**SVM Classifier**

Face recognition is a K class problem, where K is the number of known individuals; and support vector machines (SVMs) are a binary classification method. By reformulating the face recognition problem and re-interpreting the output of the SVM classifier, we developed a SVM-based face recognition algorithm.

**Train a SVM classification model**

print("Fitting the classifier to the training set")

t0 = [time](https://docs.python.org/3/library/time.html#time.time)()

param\_grid = {

"C": loguniform(1e3, 1e5),

"gamma": loguniform(1e-4, 1e-1),

}

clf = [RandomizedSearchCV](https://scikit-learn.org/stable/modules/generated/sklearn.model_selection.RandomizedSearchCV.html#sklearn.model_selection.RandomizedSearchCV)(

[SVC](https://scikit-learn.org/stable/modules/generated/sklearn.svm.SVC.html#sklearn.svm.SVC)(kernel="rbf", class\_weight="balanced"), param\_grid, n\_iter=10

)

clf = clf.fit(X\_train\_pca, y\_train)

print("done in *%0.3f*s" % ([time](https://docs.python.org/3/library/time.html#time.time)() - t0))

print("Best estimator found by grid search:")

print(clf.best\_estimator\_)