**FUSION OF NON-OPTIMIZED CLASSIFIERS: APPLICATION**

**TO FOOD AUTHENTIFICATION AND ADULTERATION**

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Classifying samples into categories is a common problem in many fields and numerous methods are available. Most classification schemes require optimization of one or more tuning parameters for best classification accuracy, sensitivity, and specificity. For example, the simple classifier k nearest neighbors (kNN) necessitates optimization relative to the number of nearest neighbors (k) and the distance measure to be used. Thus, classification involves (1) selection of a classification method and (2) optimization of the chosen classi­fier. To avoid determining the best classifier for each particular data set, presented is a scheme using multiple classifiers in a data fusion approach. While such an ensemble approach to classification is not uncommon, unique to the presented fusion method is that specific tuning parameter values are not optimized for each classifier and hence, the training phase is eliminated. For example, the number of latent variables (LVs) for partial least squares discri­minant analysis (PLS-DA) is not optimized through a time consuming cross-valida­tion process. Instead a window of LVs is evaluated thereby removing subjectivity and avoiding local anomalies for a particular tuning parameter value. The approach is demonstrated with several data sets of multiple classes with an emphasis on food authentication and adultera­tion situations.