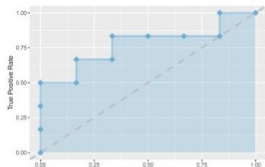
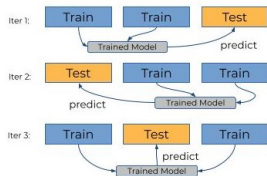


Introduction to Machine Learning

Evaluation: Multi-Class AUC



Learning goals

- tbd

MULTICLASS AUC

- Consider multiclass classification, where a classifier predicts the probability p_k of belonging to class k for each class.
- Hand and Till (2001) proposed to average the AUC of pairwise comparisons (1 vs. 1) of a multiclass classifier.
 - estimate $AUC(i, j)$ for each pair of class i and j
 - $AUC(i, j)$ is the probability that a randomly drawn member of class i has a lower probability of belonging to class j than a randomly drawn member of class j .
 - for K classes, we have $\binom{K}{2} = \frac{K(K-1)}{2}$ values of $AUC(i, j)$ that are then averaged to compute the Multiclass AUC.