

Taking advantage of Machine Learning to identify potential T-Tauri star candidates.

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Abstract

Over the last decades, the vast amount of data together with the easiest access to high-performance computers have favoured the development and application of powerful mathematical algorithms, the so-called machine learning algorithms. In astronomy, the classification of certain types of objects has been historically made through a detailed and supervised analysis of colour-colour diagrams or spectra of single sources, but handling with billions of sources is virtually impossible for any human being. Thus, Machine Learning techniques are really useful for solving astronomical problems, but it requires a balanced, representative qualification sample. Sometimes it is not possible to have it, as occurs when dealing with T-Tauri Stars. In this work, we have explored the usefulness of a particular machine learning method that has been scarcely applied in astronomy, Logistic Regression, that when combined with an appropriatedly tuned training sample, provides fairly good results. This work has been partly funded by the Ministry of Economy, Industry and Competitiveness of Spain through grants ESP2014-54243-R, ESP2015-68908-R and TIN2015-66471-P as well as by the local Government of Madrid through grant S2013/ICE2845. (See poster).