**This demo runs Support vector machine algorithm with t-ttest feature selection strategy for Stanford test site.**

**Test set:** Stanford Site (20 controls and 20 ASDs) [stanford\_mat.csv]

**Train set:** All sites-Stanford (181 controls and 151 ASDs) [combined\_rm\_stanford\_mat.csv]

**Step1:** Run svm\_TTEST\_AUC\_crosssite\_kfold\_tuned\_demo\_train.m

**Step2:** From Matlab workspace copy AUC matrix (col2-col5), calculate the accuracy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| K | TP | FP | TN | FN |  | Accuracy |
| 10 | 72 | 62 | 119 | 79 |  | 0.575301 |
| 20 | 72 | 60 | 121 | 79 |  | 0.581325 |
| 30 | 72 | 61 | 120 | 79 |  | 0.578313 |
| 40 | 74 | 61 | 120 | 77 |  | 0.584337 |
| 50 | 73 | 59 | 122 | 78 |  | 0.587349 |
| 60 | 71 | 60 | 121 | 80 |  | 0.578313 |
| 70 | 75 | 57 | 124 | 76 |  | 0.599398 |
| 80 | 76 | 59 | 122 | 75 |  | 0.596386 |
| 90 | 76 | 60 | 121 | 75 |  | 0.593373 |
| 100 | 75 | 61 | 120 | 76 |  | 0.587349 |

For k=70 we get the highest accuracy.

**Step3:** open the Matlab file svm\_TTEST\_AUC\_crosssite\_kfold\_tuned\_demo\_test.m

**Step4:** Run the following code for consensus features that occurred in 9 folds. You may change this number to reduce the threshold.

I = find(countFC(7,:) > 9);

**Step4:** Run the rest of the code. Copy C1 matrix from Matlab workspace

C1 = 15 5

7 13

**Step5:** calculate accuracy, sensitivity and specificity.

|  |  |
| --- | --- |
| sens | 0.65 |
| sp | 0.75 |
| acc | 0.7 |