

The concept of data depth provides a powerful nonparametric tool for multivariate data analysis. We propose a generalization of the well-known halfspace depth called weighted data depth. The weighted data depth is not affine invariant in general, but it has some useful properties as possible nonconvex central areas. We further discuss application of data depth methodology to solve discrimination problem. Several classifiers based on data depth are reviewed and one new classifier is proposed. The new classifier is a modification of k-nearest-neighbour classifier. Classifiers are compared in a short simulation study. Advantage gained from use of the weighted data depth for discrimination purposes is shown.