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Abstract

Artificial Organoleptic Systems are being used today for a variety of detection tasks from quality control of food products to medical diagnosis. The optimization of sample preparation, signal processing, feature extraction, classifier are as important as choice of sensors within the array in enhancing the performance of the organoleptic system. It is difficult to determine if all features considered are necessary for the classifier while classifying megavariate data. The presence of irrelevant features increases the dimensionality of the search space, which can potentially deluge the accuracy of the Pattern Recognition (PARC) techniques. Hence, a systematic method is required to reduce the number of features in order to optimize the performance of PARC. Tea in present time is the most popular beverages having huge global marketing. It is a very complex chemical compound graded by various testers' score,

which led to many human errors and may vary from person to person. This problem can be solved by using an instrument called "Electronic Tongue (i-tongue)" that gives fast, reliable and repeatable results. This system analyses liquid including an array of non-specific chemical sensors with partial specificity for different component in liquid samples and appropriate pattern recognition capable of recognizing the qualitative and quantitative composition of sample and complex solutions. In this project we use "Principal Component Analysis (PCA)" to reduce the dimension of features and "Support Vector Machine (SVM)" to classify different tea samples including an array of non-specific chemical sensors.

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Index Terms

Computer Science Information Sciences

Keywords

Pca Svm Parc Electronic Tongue I-tongue Hyperplane Pattern Recognition.