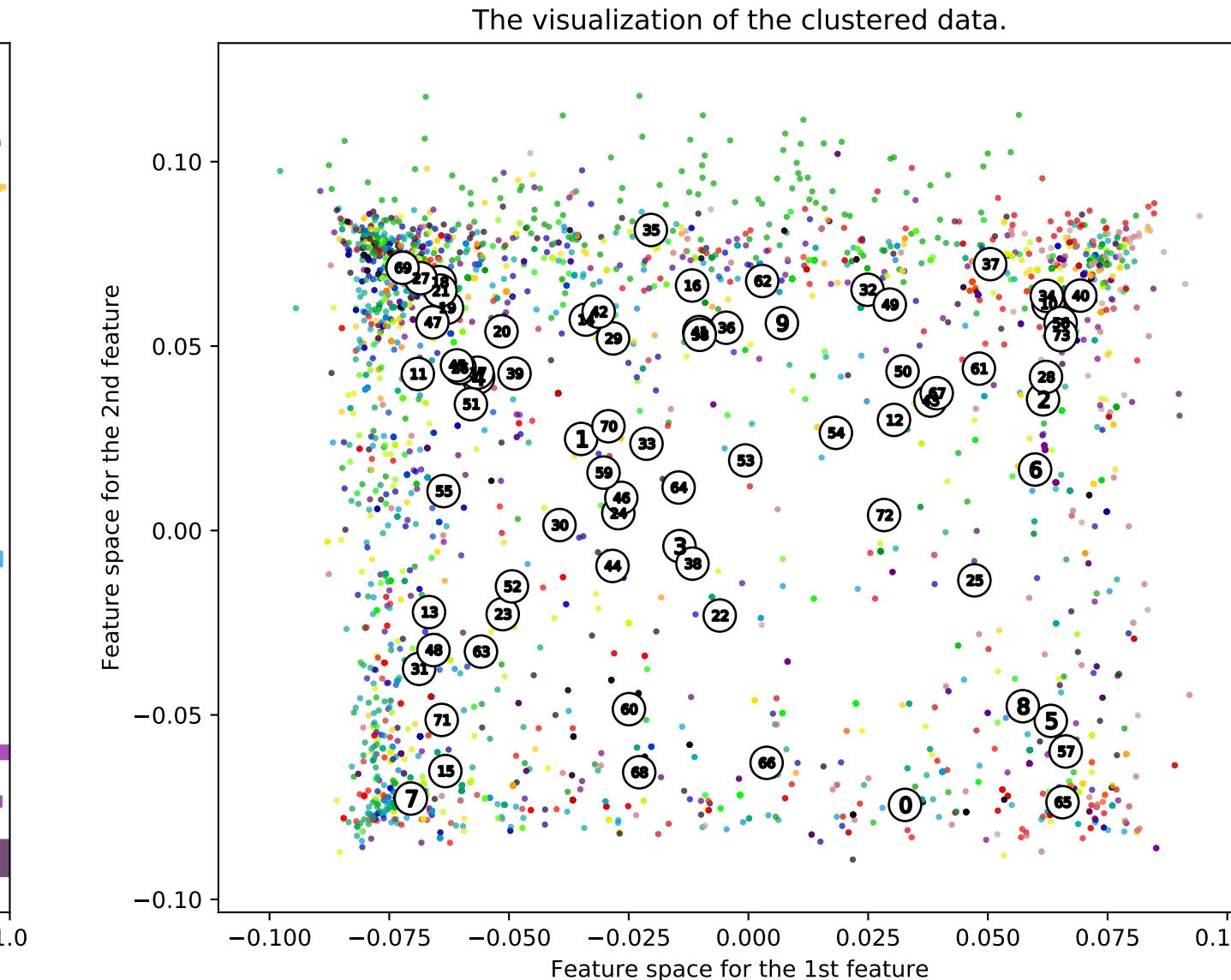
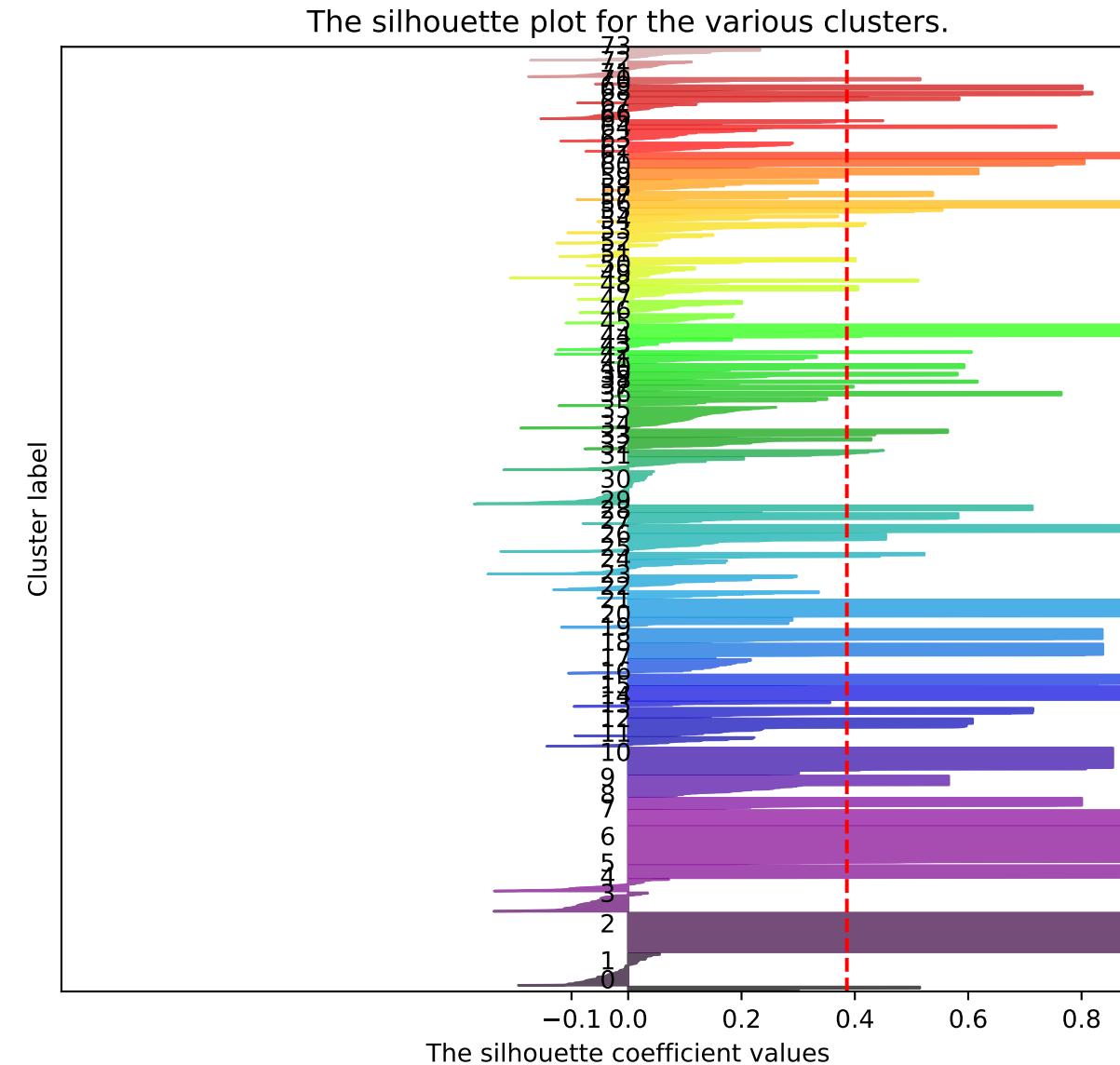
The silhouette plot for the various clusters.



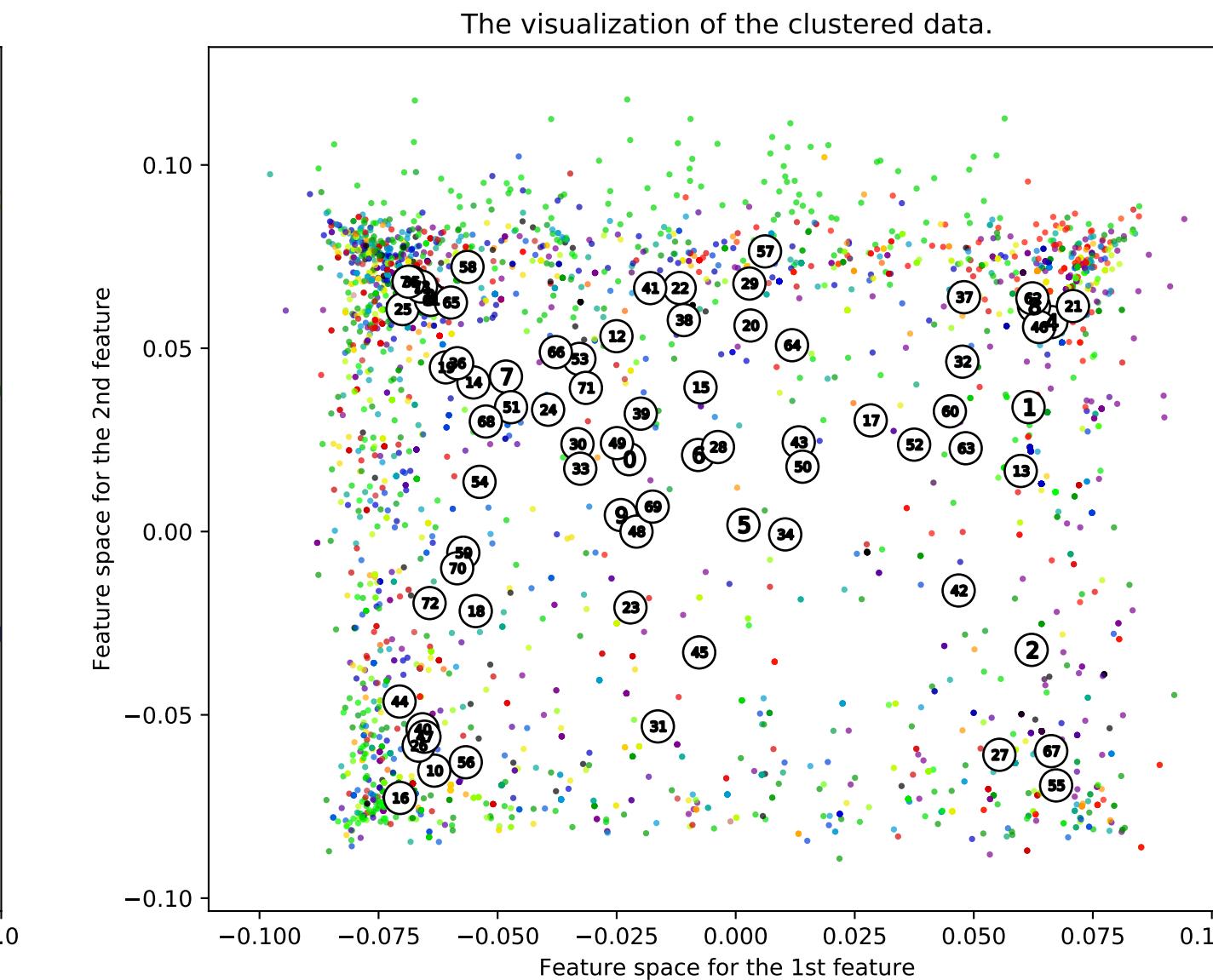
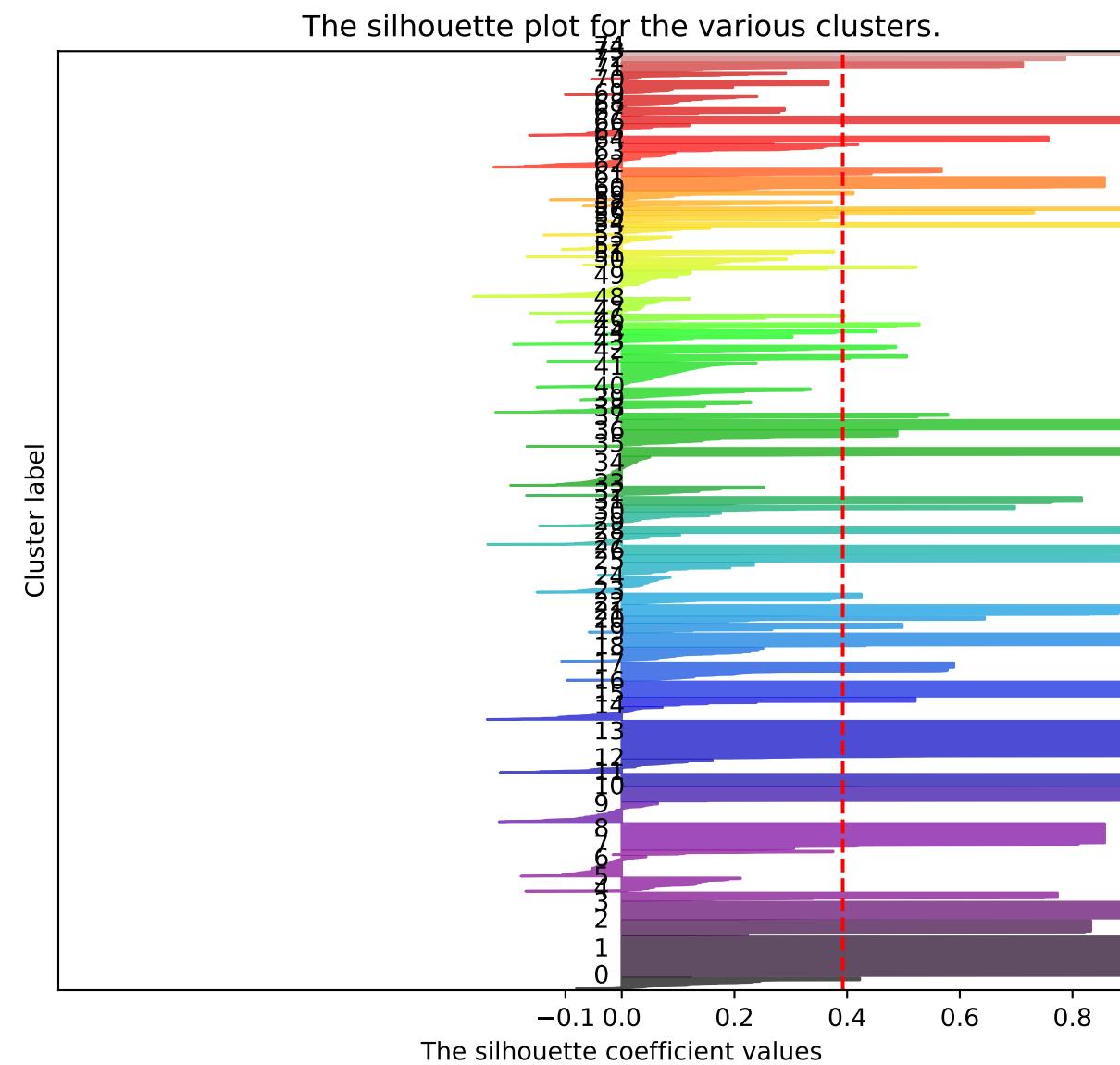
The visualization of the clustered data.



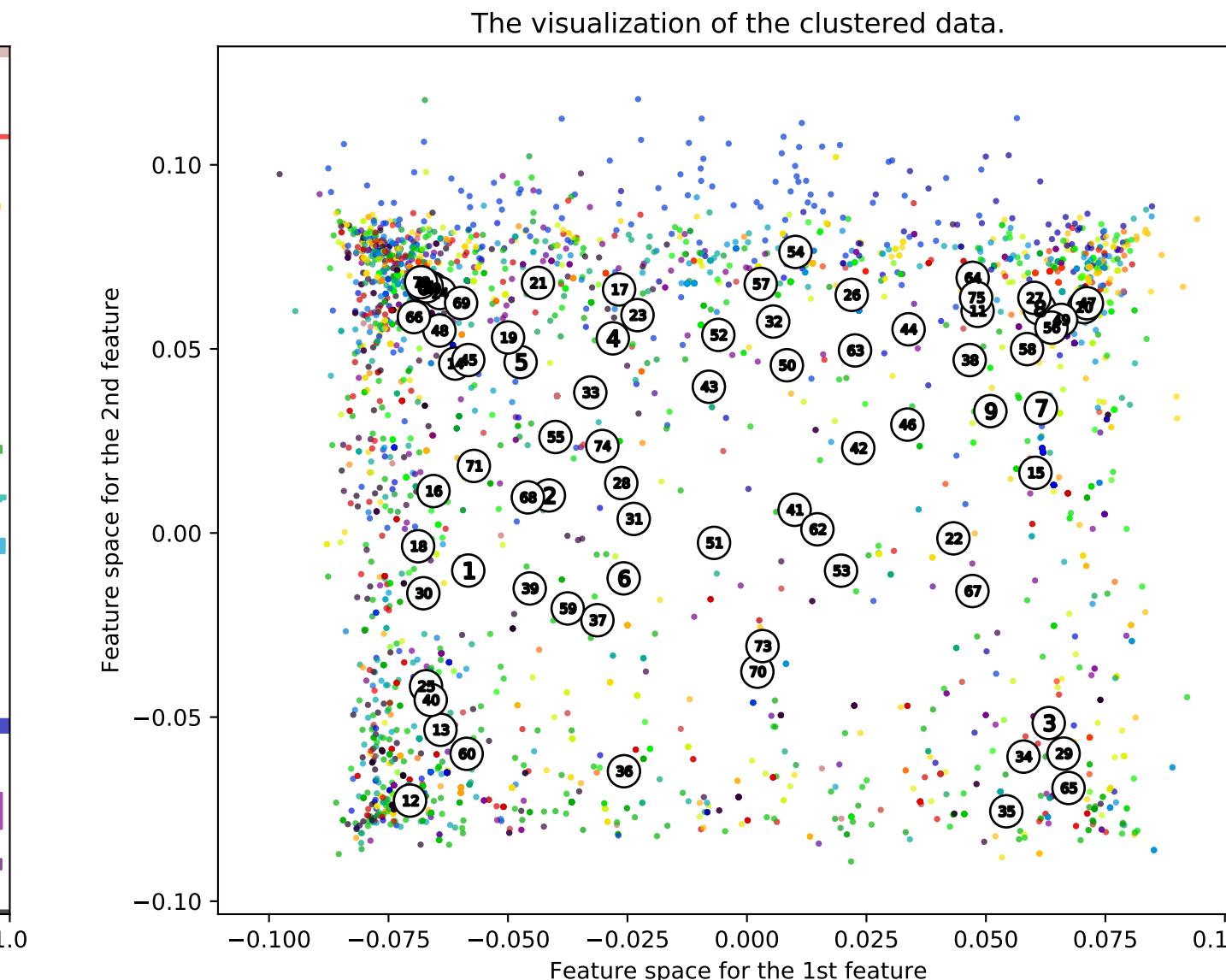
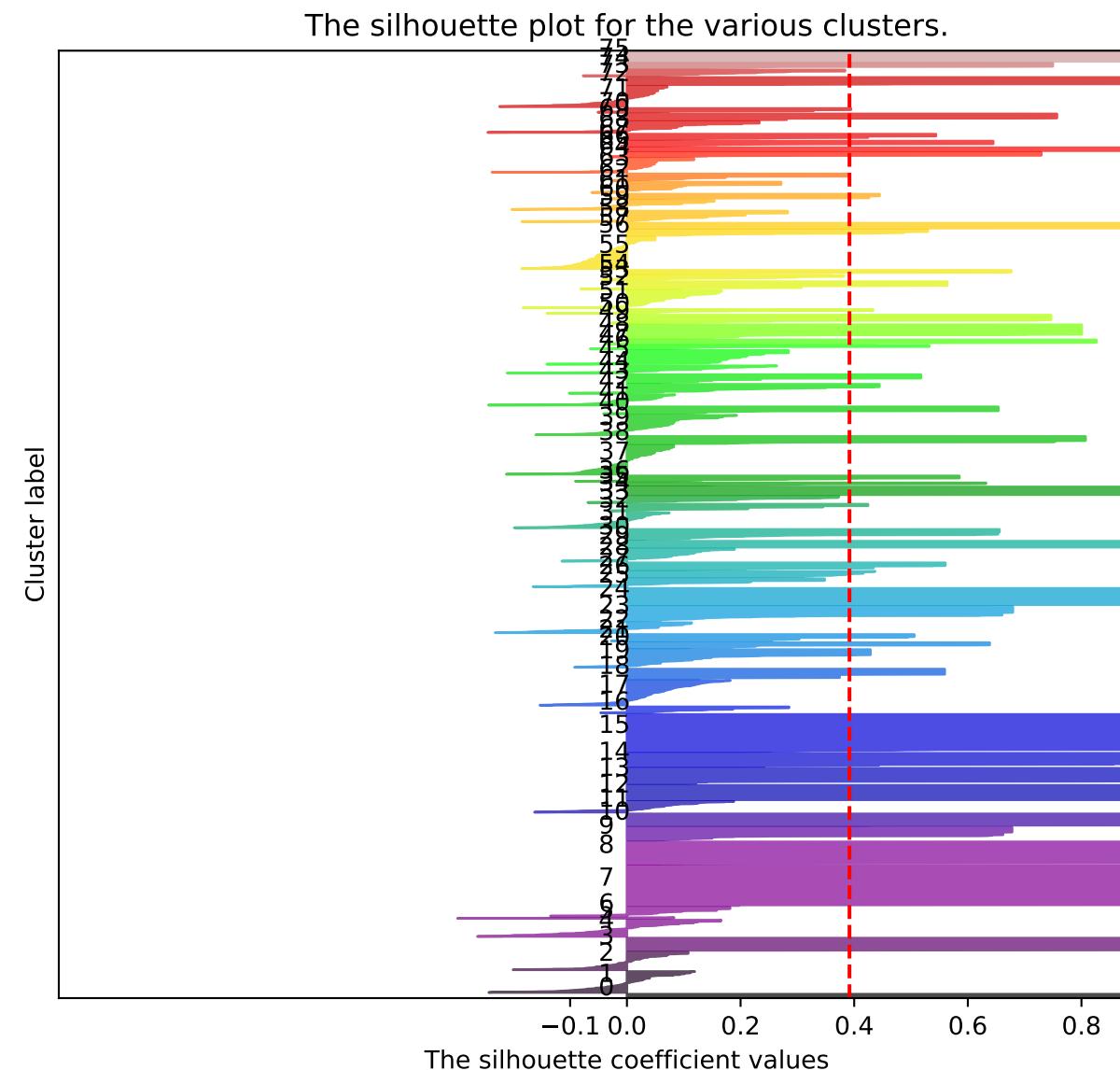
Silhouette analysis for KMeans clustering on sample data with n_clusters = 74 with Average Silhouette of: 0.38587892055511475



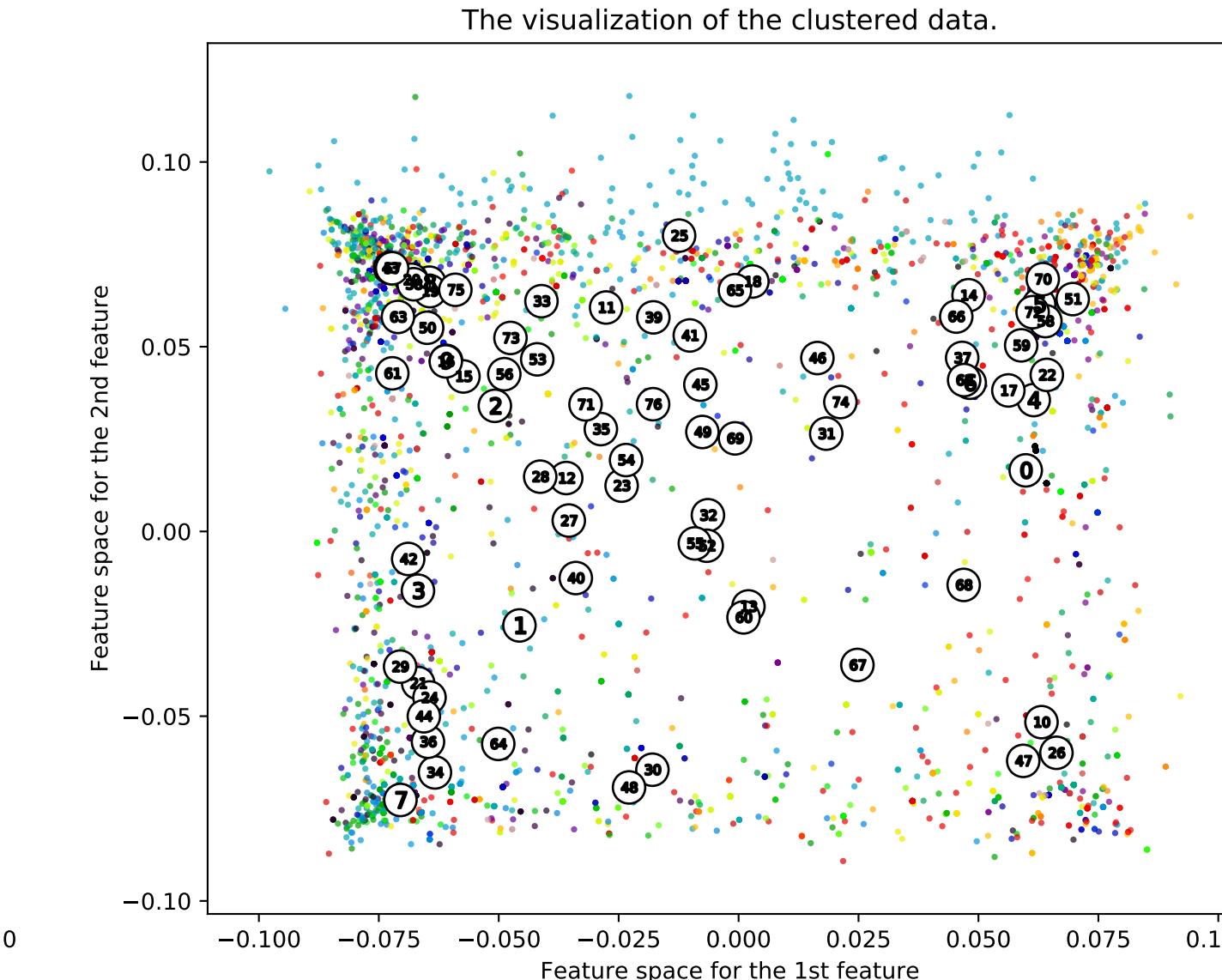
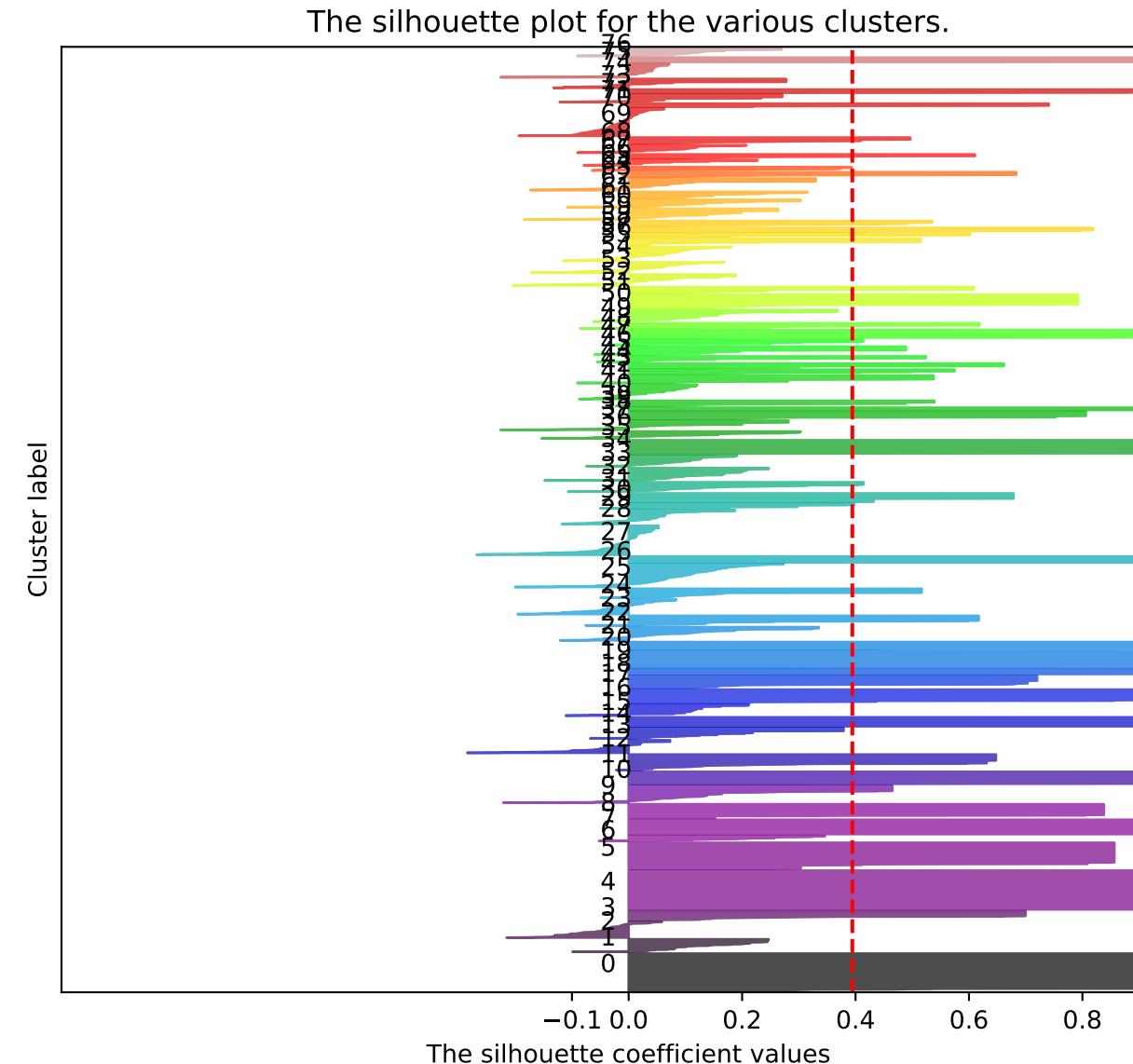
Silhouette analysis for KMeans clustering on sample data with n_clusters = 75 with Average Silhouette of: 0.3922625780105591



Silhouette analysis for KMeans clustering on sample data with n_clusters = 76 with Average Silhouette of: 0.3917047083377838

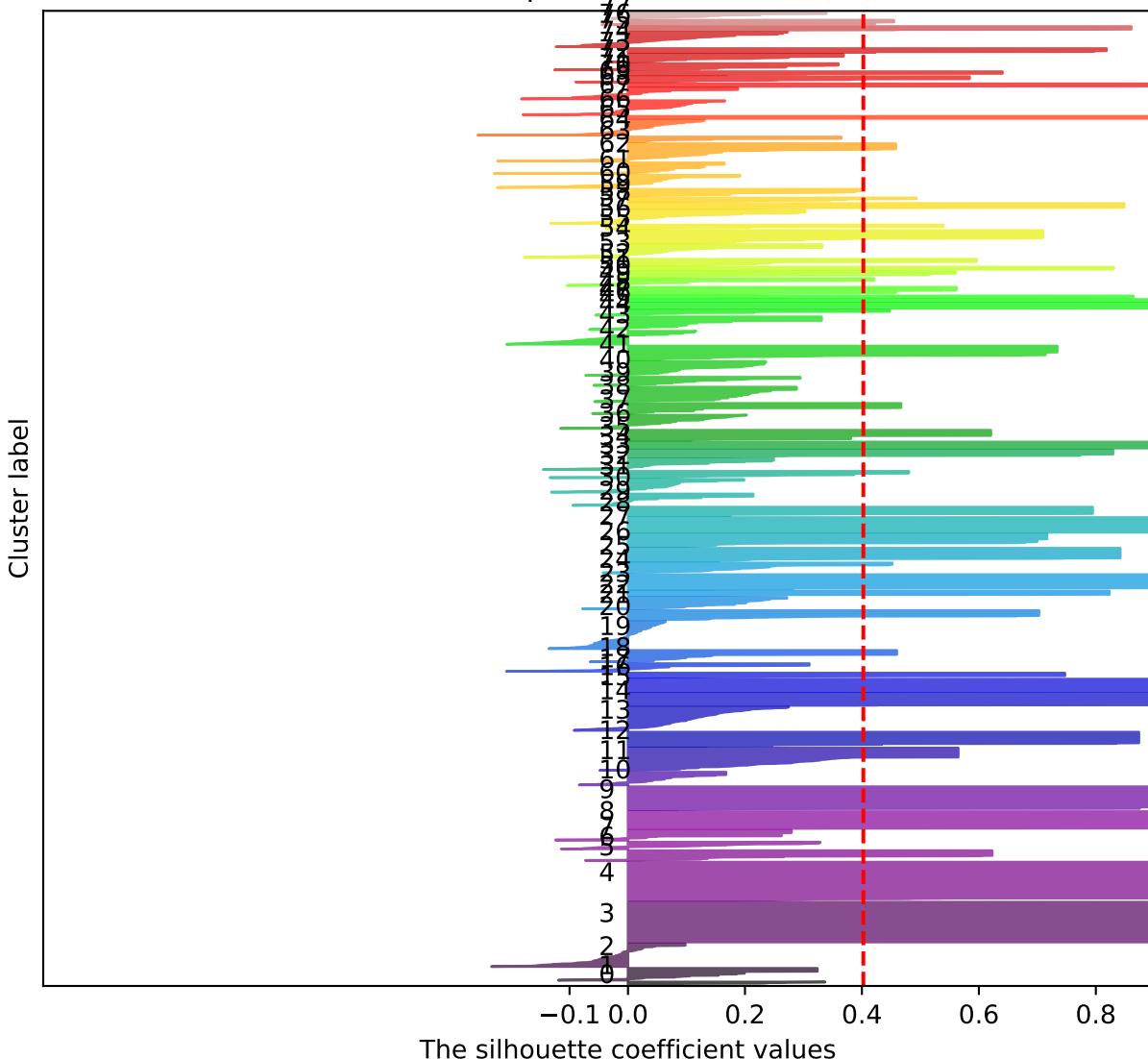


Silhouette analysis for KMeans clustering on sample data with n_clusters = 77 with Average Silhouette of: 0.39439886808395386

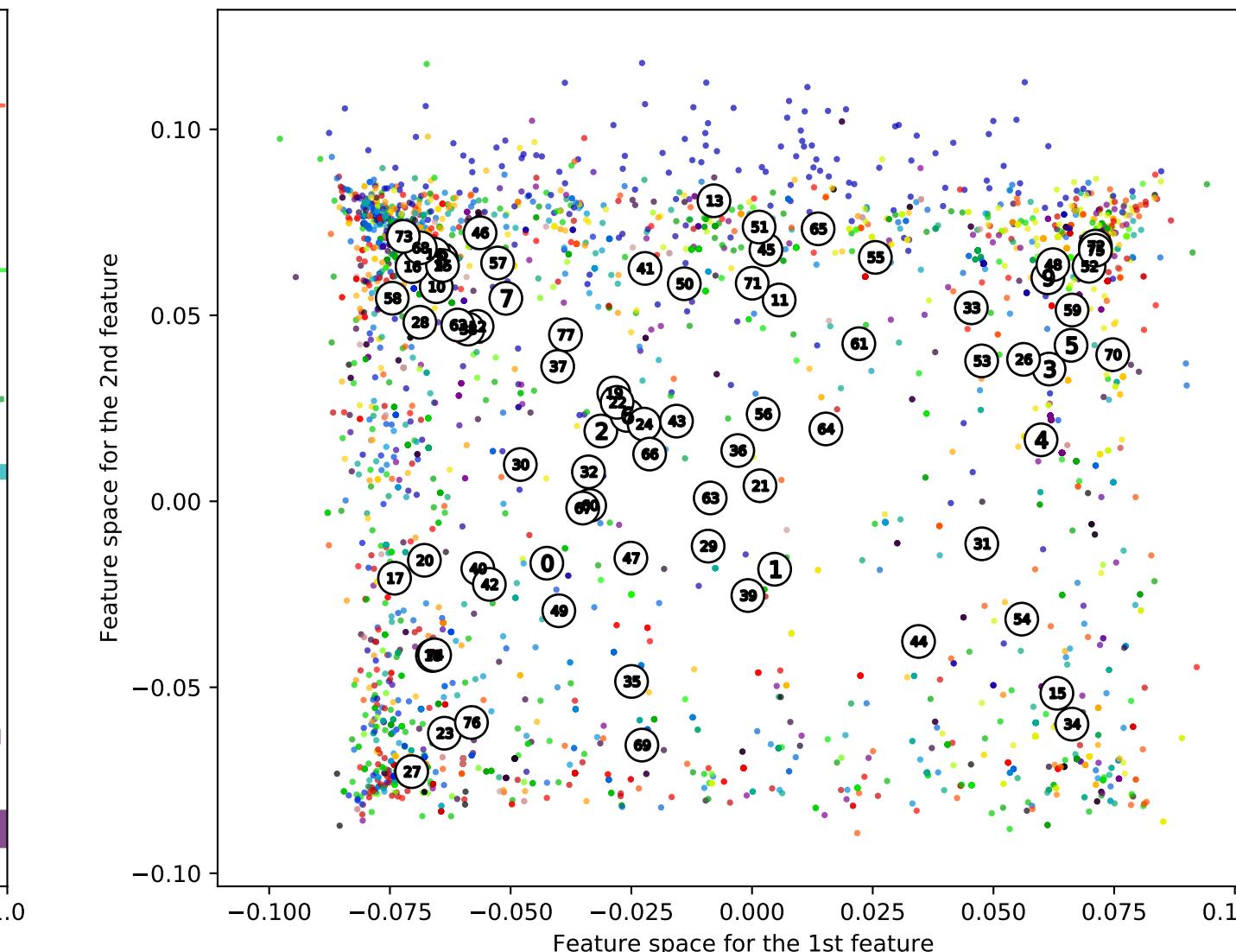


Silhouette analysis for KMeans clustering on sample data with n_clusters = 78 with Average Silhouette of: 0.4024594724178314

The silhouette plot for the various clusters.

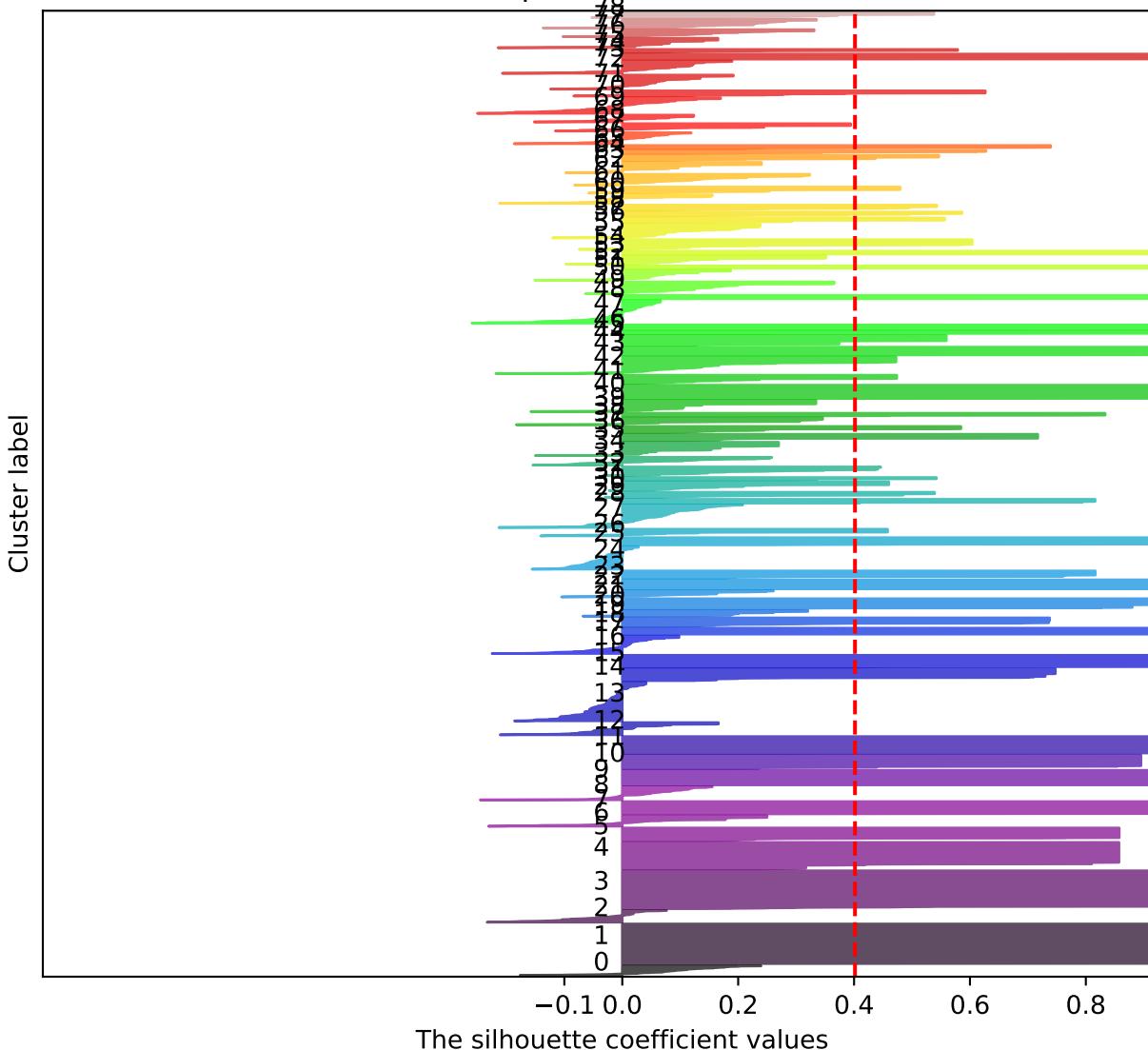


The visualization of the clustered data.

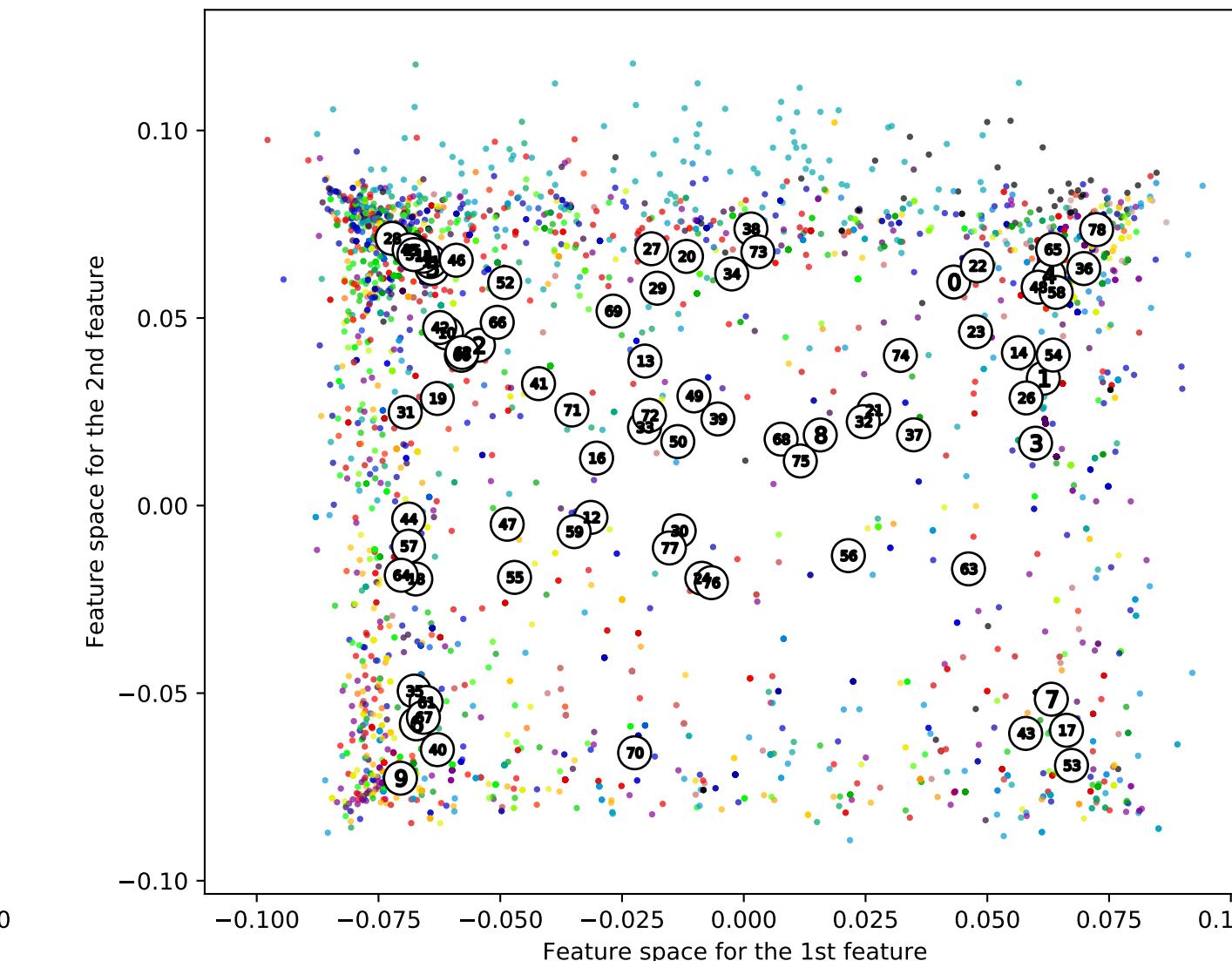


Silhouette analysis for KMeans clustering on sample data with n_clusters = 79 with Average Silhouette of: 0.4015945494174957

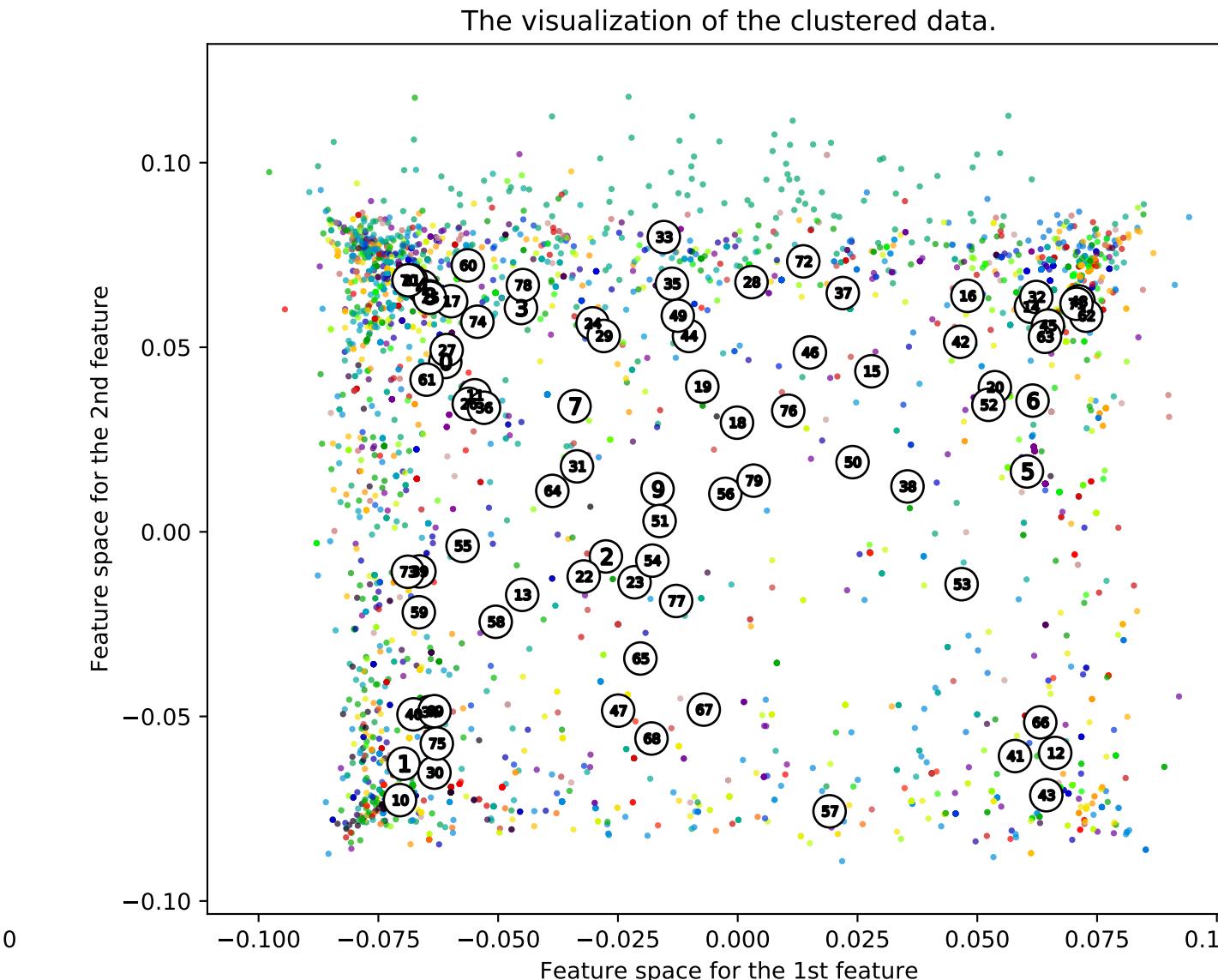
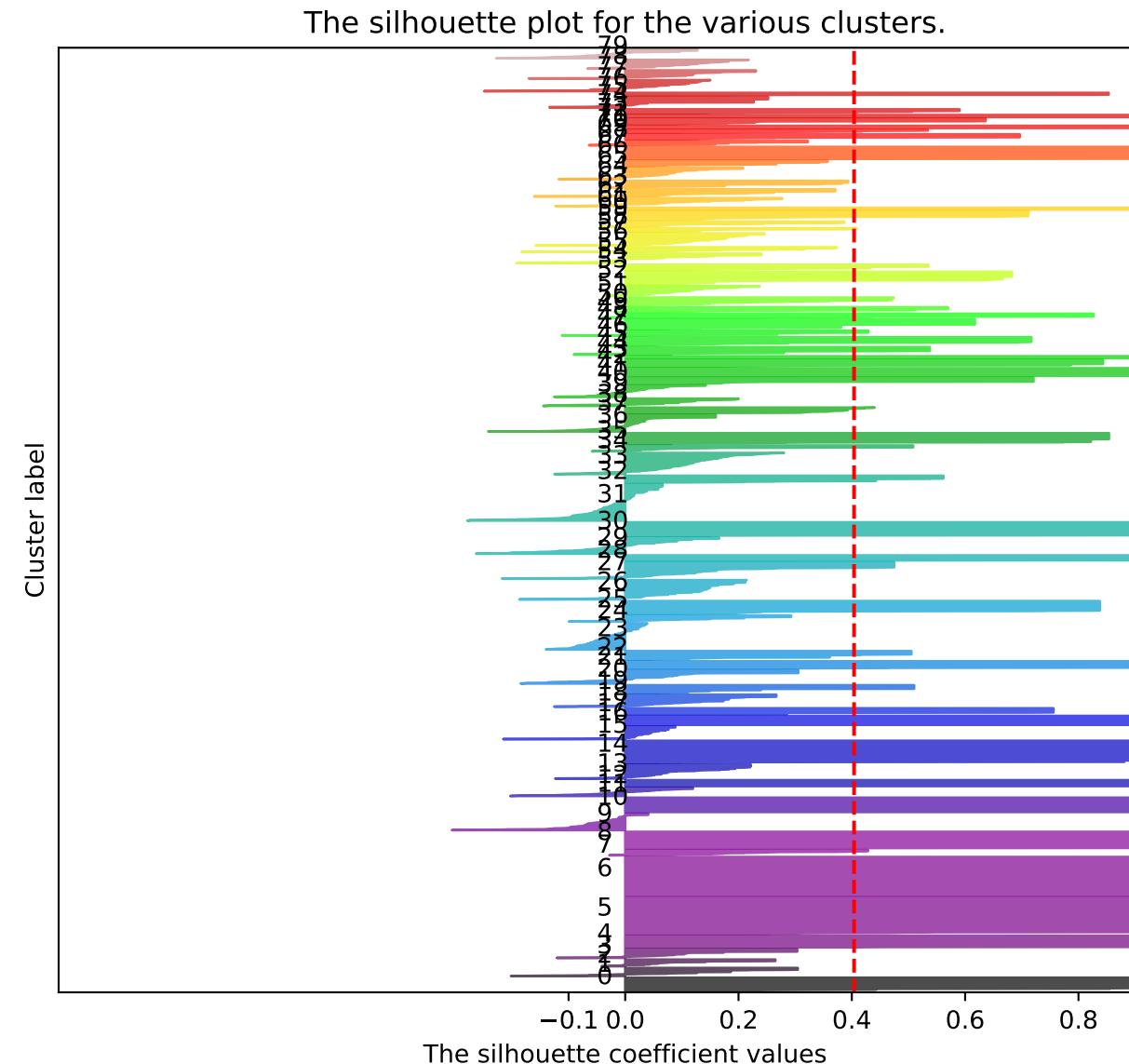
The silhouette plot for the various clusters.



The visualization of the clustered data.

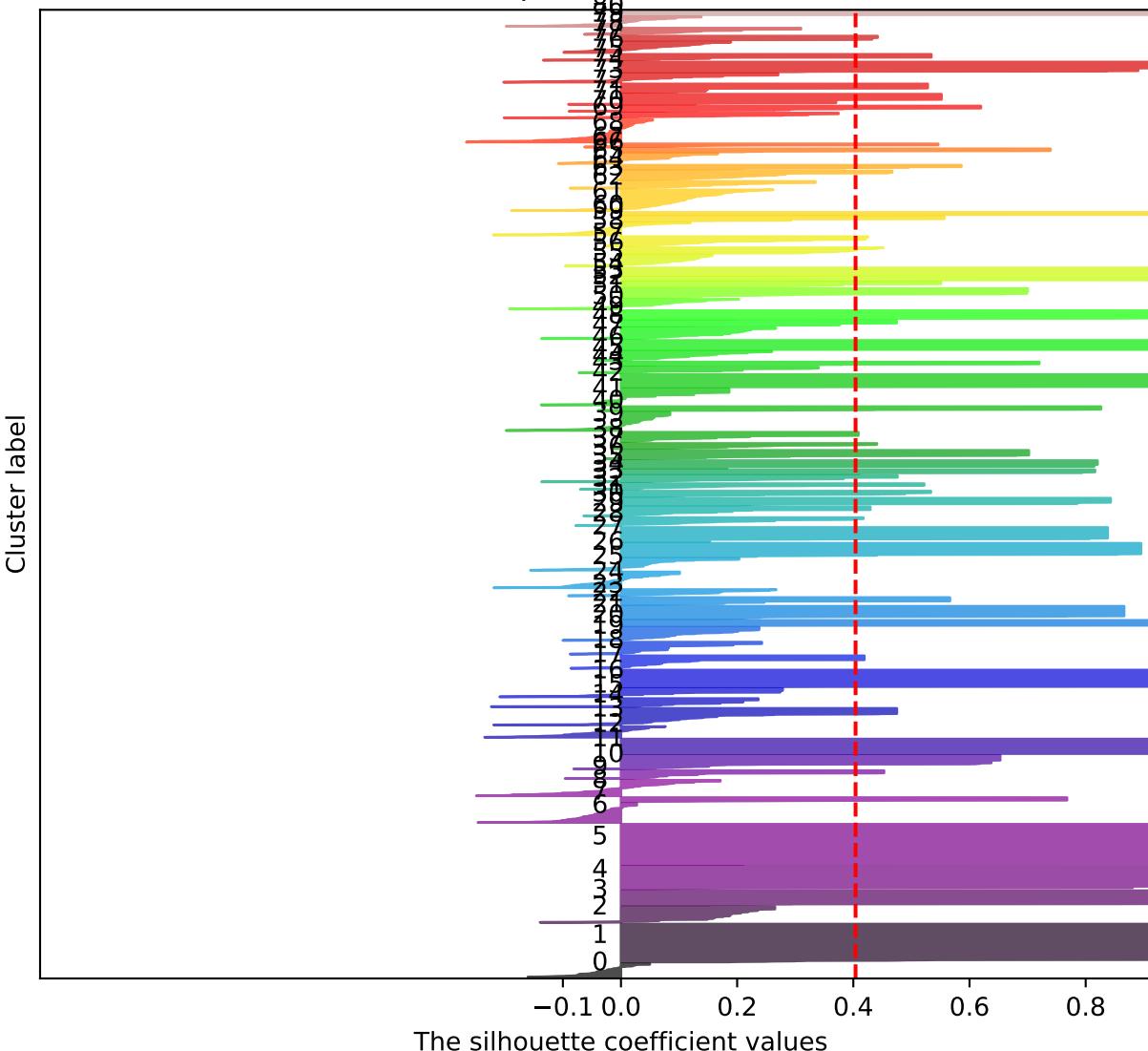


Silhouette analysis for KMeans clustering on sample data with n_clusters = 80 with Average Silhouette of: 0.4039369225502014

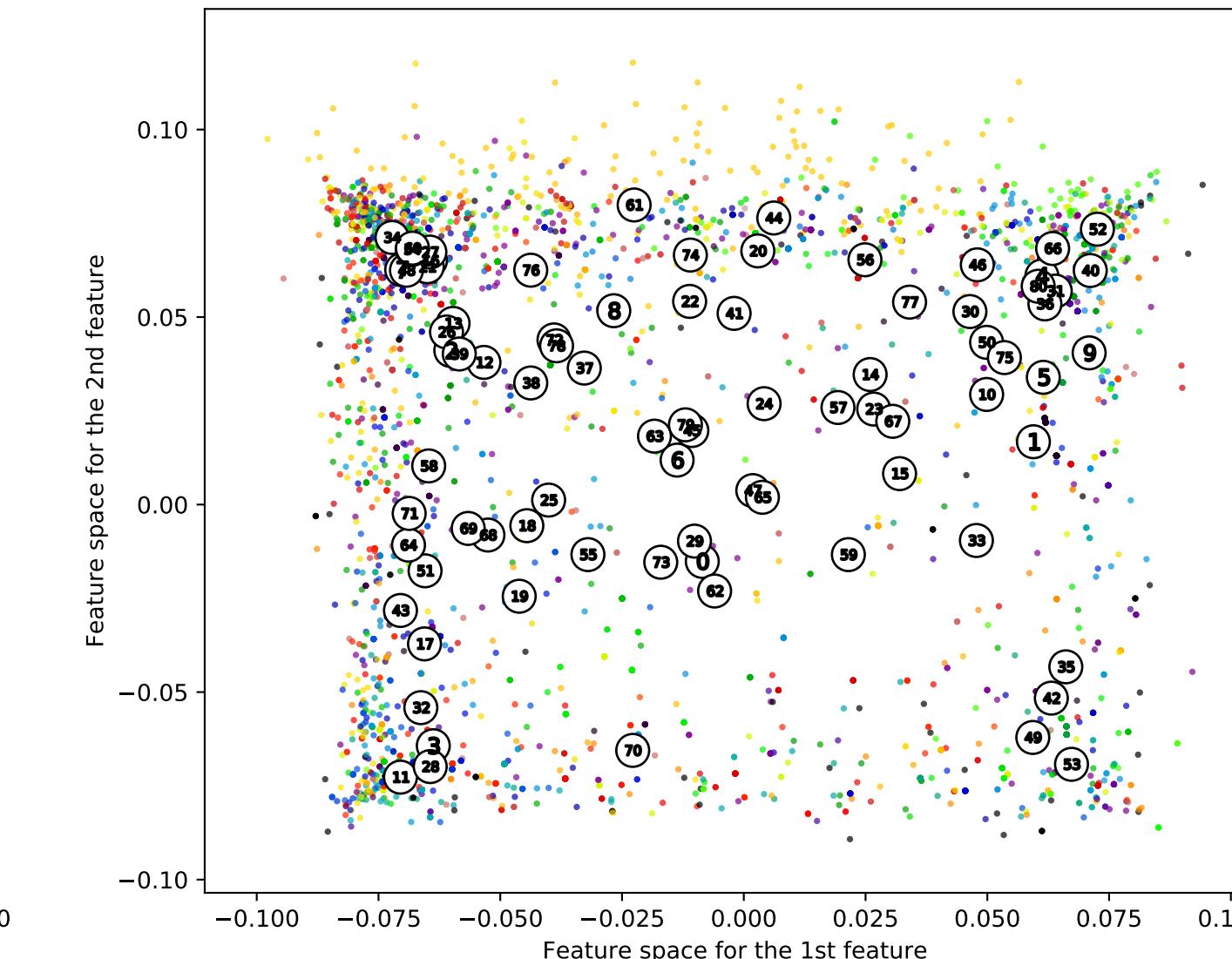


Silhouette analysis for KMeans clustering on sample data with n_clusters = 81 with Average Silhouette of: 0.4038607180118561

The silhouette plot for the various clusters.

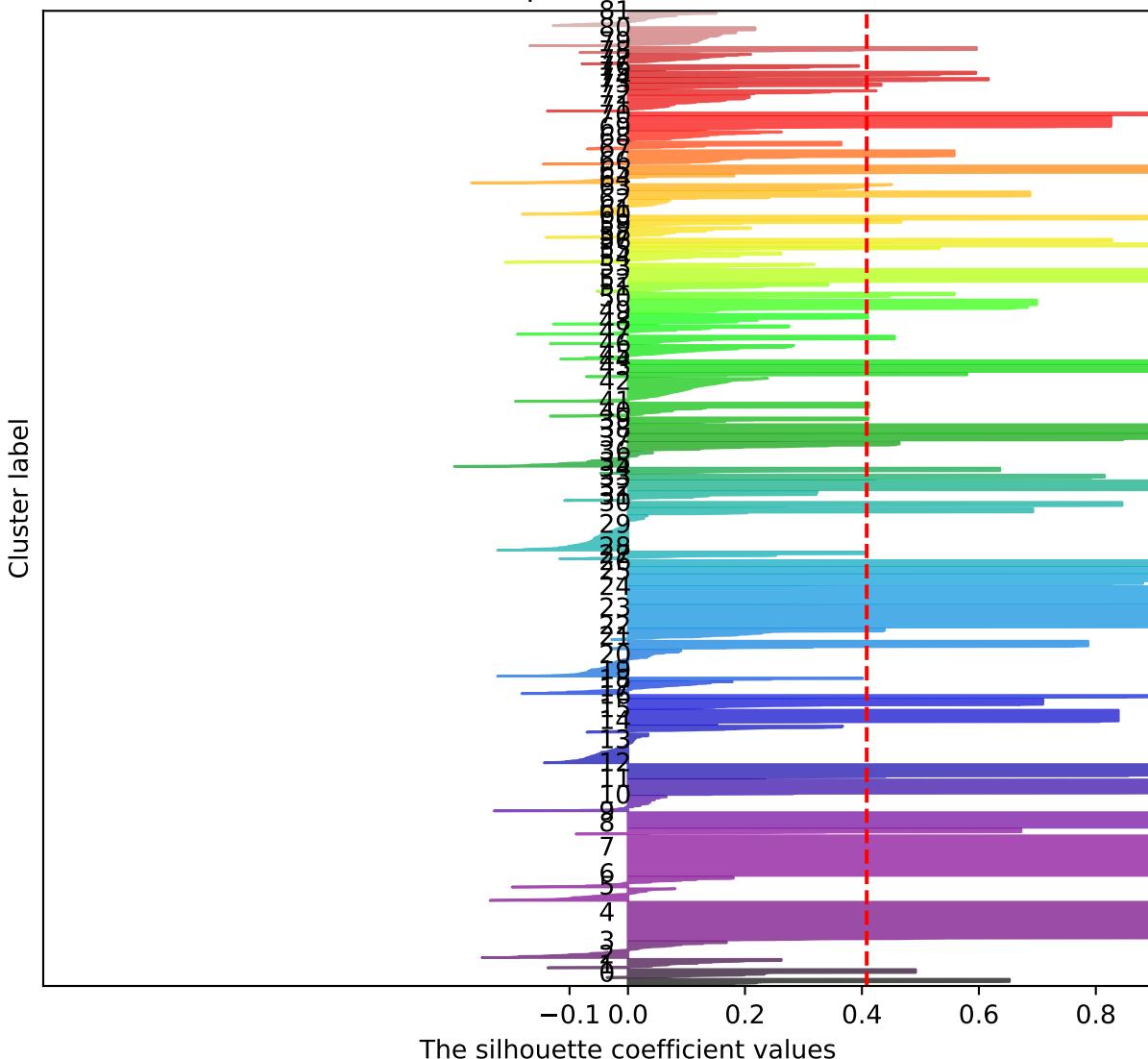


The visualization of the clustered data.

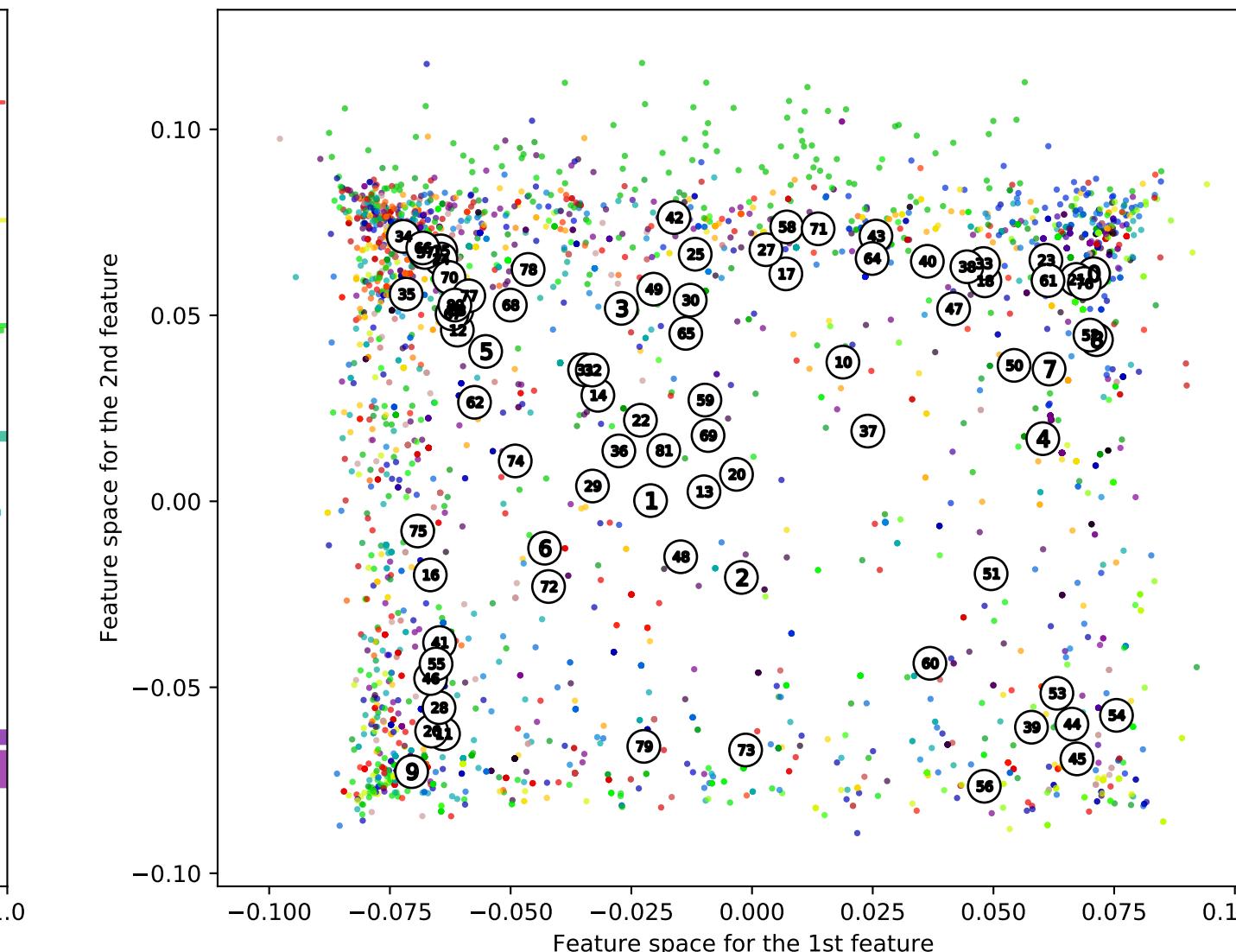


Silhouette analysis for KMeans clustering on sample data with n_clusters = 82 with Average Silhouette of: 0.4082023799419403

The silhouette plot for the various clusters.

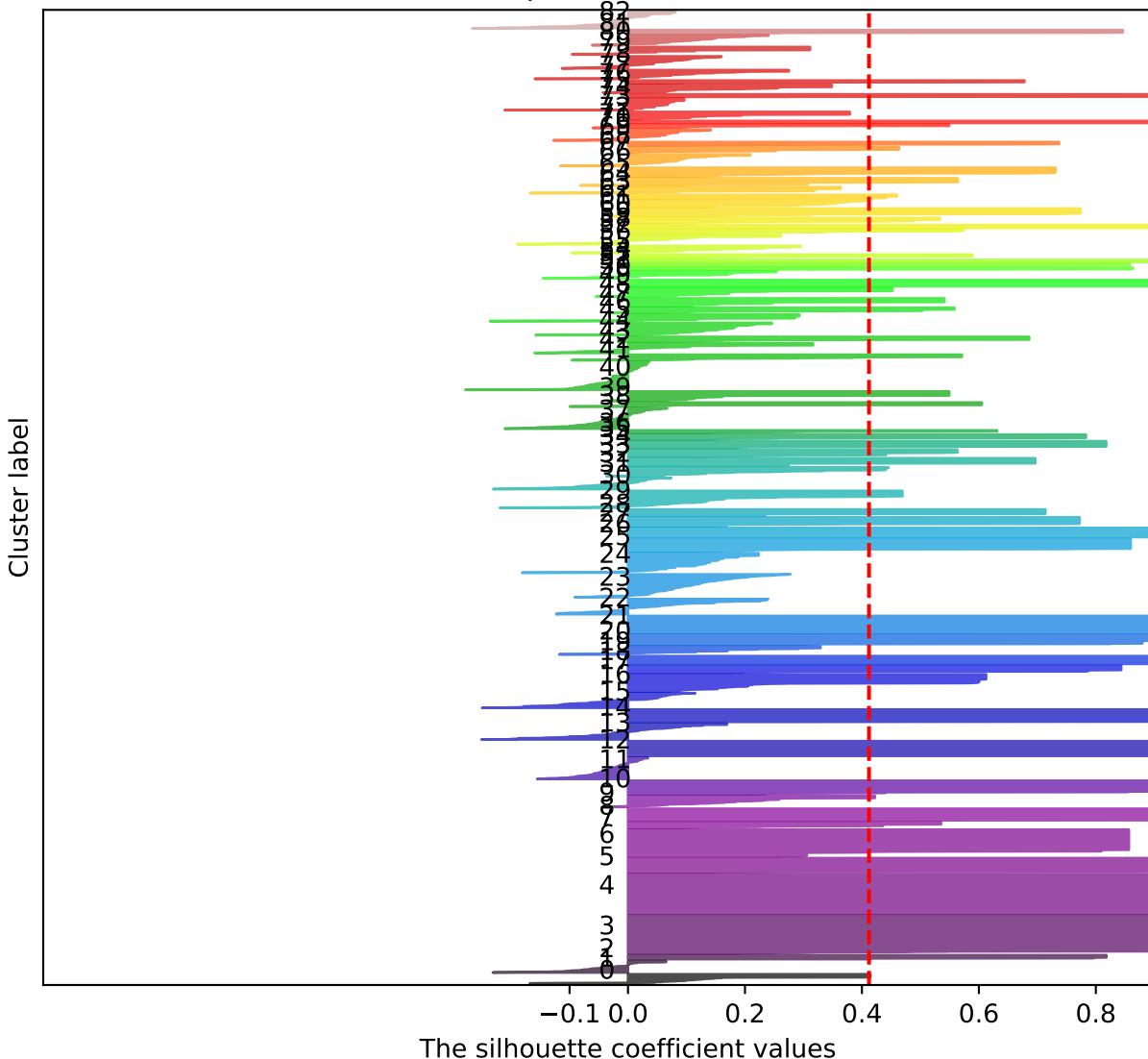


The visualization of the clustered data.

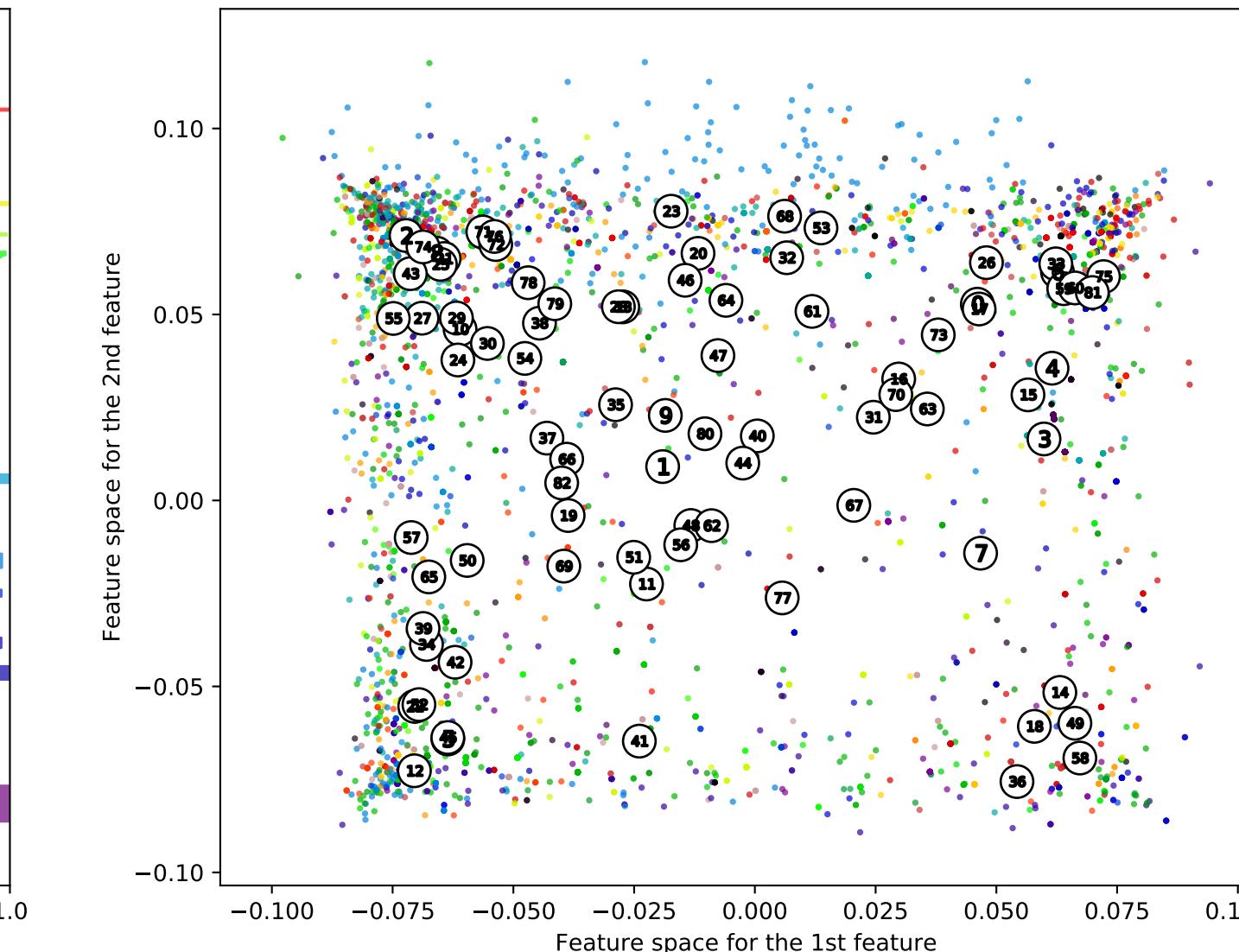


Silhouette analysis for KMeans clustering on sample data with n_clusters = 83 with Average Silhouette of: 0.4121229648590088

The silhouette plot for the various clusters.

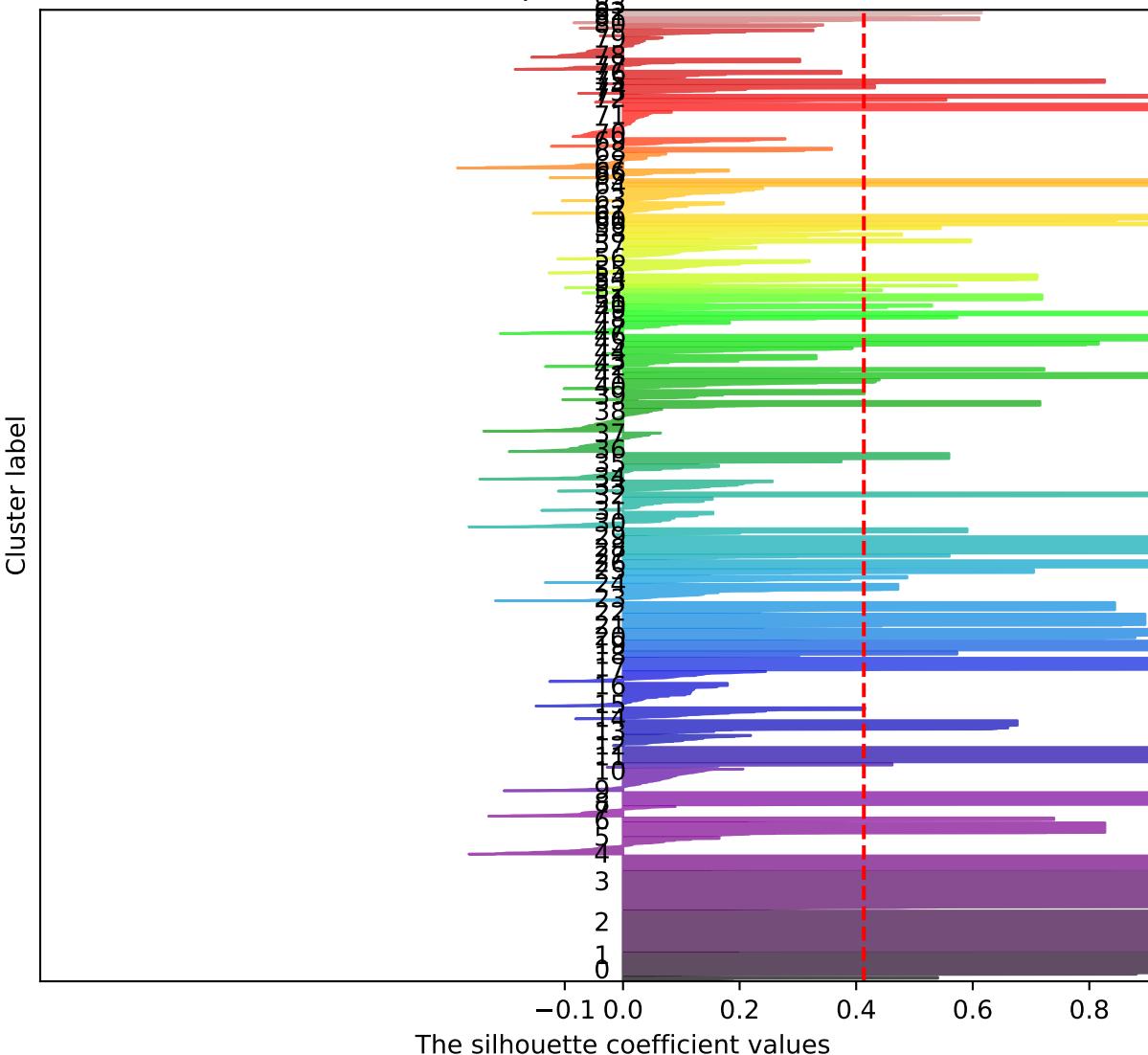


The visualization of the clustered data.

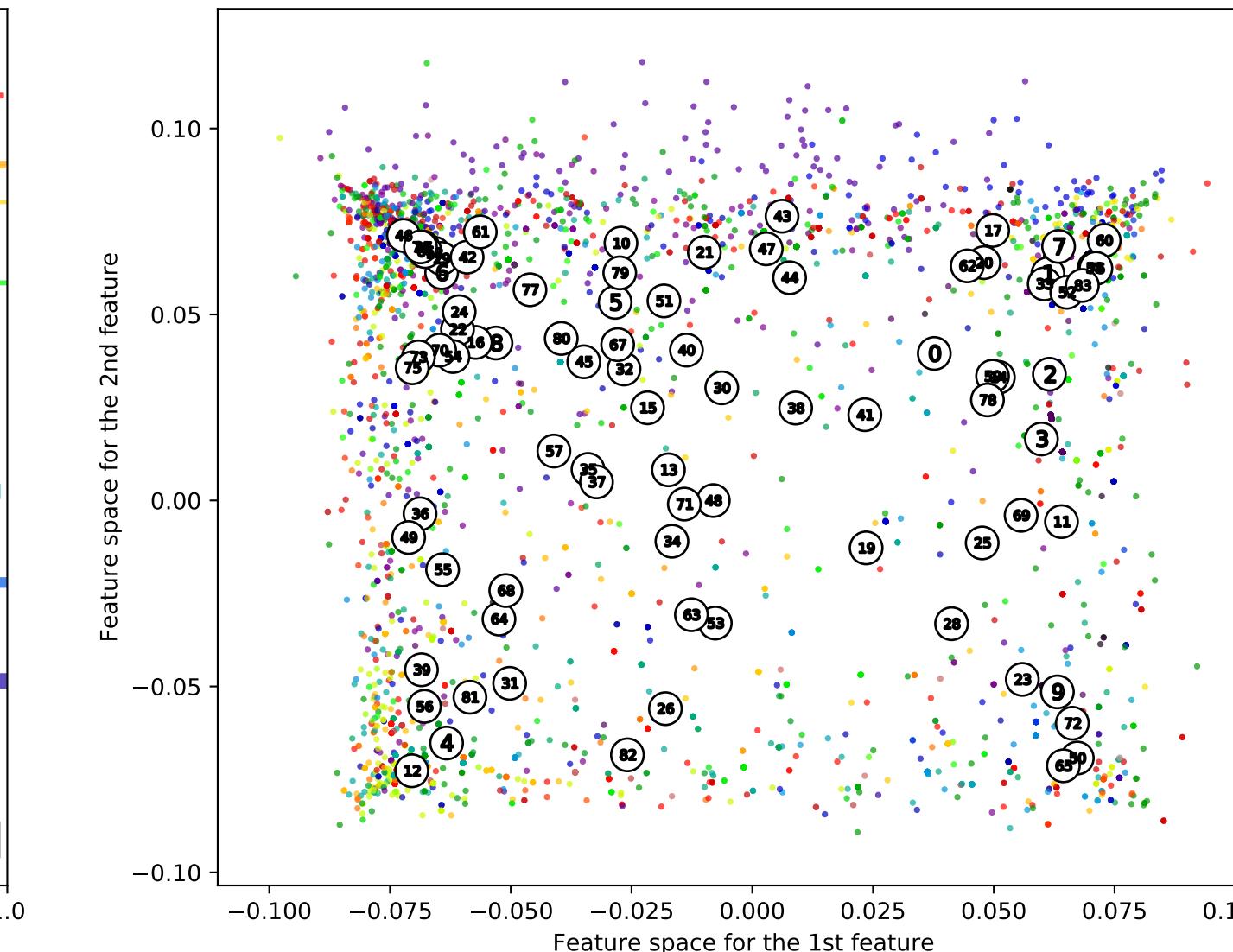


Silhouette analysis for KMeans clustering on sample data with n_clusters = 84 with Average Silhouette of: 0.41319072246551514

The silhouette plot for the various clusters.

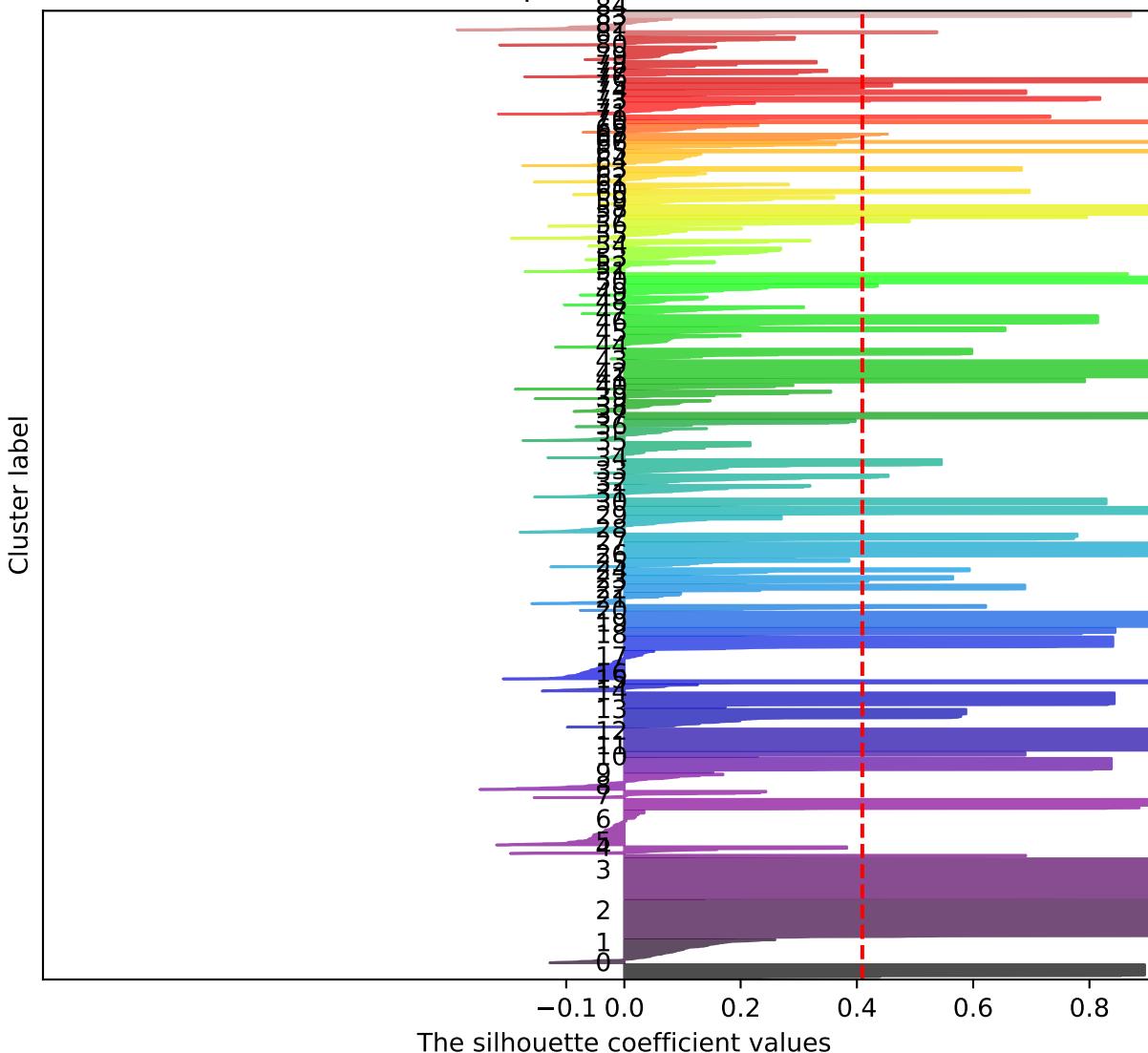


The visualization of the clustered data.

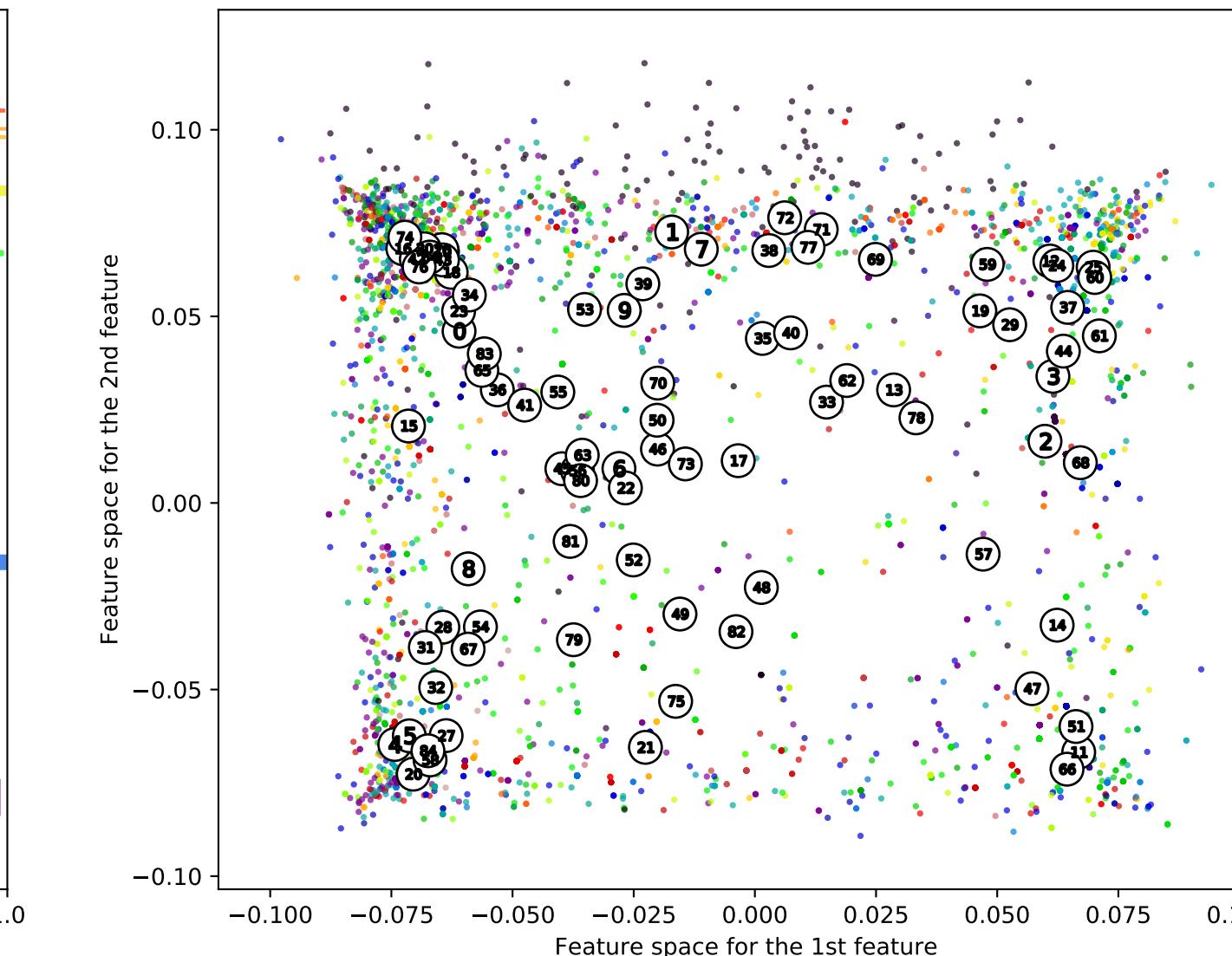


Silhouette analysis for KMeans clustering on sample data with n_clusters = 85 with Average Silhouette of: 0.4093092083930969

The silhouette plot for the various clusters.

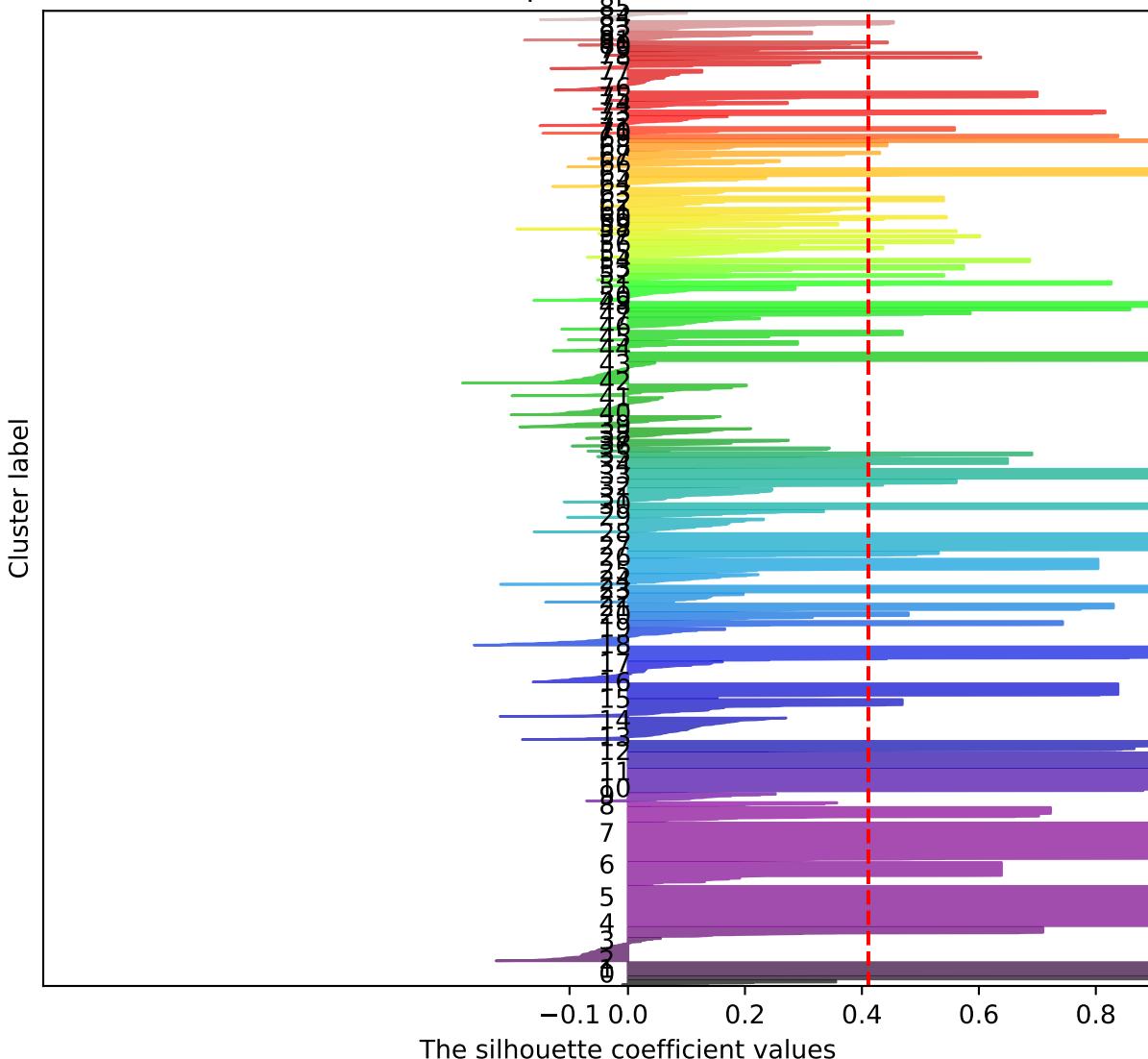


The visualization of the clustered data.

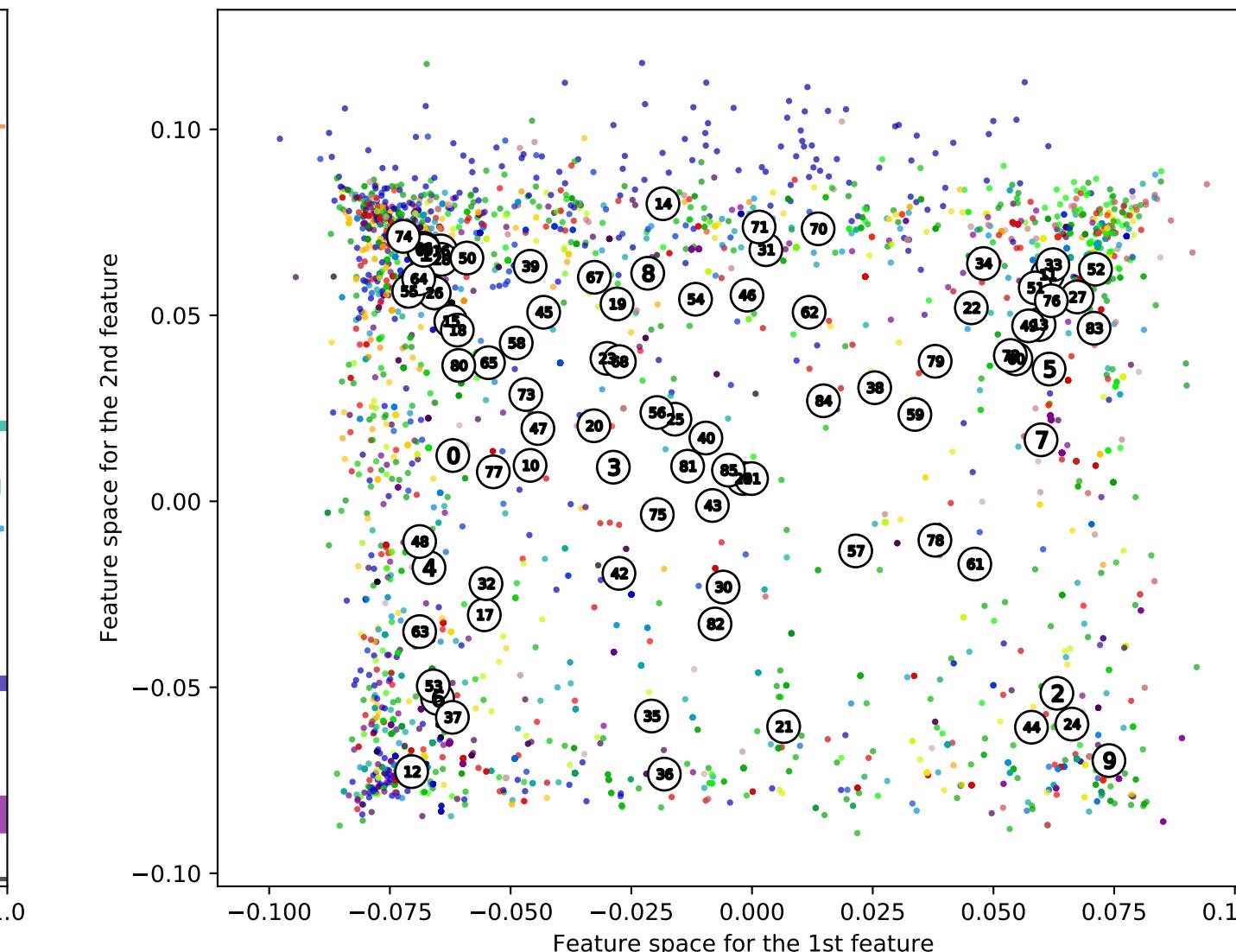


Silhouette analysis for KMeans clustering on sample data with n_clusters = 86 with Average Silhouette of: 0.4110192656517029

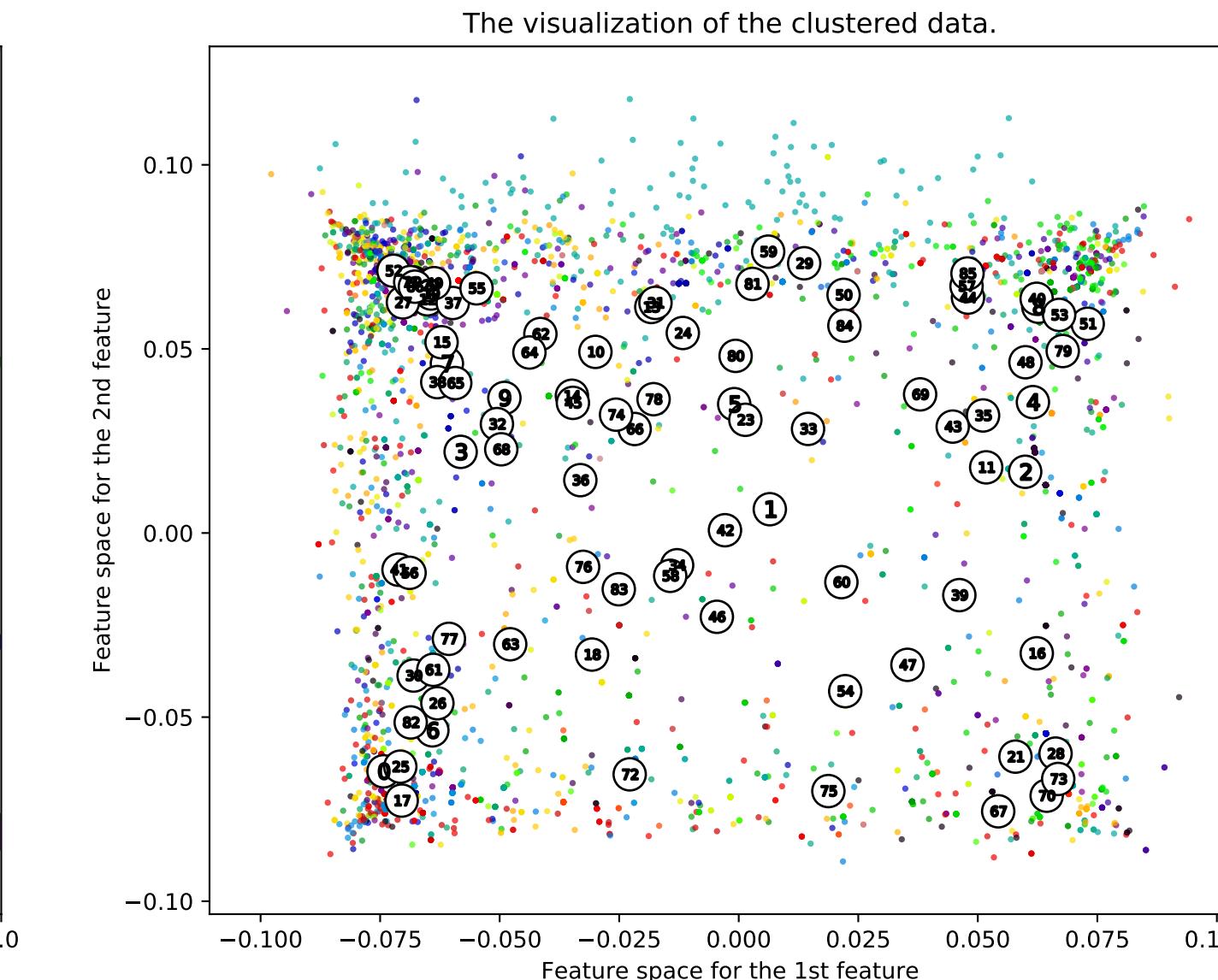
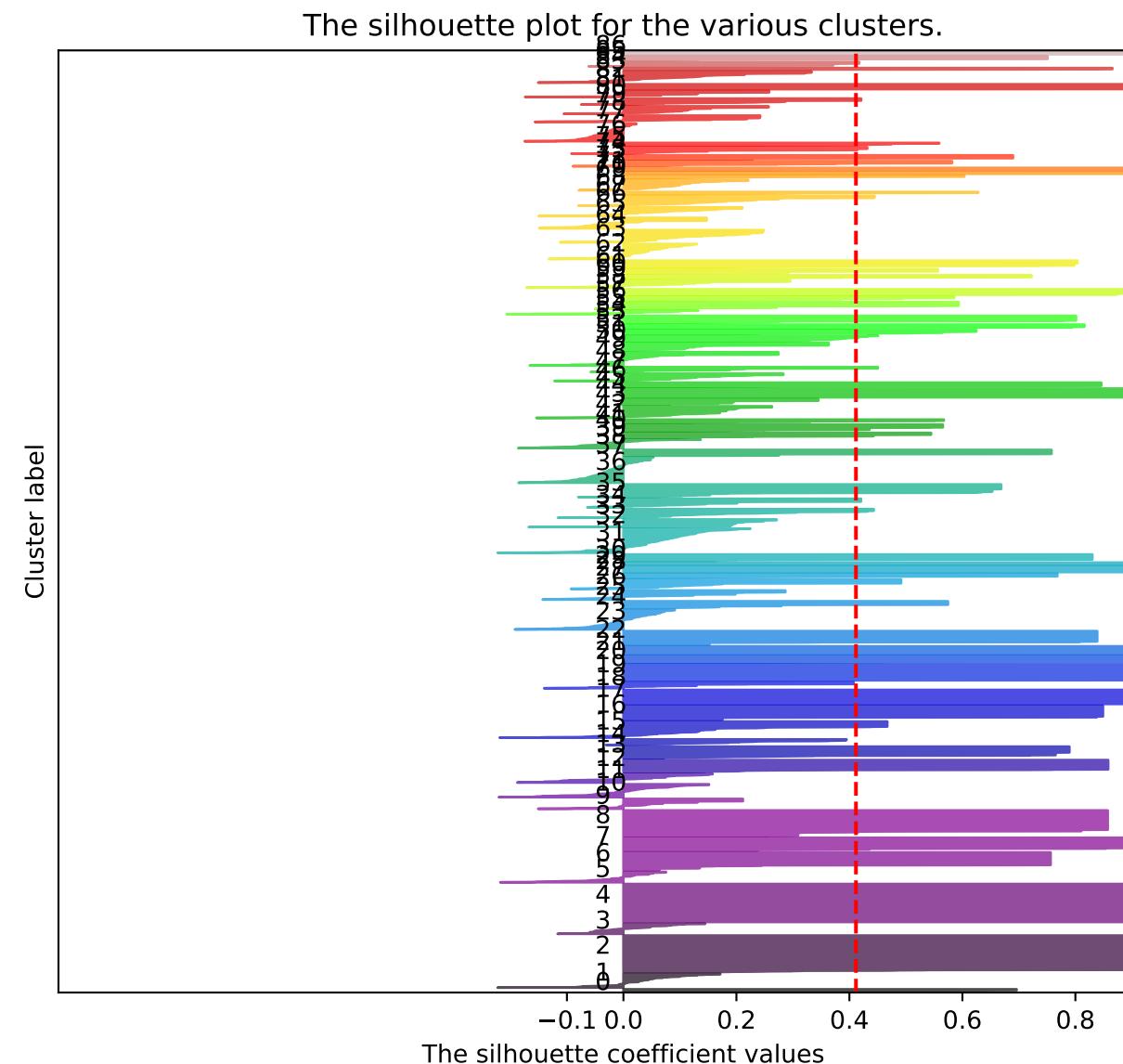
The silhouette plot for the various clusters.



The visualization of the clustered data.

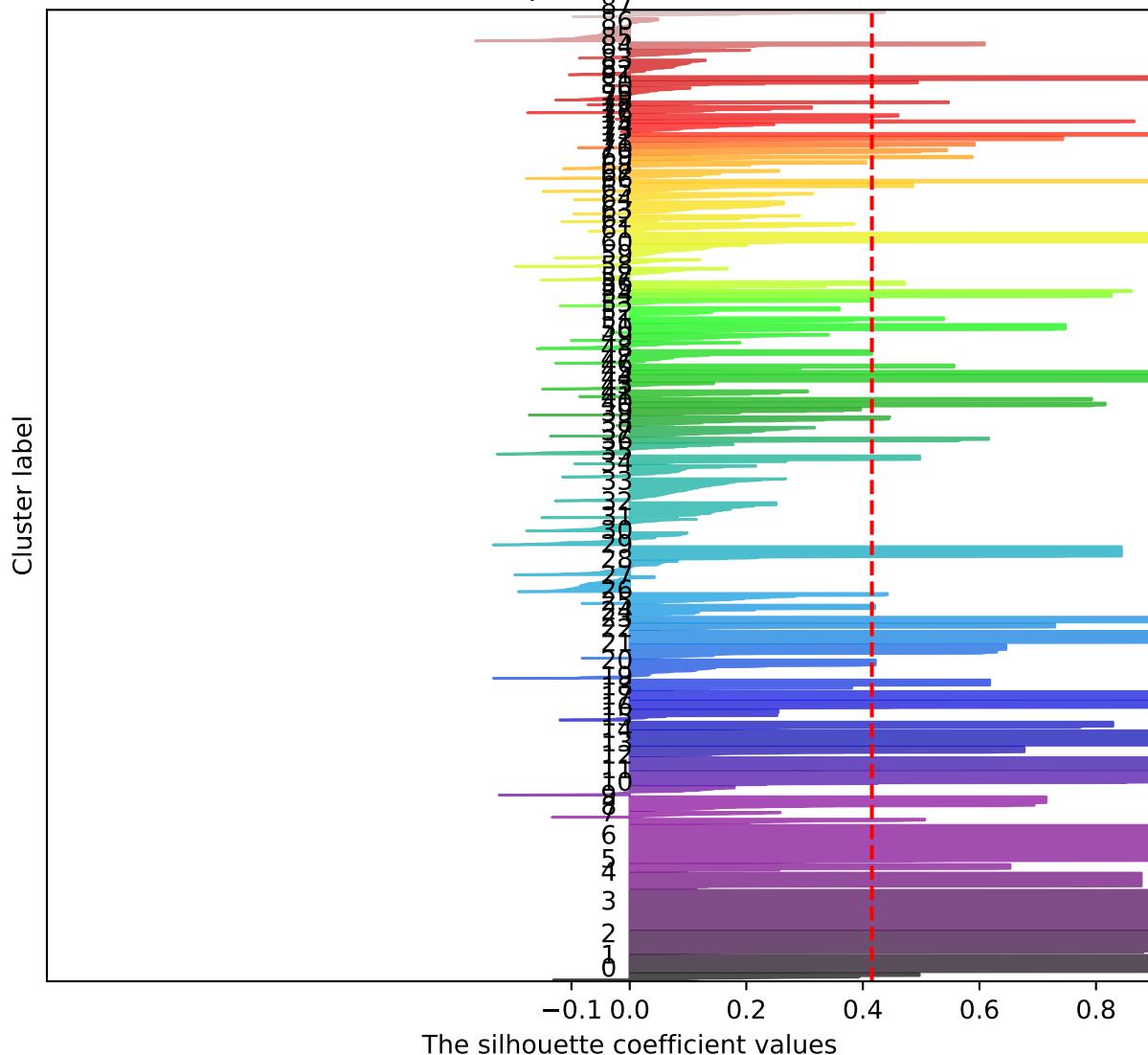


Silhouette analysis for KMeans clustering on sample data with n_clusters = 87 with Average Silhouette of: 0.4115915298461914

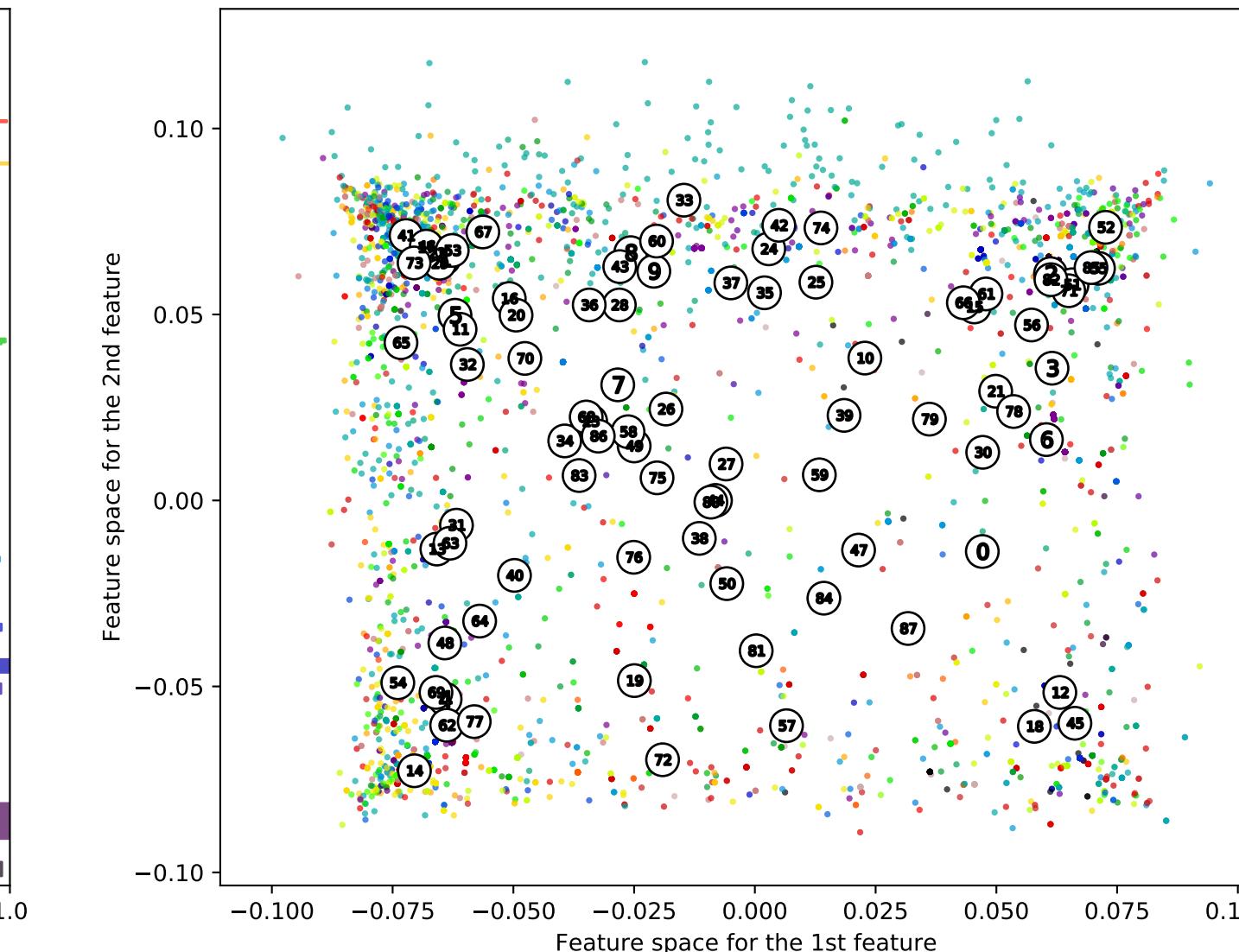


Silhouette analysis for KMeans clustering on sample data with n_clusters = 88 with Average Silhouette of: 0.4154713153839113

The silhouette plot for the various clusters.

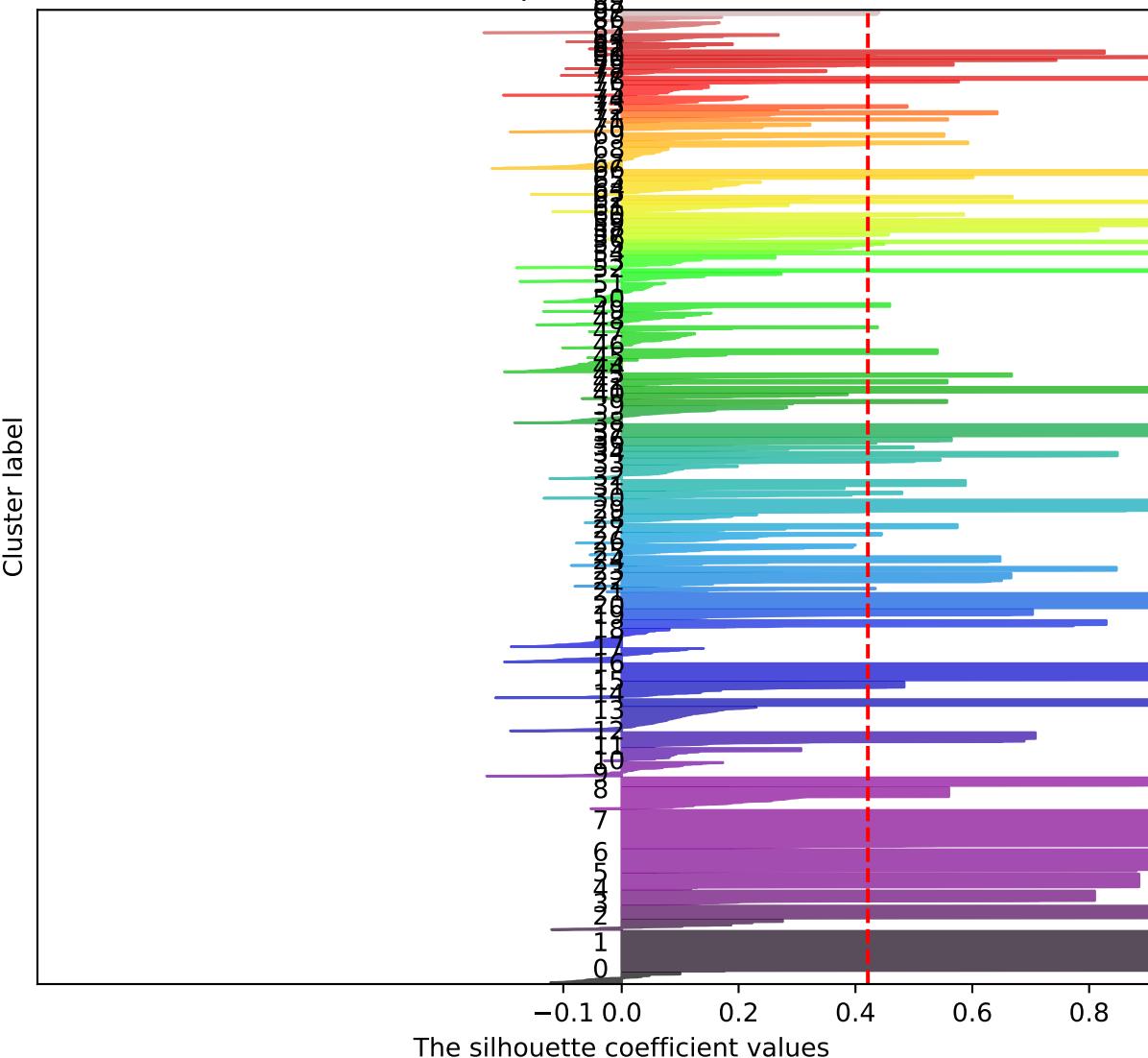


The visualization of the clustered data.

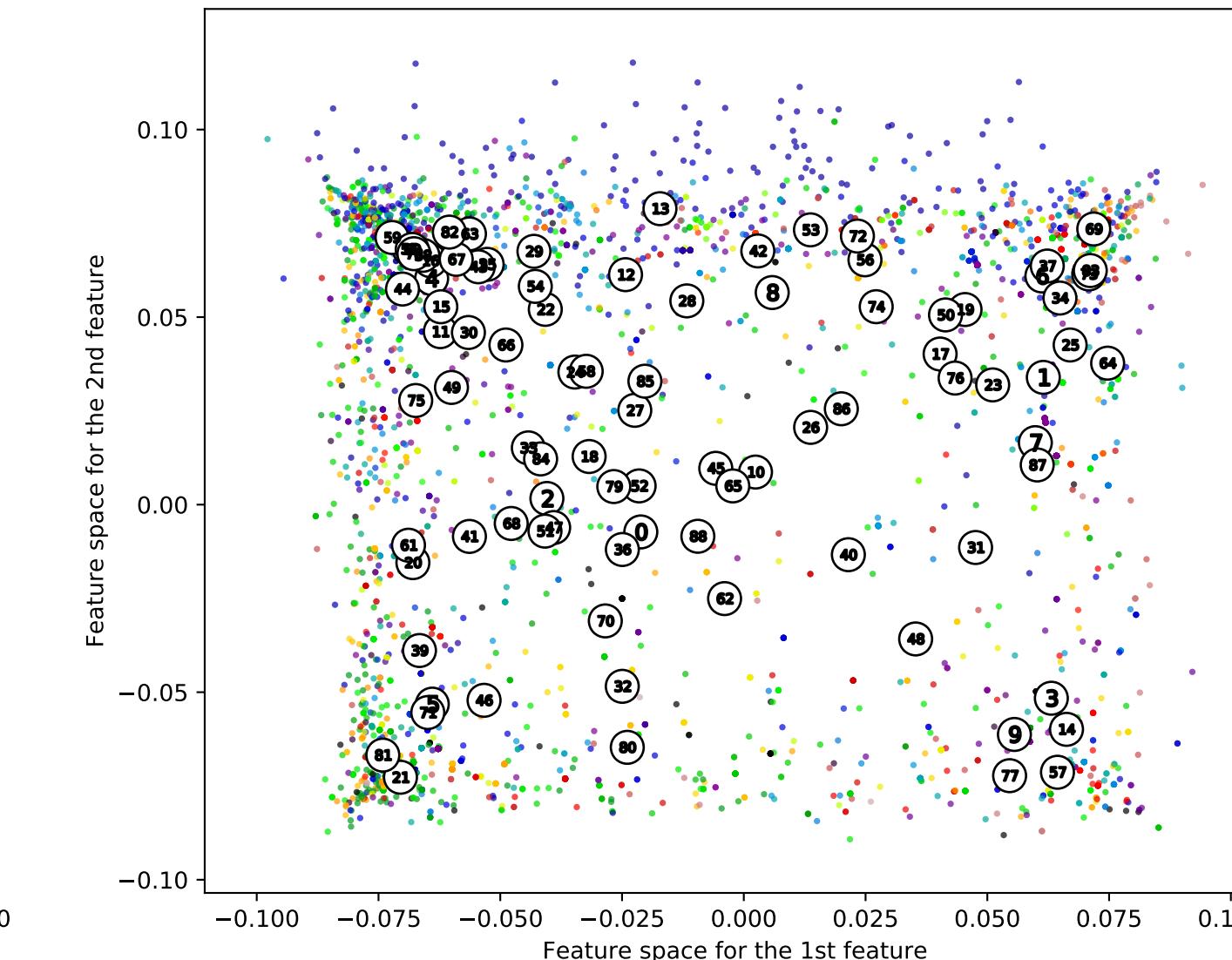


Silhouette analysis for KMeans clustering on sample data with n_clusters = 89 with Average Silhouette of: 0.42130815982818604

The silhouette plot for the various clusters.

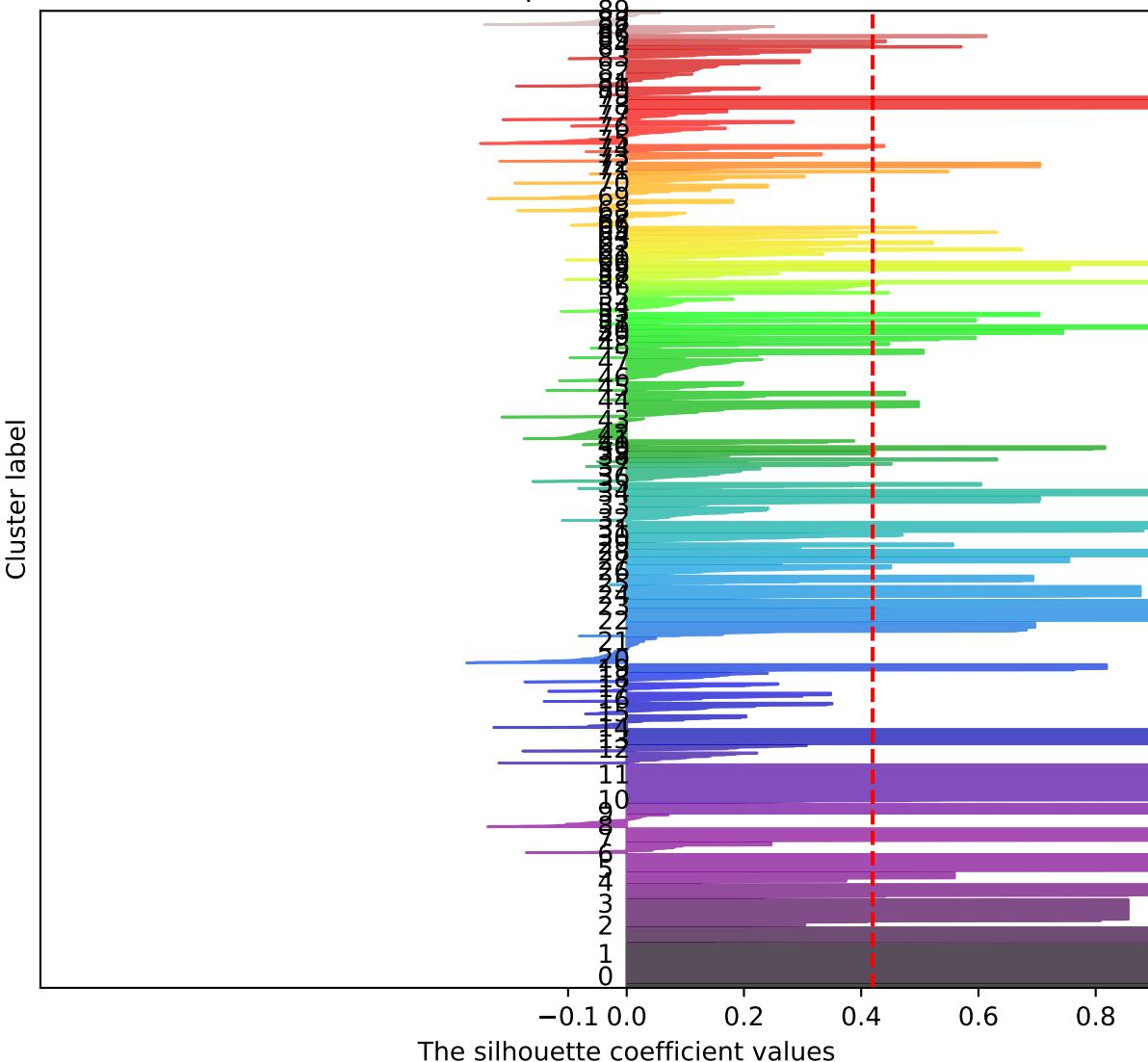


The visualization of the clustered data.

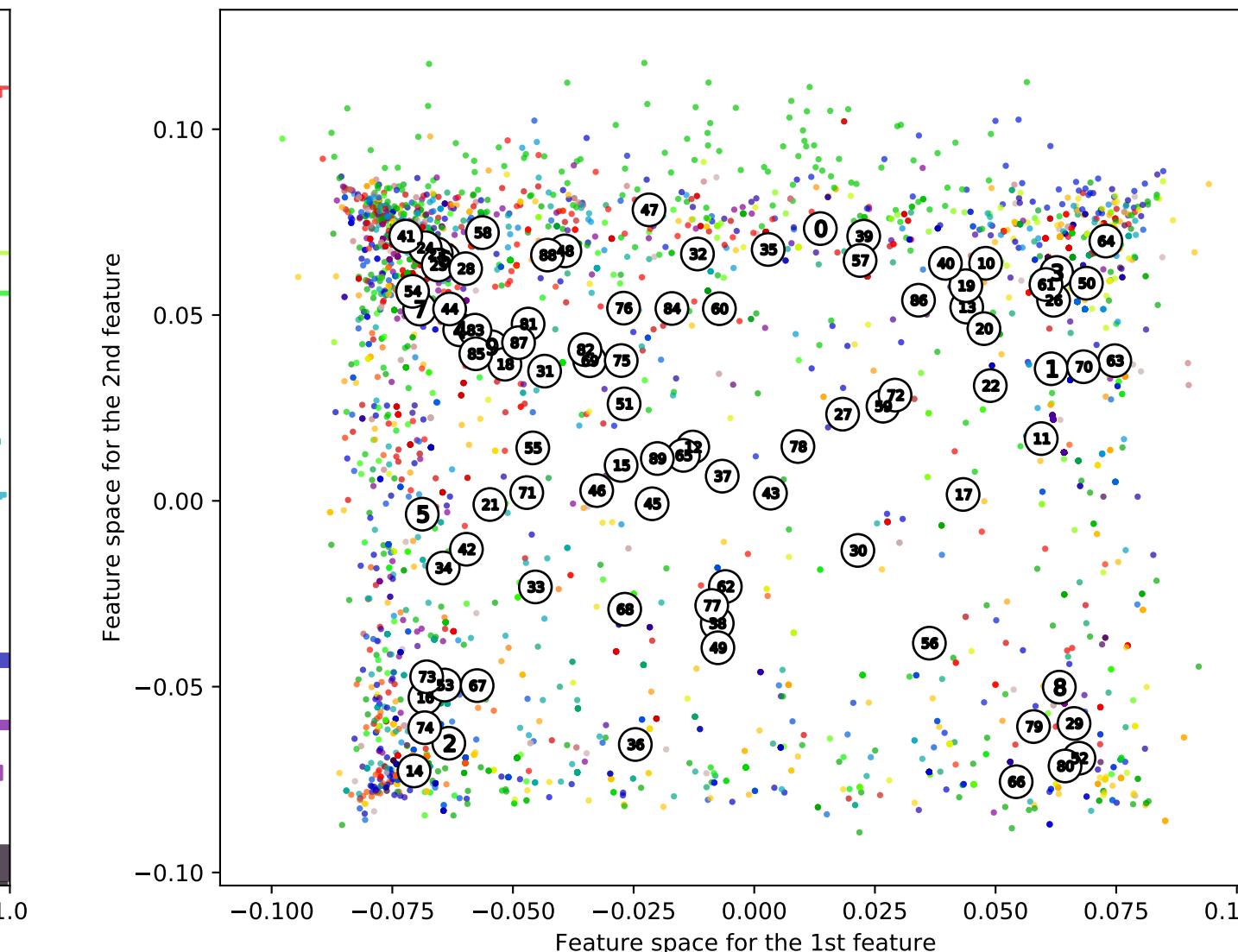


Silhouette analysis for KMeans clustering on sample data with n_clusters = 90 with Average Silhouette of: 0.41948047280311584

The silhouette plot for the various clusters.

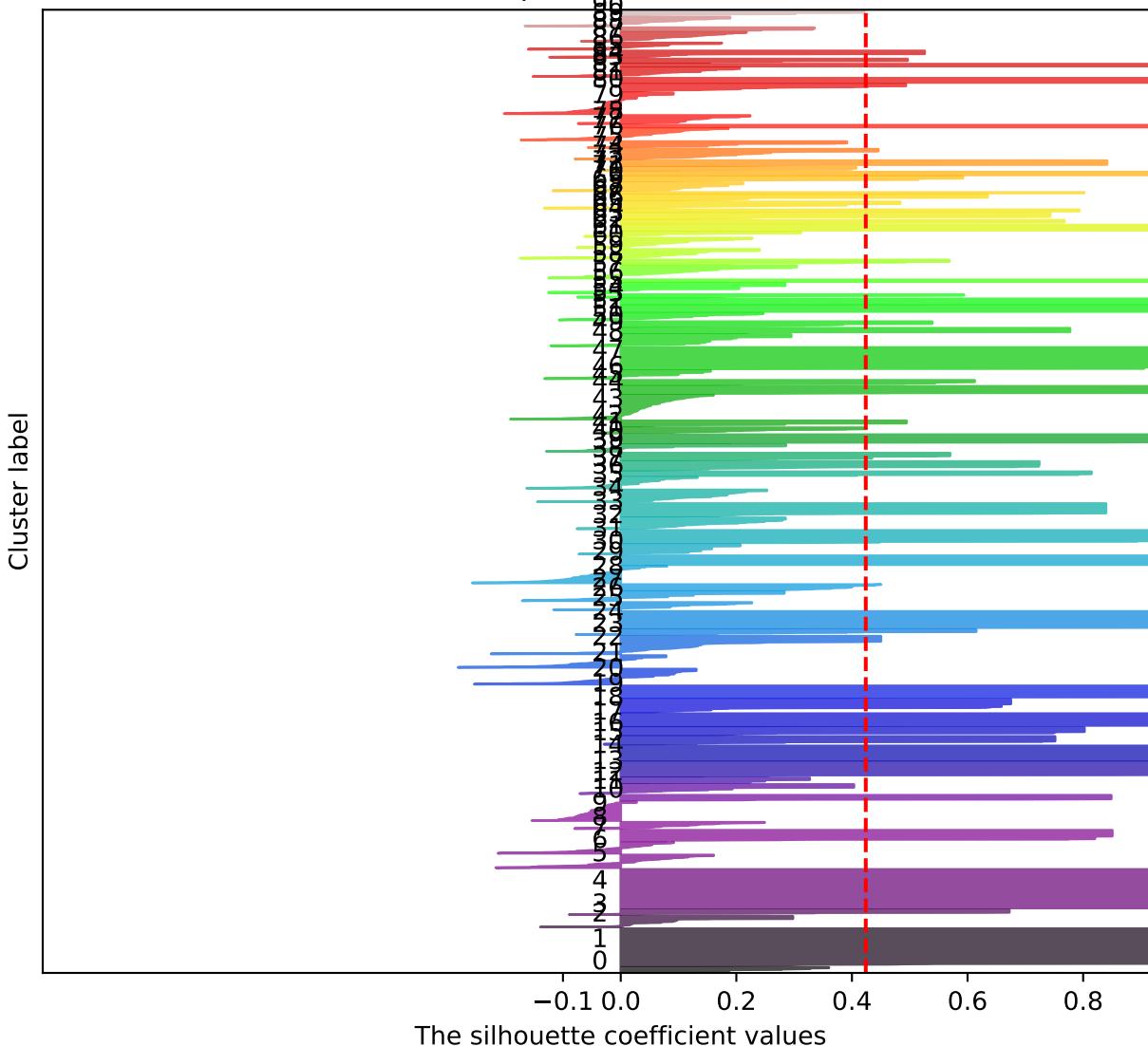


The visualization of the clustered data.

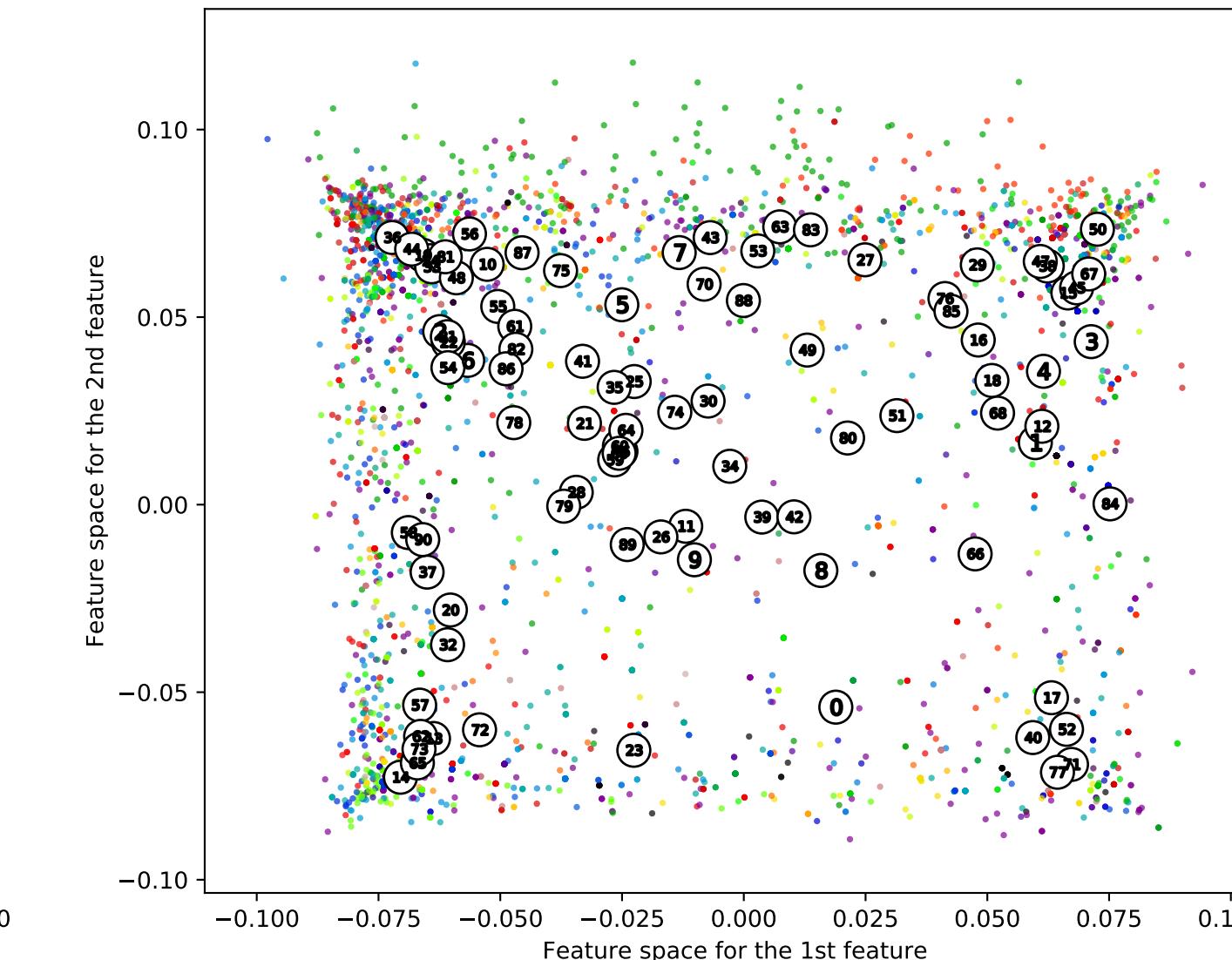


Silhouette analysis for KMeans clustering on sample data with n_clusters = 91 with Average Silhouette of: 0.42391881346702576

The silhouette plot for the various clusters.

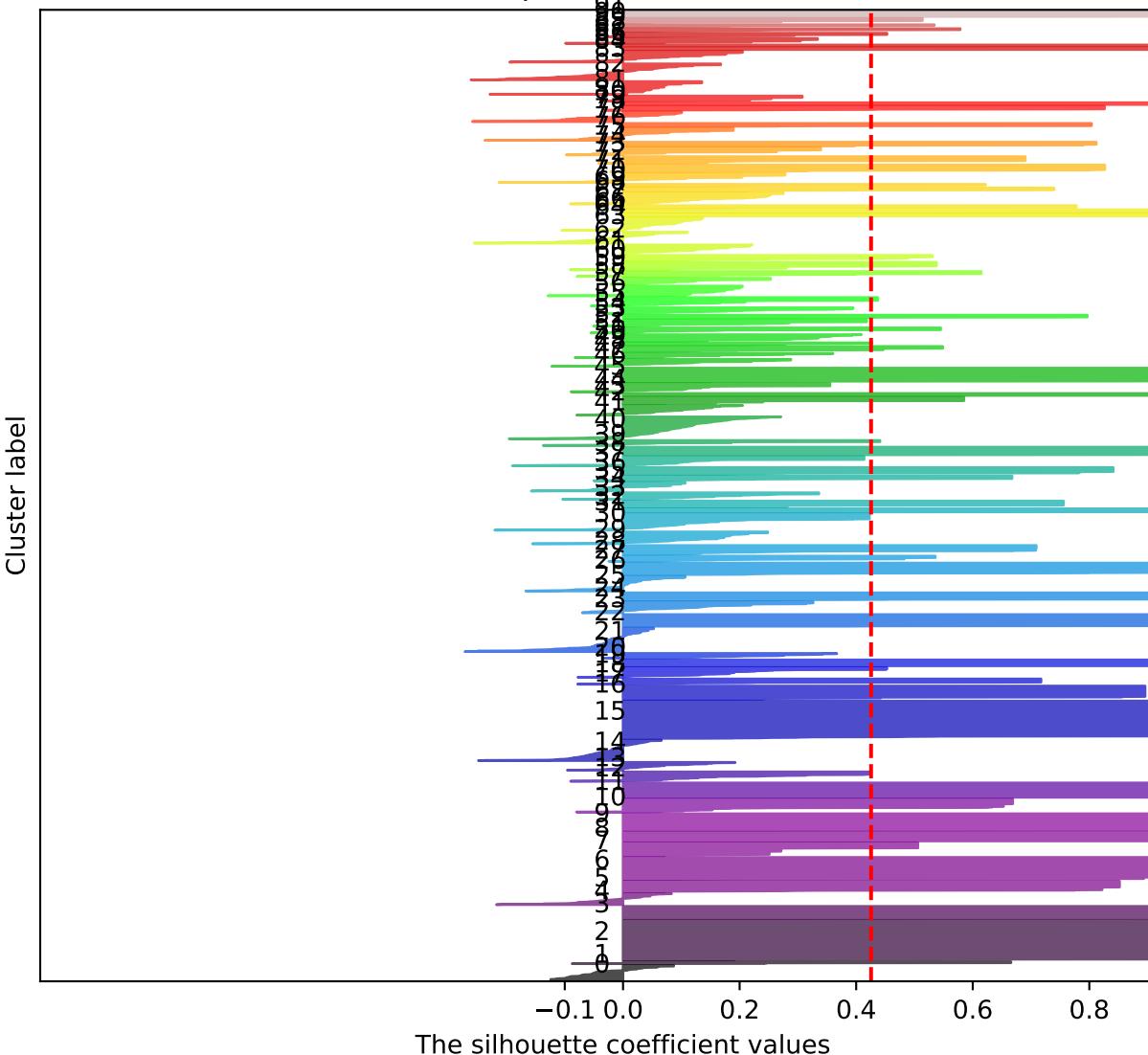


The visualization of the clustered data.

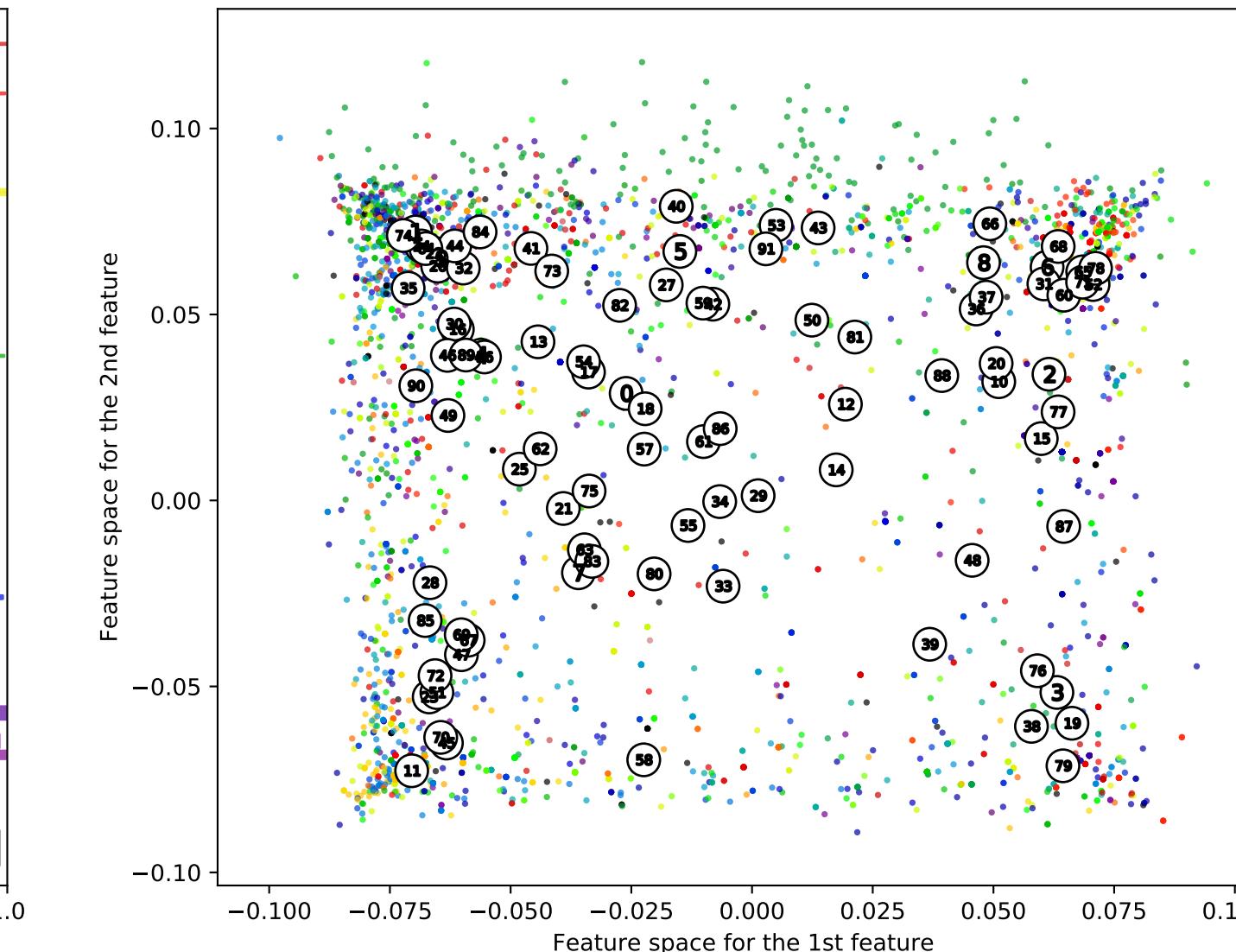


Silhouette analysis for KMeans clustering on sample data with n_clusters = 92 with Average Silhouette of: 0.42554888129234314

The silhouette plot for the various clusters.

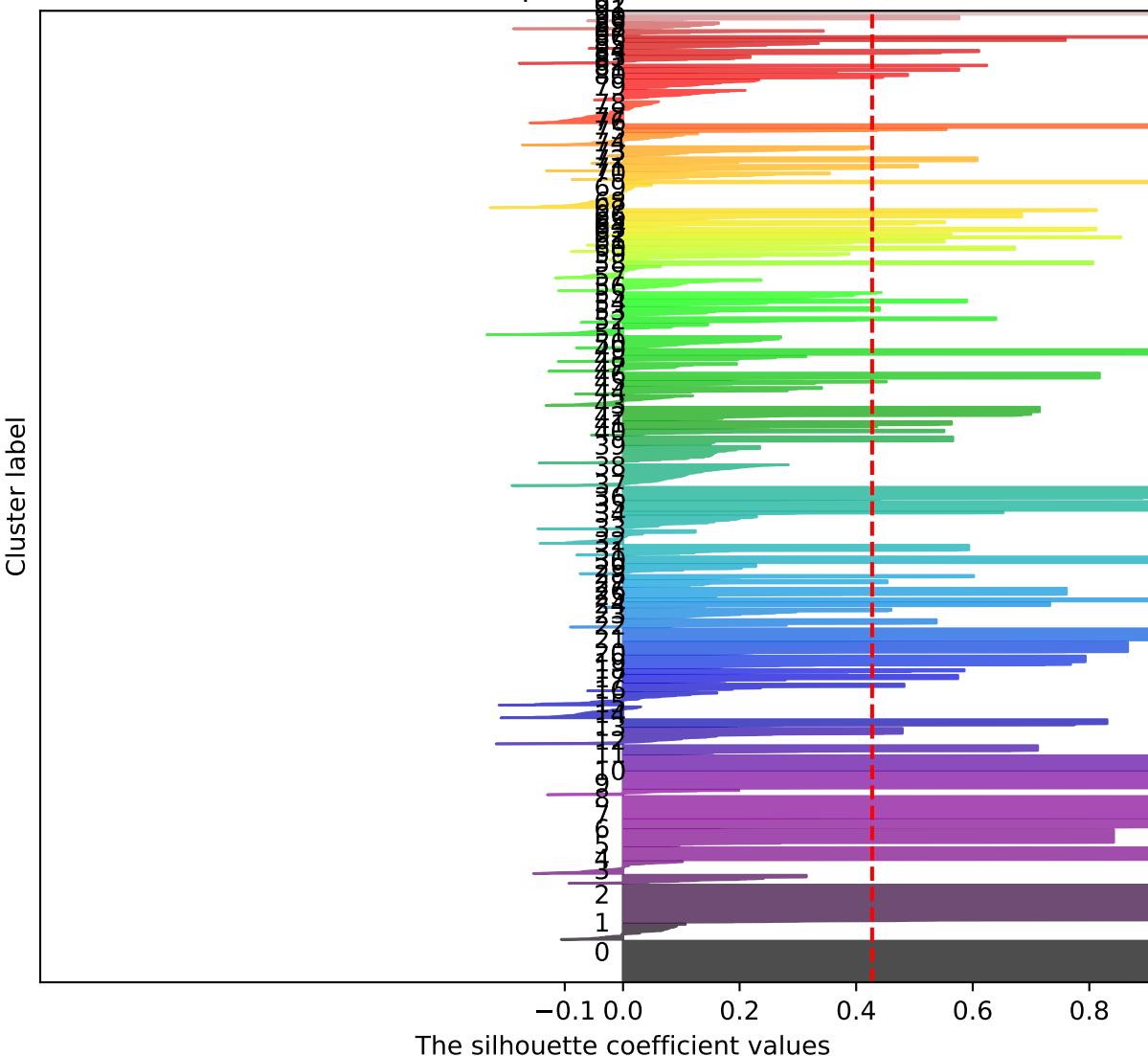


The visualization of the clustered data.

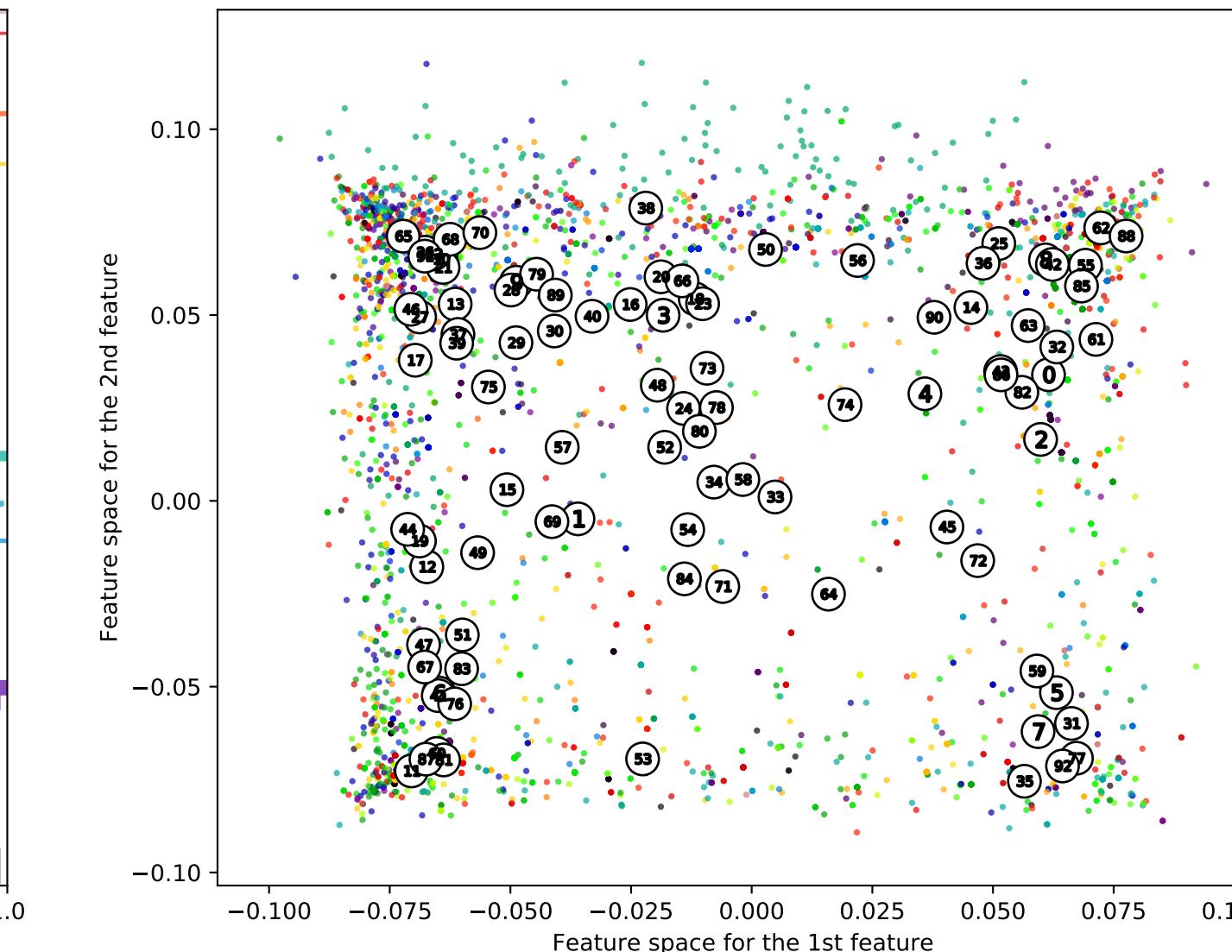


Silhouette analysis for KMeans clustering on sample data with n_clusters = 93 with Average Silhouette of: 0.4274252653121948

The silhouette plot for the various clusters.

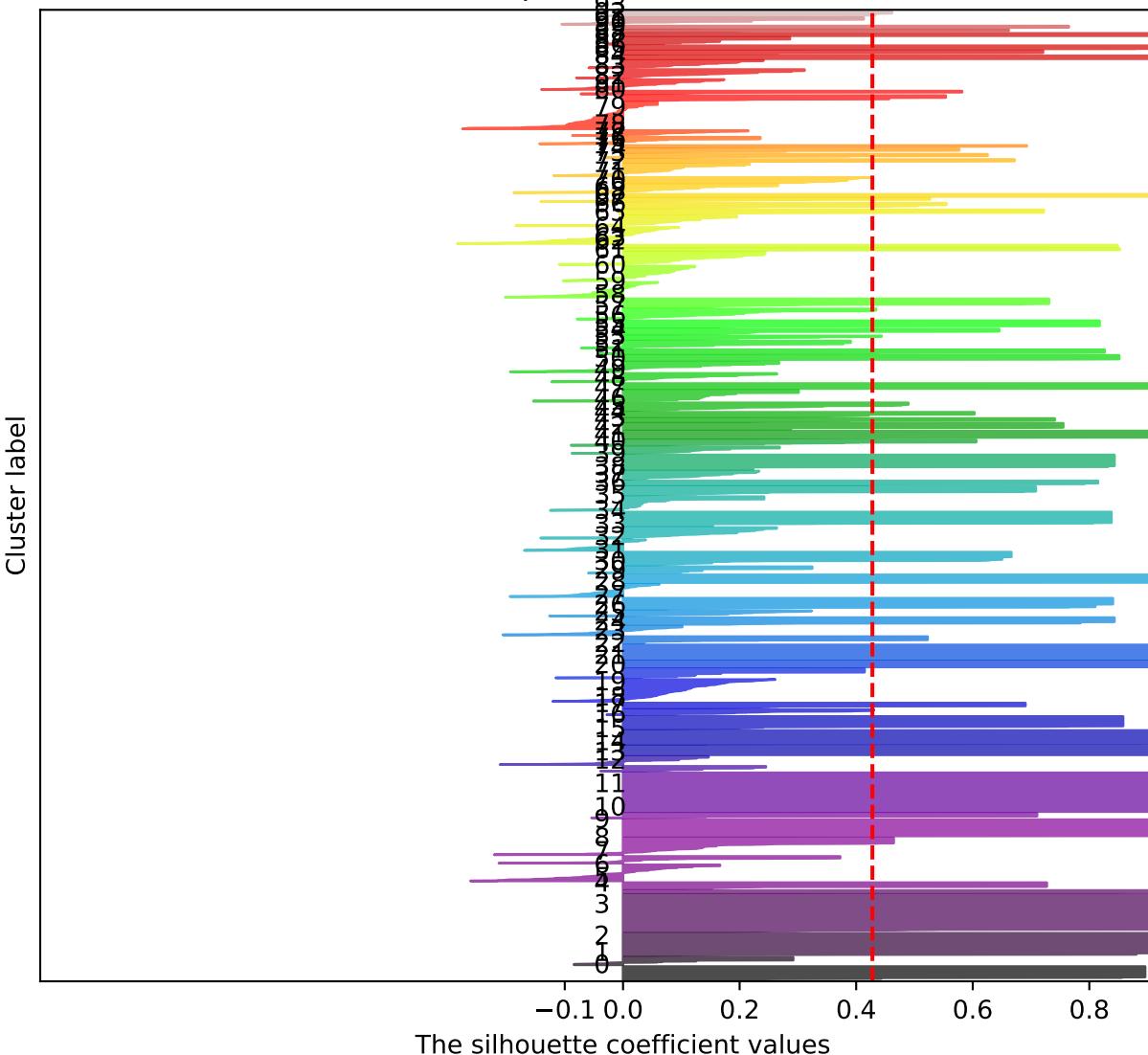


The visualization of the clustered data.

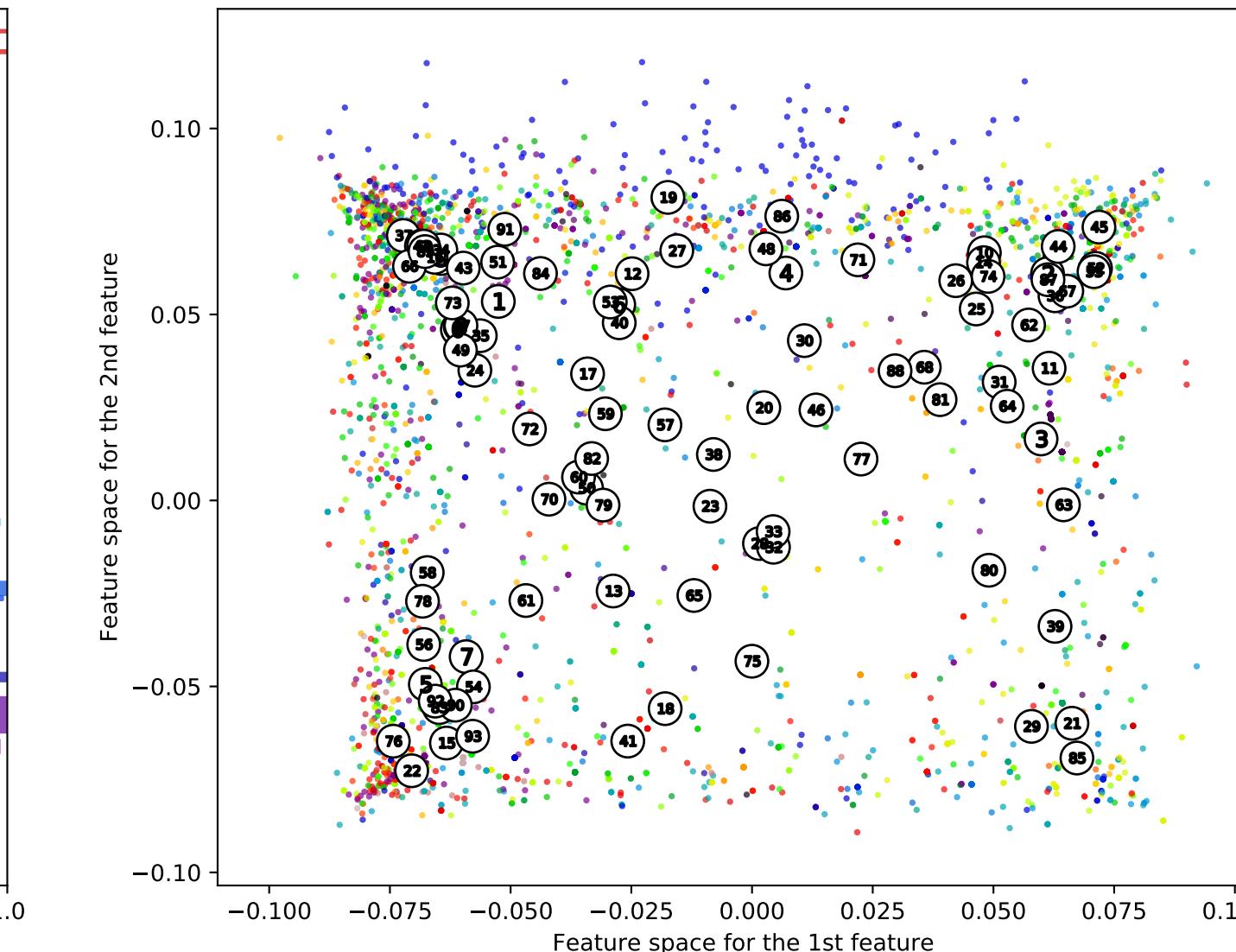


Silhouette analysis for KMeans clustering on sample data with n_clusters = 94 with Average Silhouette of: 0.42777568101882935

The silhouette plot for the various clusters.

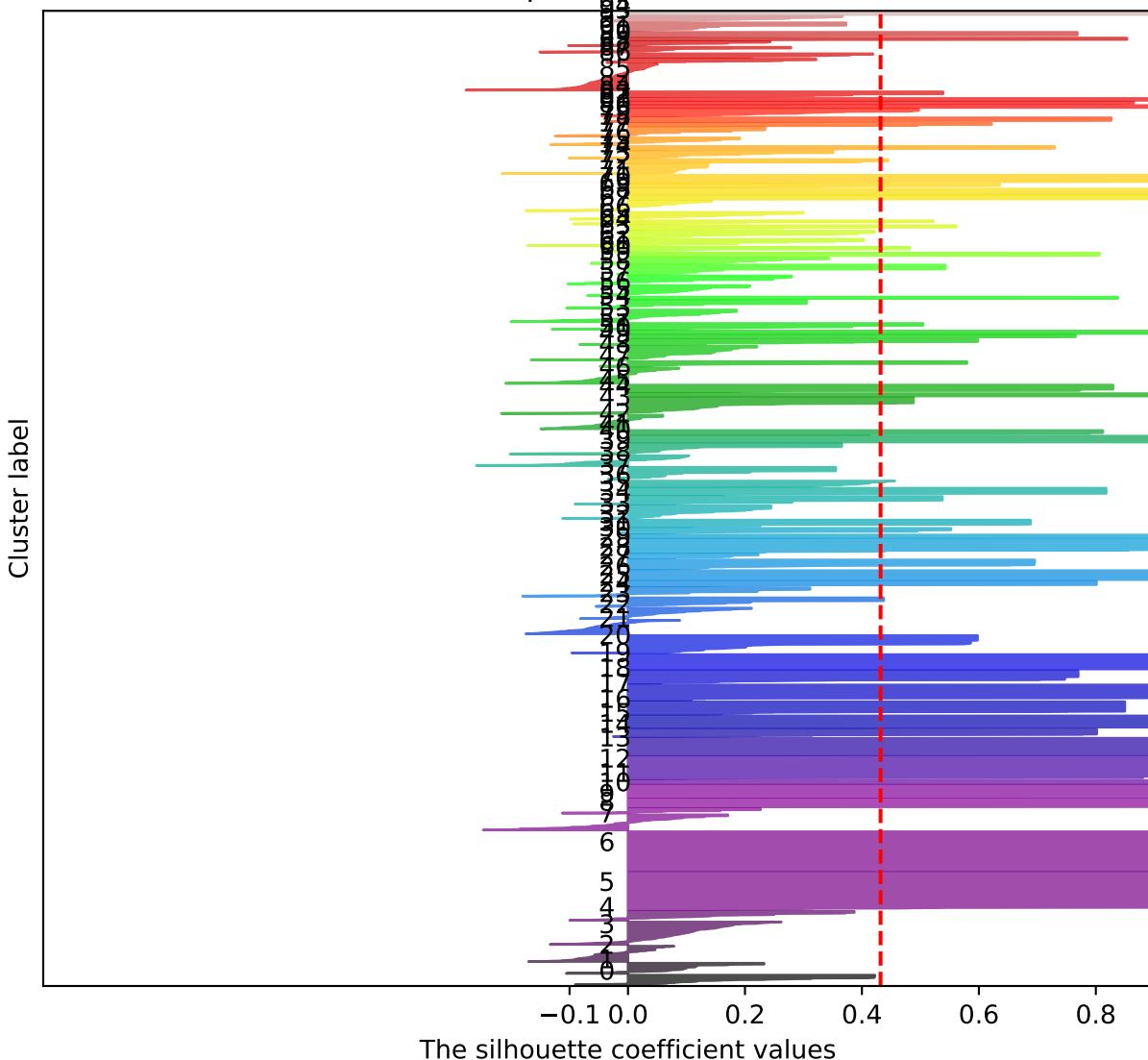


The visualization of the clustered data.

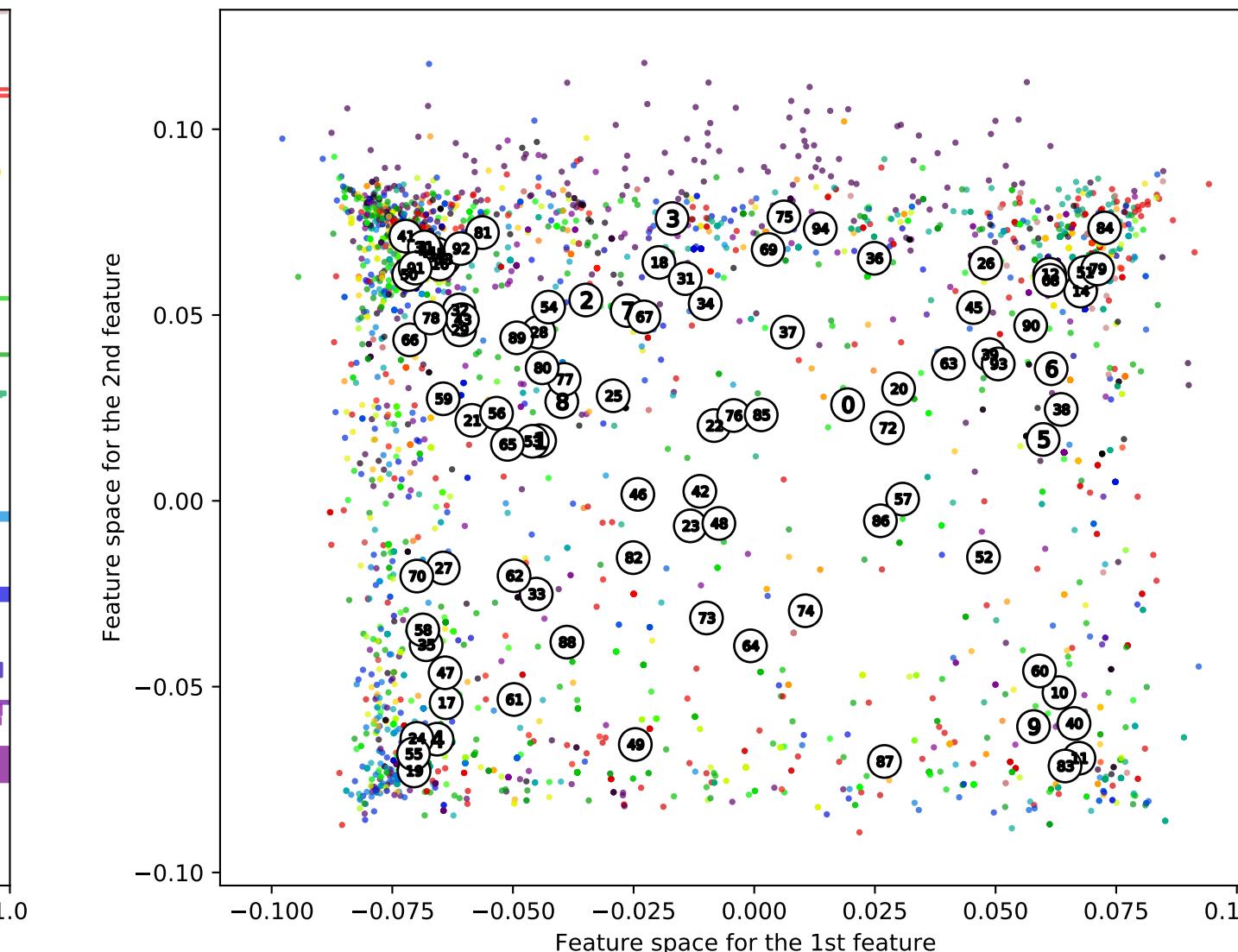


Silhouette analysis for KMeans clustering on sample data with n_clusters = 95 with Average Silhouette of: 0.4319241940975189

The silhouette plot for the various clusters.

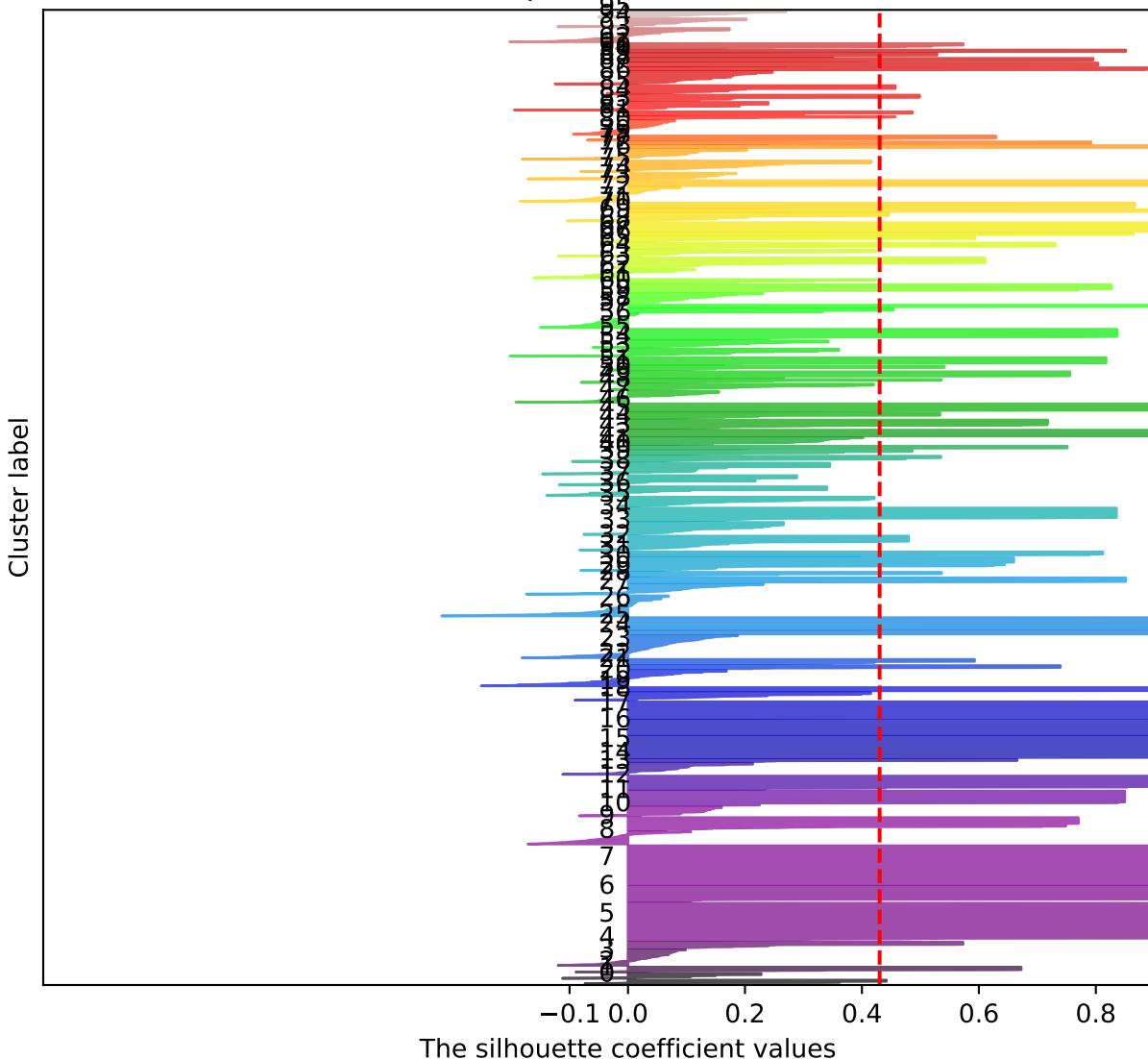


The visualization of the clustered data.

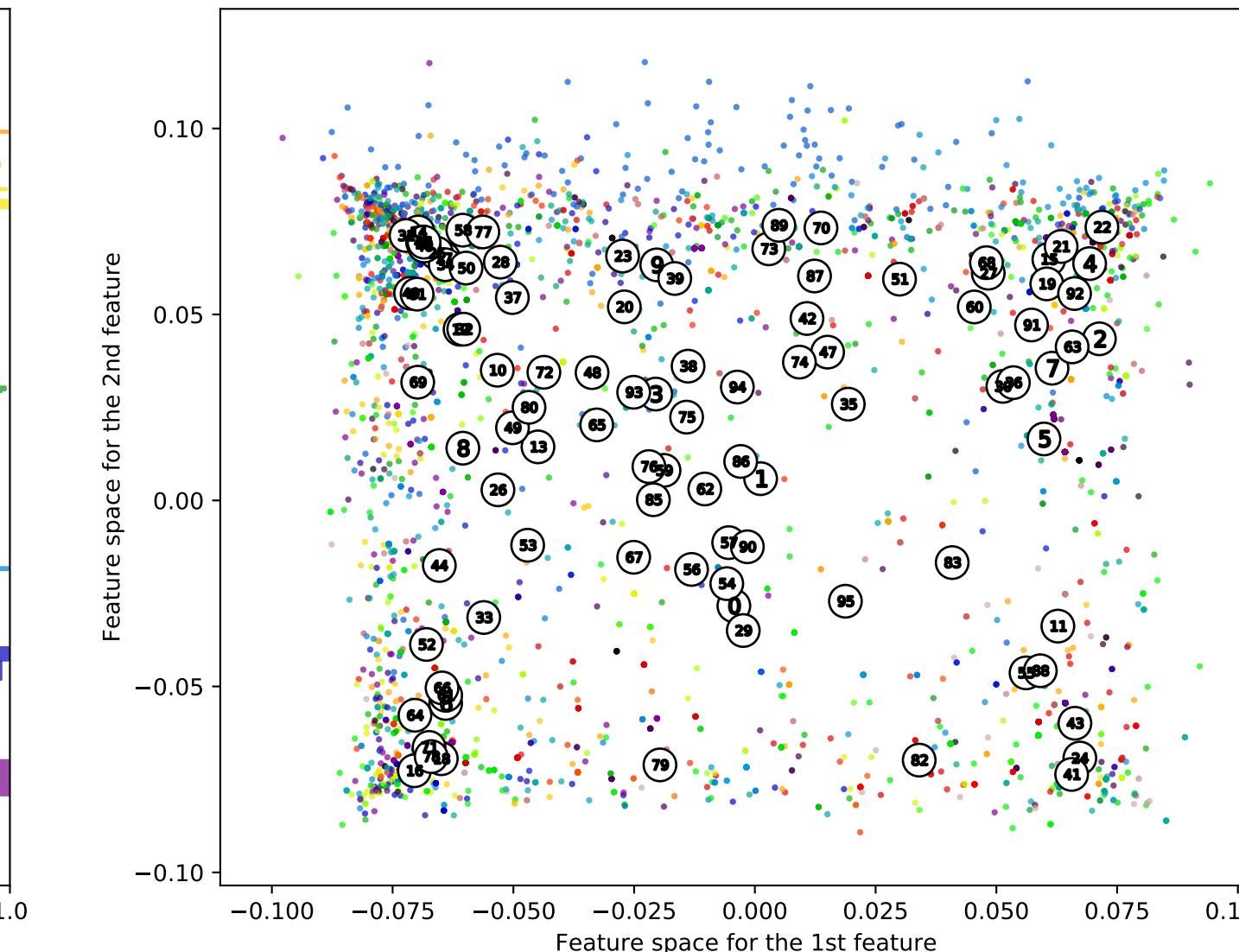


Silhouette analysis for KMeans clustering on sample data with n_clusters = 96 with Average Silhouette of: 0.4302707612514496

The silhouette plot for the various clusters.

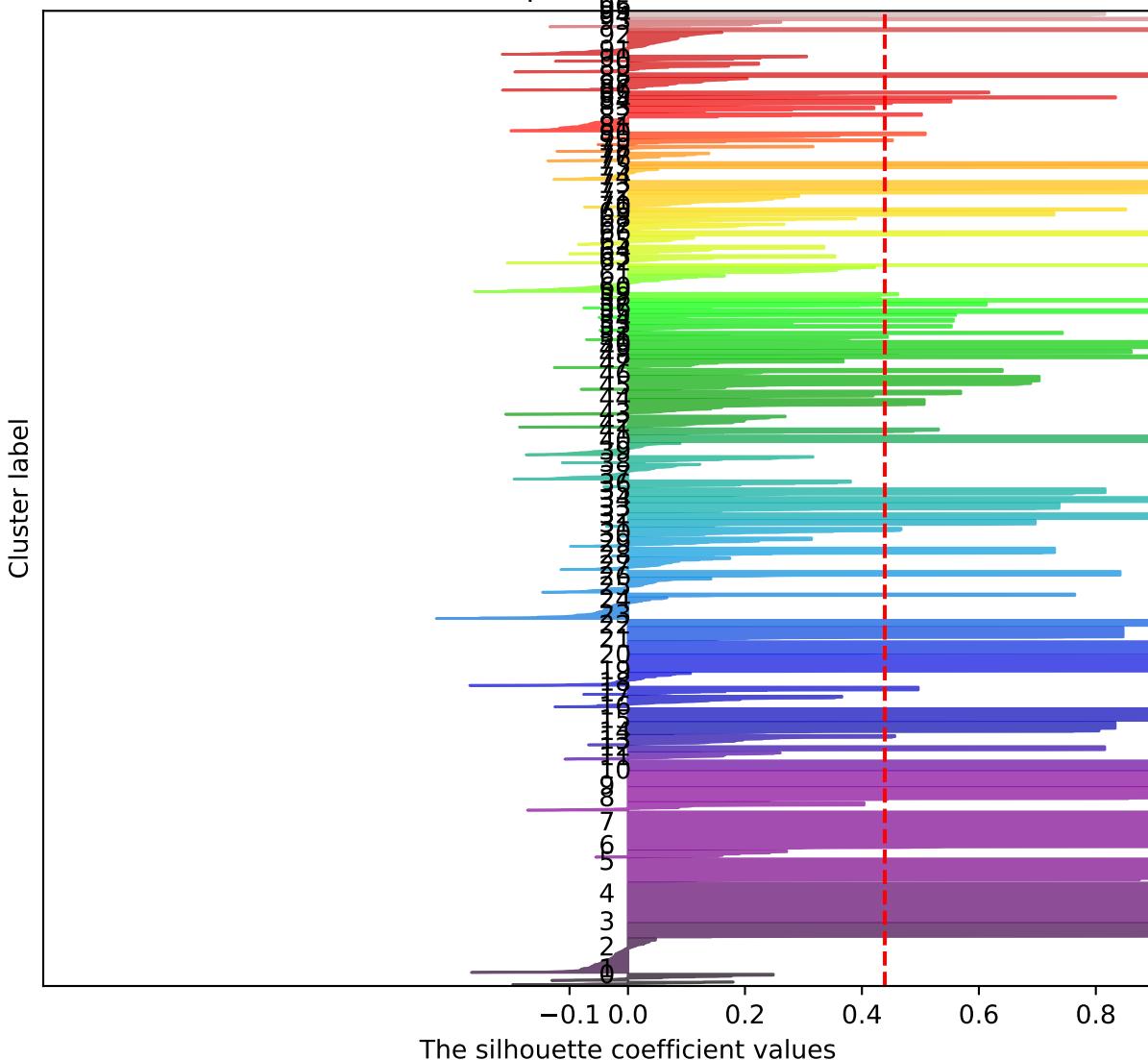


The visualization of the clustered data.

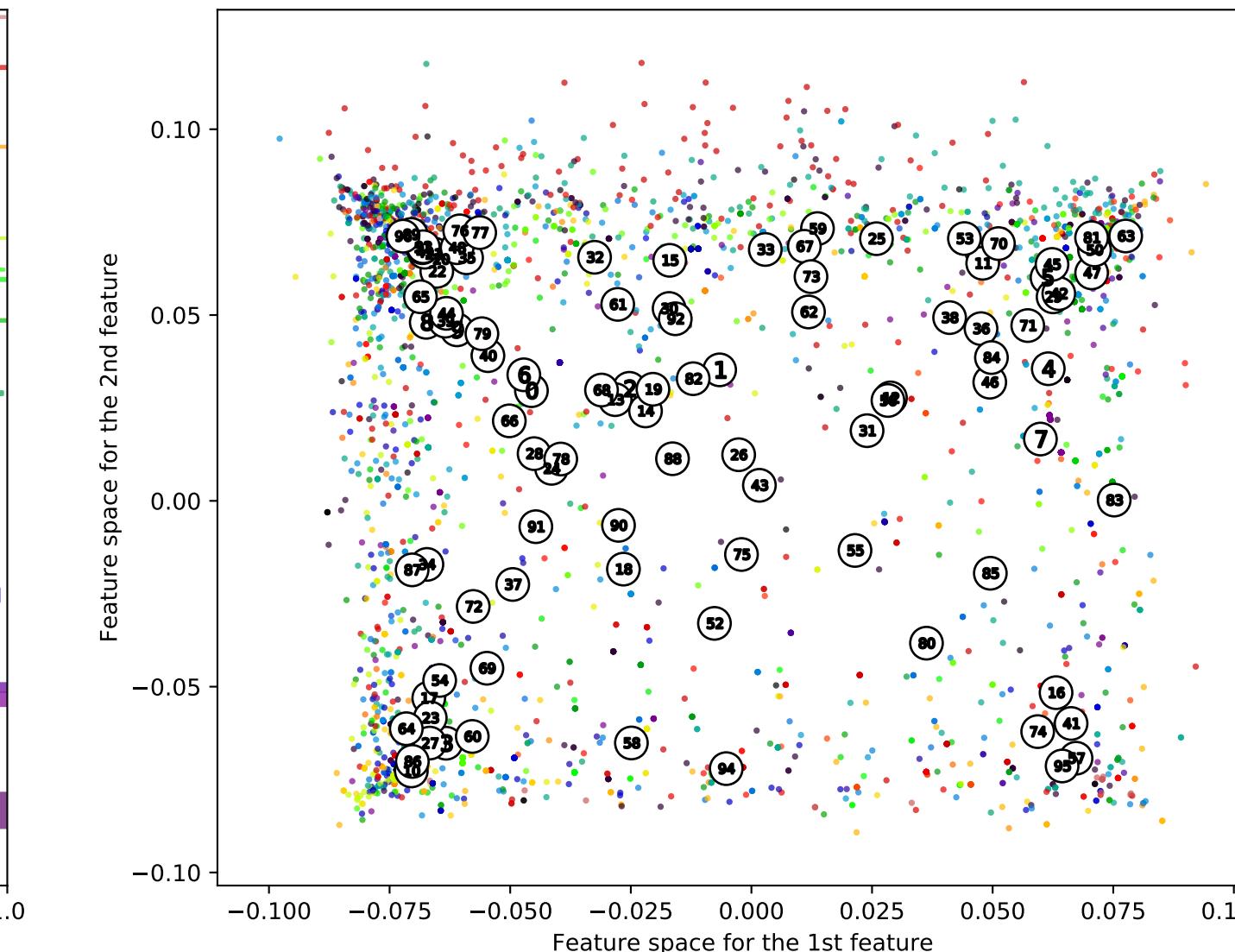


Silhouette analysis for KMeans clustering on sample data with n_clusters = 97 with Average Silhouette of: 0.4391360580921173

The silhouette plot for the various clusters.

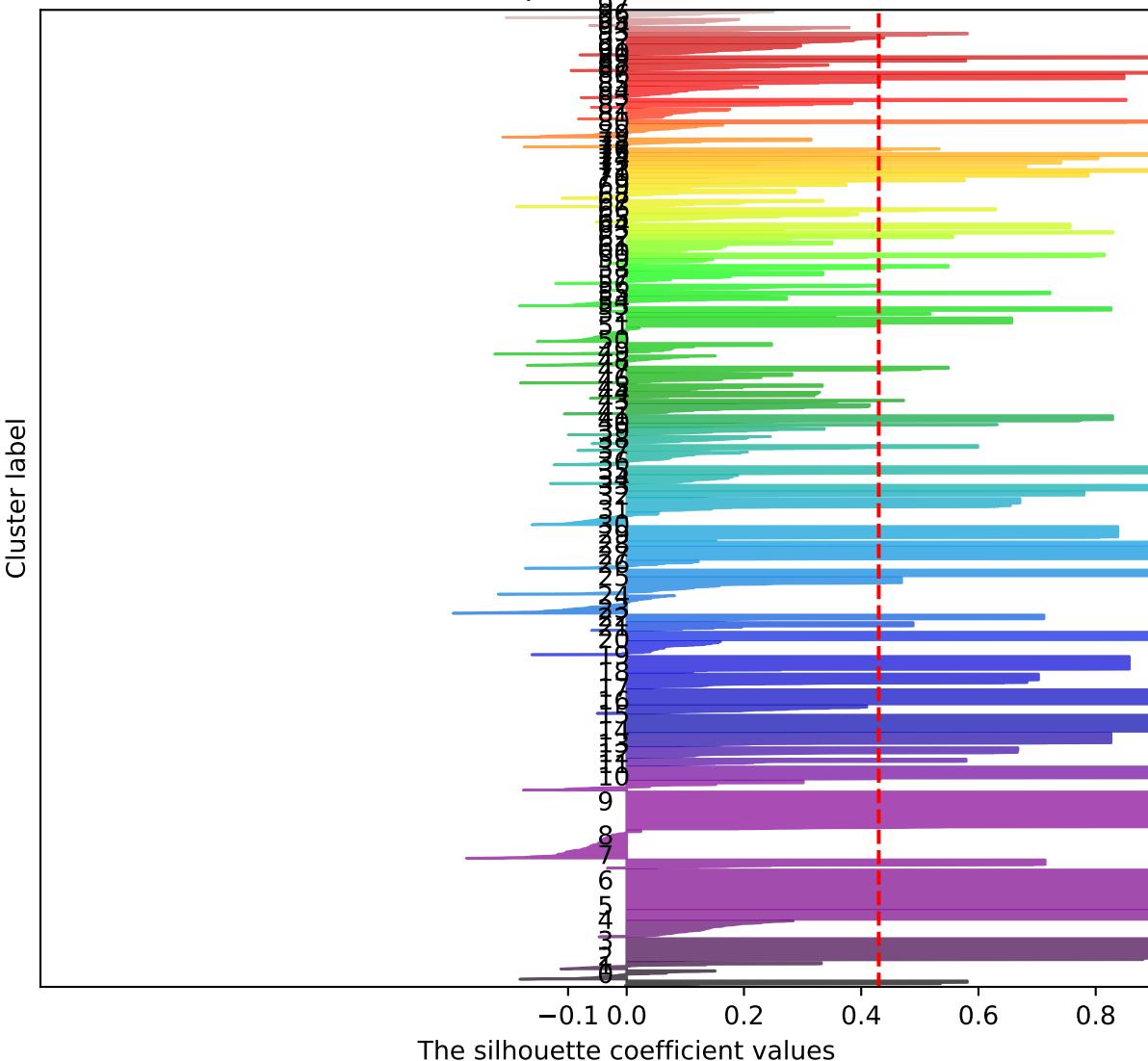


The visualization of the clustered data.

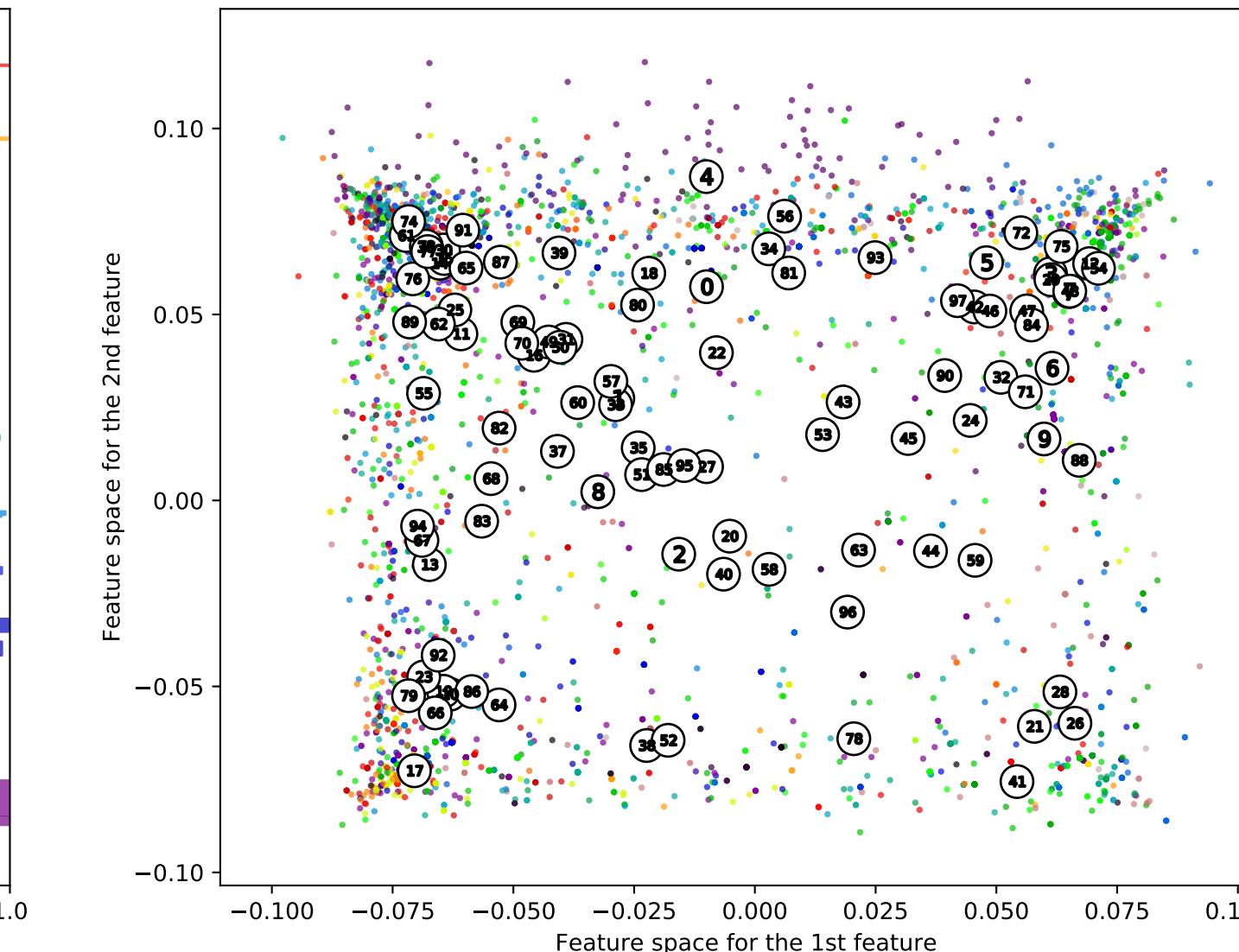


Silhouette analysis for KMeans clustering on sample data with n_clusters = 98 with Average Silhouette of: 0.4299446940422058

The silhouette plot for the various clusters.

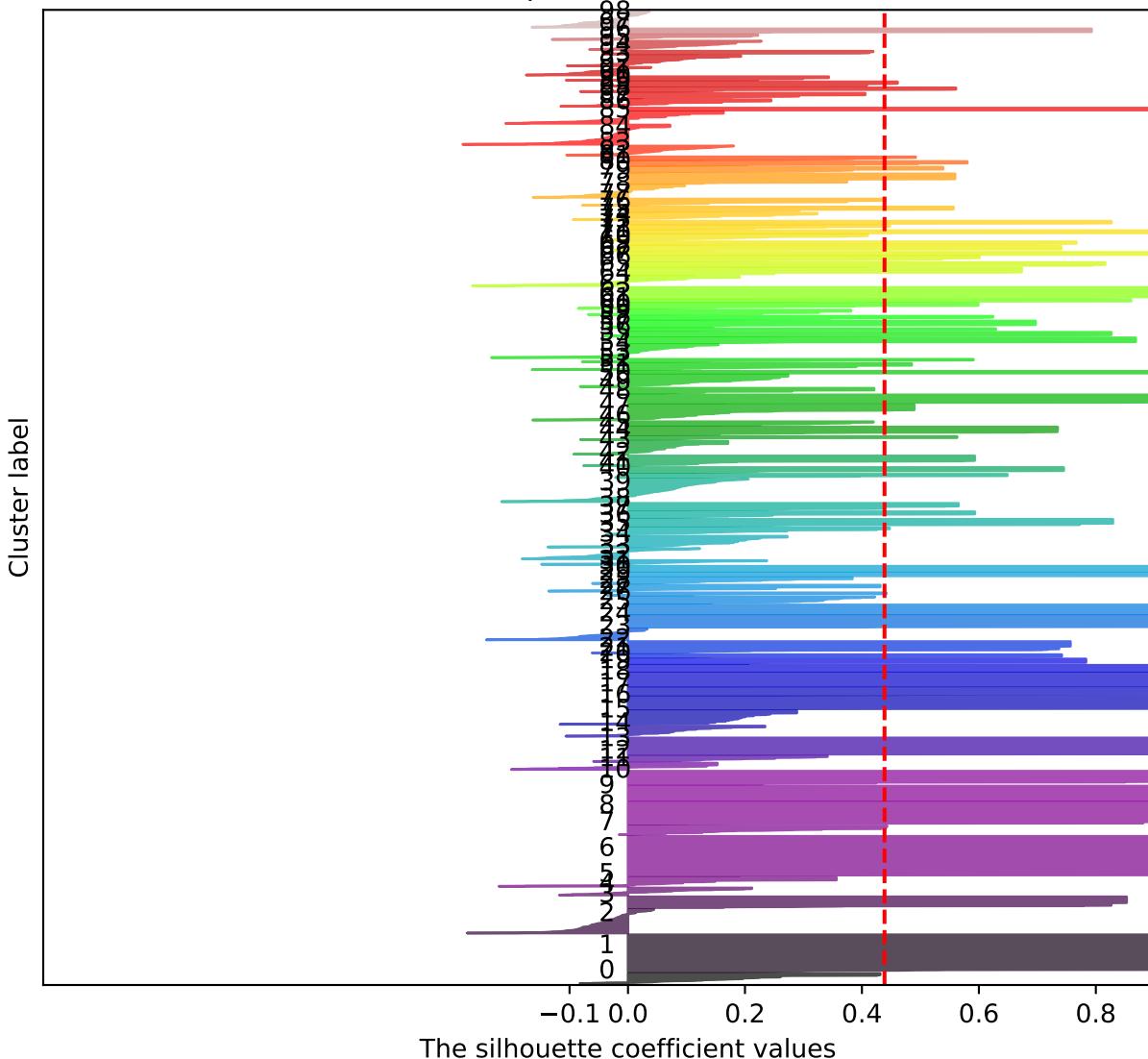


The visualization of the clustered data.

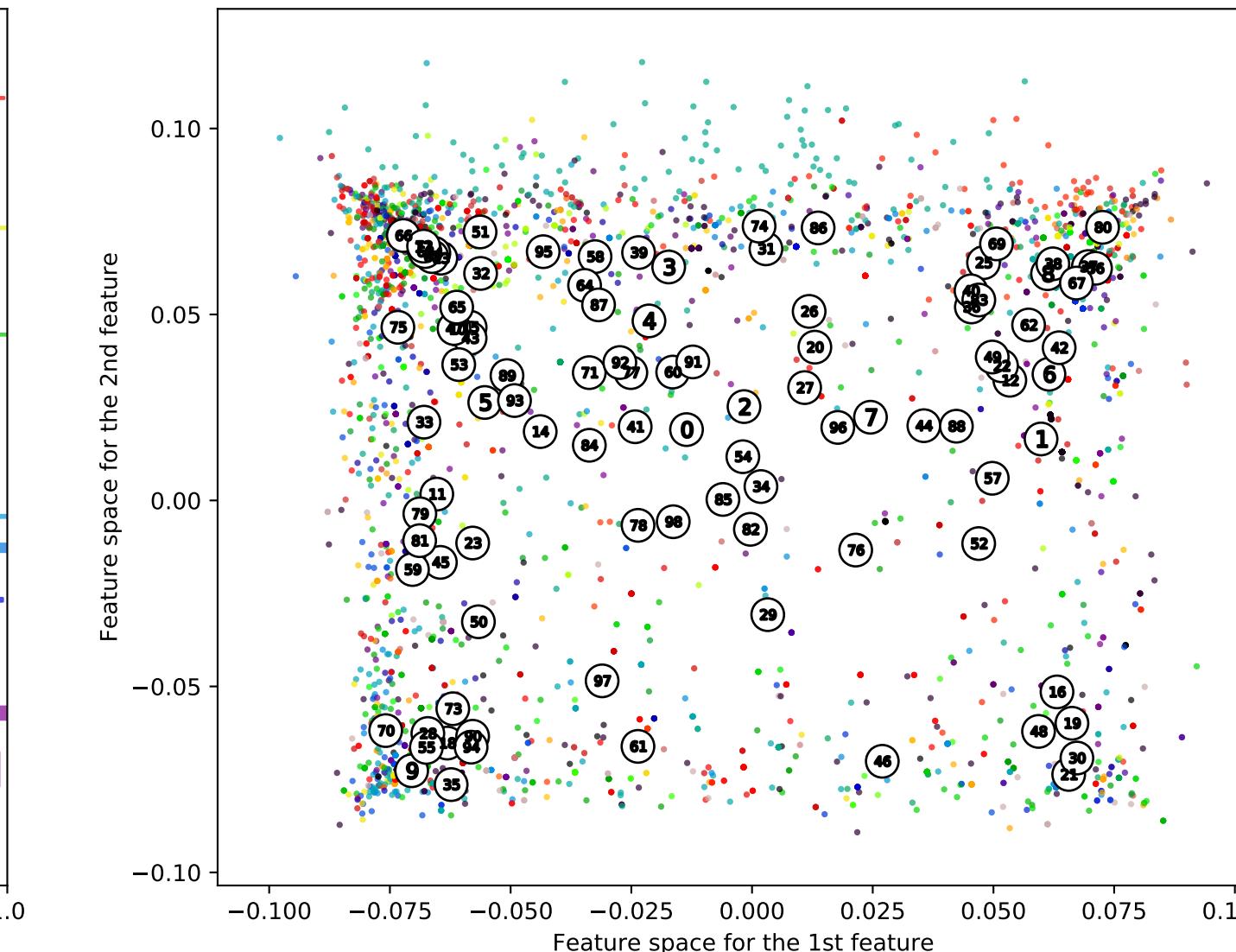


Silhouette analysis for KMeans clustering on sample data with n_clusters = 99 with Average Silhouette of: 0.4386802911758423

The silhouette plot for the various clusters.

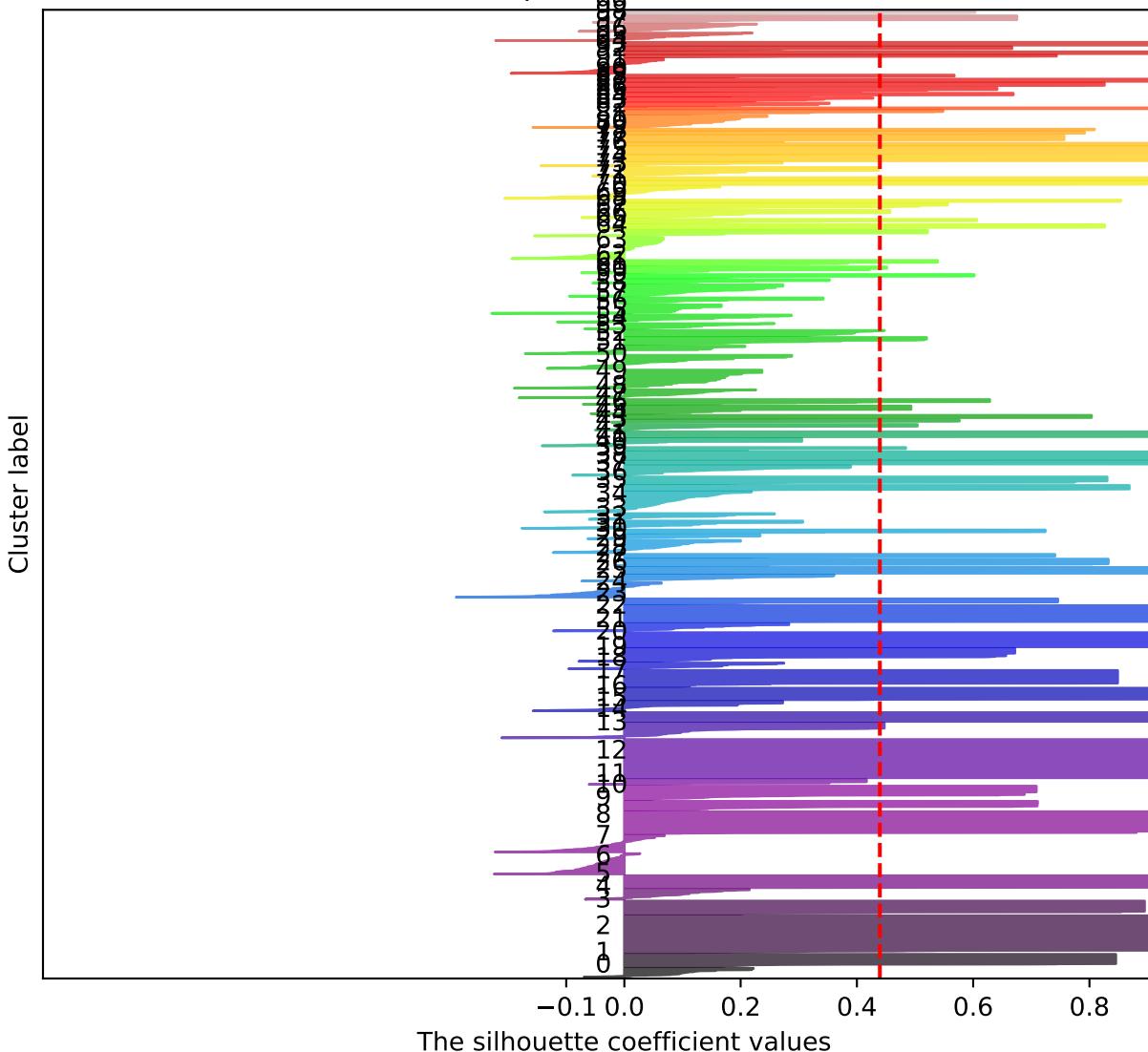


The visualization of the clustered data.



Silhouette analysis for KMeans clustering on sample data with n_clusters = 100 with Average Silhouette of: 0.4394442141056061

The silhouette plot for the various clusters.



The visualization of the clustered data.

