Learning algorithms at the service of modern multiwavelength large and deep surveys

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Abstract

We would like to present the power of Support Vector Machines (SVM) algorithm which are able to separate different classes of astronomical sources. Using only 5D colour space, we are able to classified galaxies, AGNs, and stars from the VIPERS PDR 1 sample (more than 55 000 objects on the redshift range from 0.5 to 1.2). Moreover, we used SVM algorithm to find NLAGNs in VIPERS survey, which are not directly identified within VIPERS. We would like to discuss the basic properties of our classified NLAGNs as well as future applications of learning algorithms at the service of excellent classifier needed for statistical study of galaxy formation and evolution in the space of different epochs. We would like to stress that application of the SVM algorithm can deliver an excellent separation between different classes of objects, and our method outperforms simple colour-colour selection methods. We conclude that learning algorithms can be regarded as a very efficient classification method particularly suitable for modern large surveys.