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# ABSTRACT ONLY

## ORAL CONTRIBUTION: APPLICATION OF MACHINE LEARNING ON SEARCHING FOR BE STAR CANDIDATES WITHIN THE OGLE-IV GAIA SOUTH ECLIPTIC POLE FIELD

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Long time surveys yield a large number of high quality light curves among their subproducts, useful to identify new variable stars. Since the number of observed objects is too large, machine learning techniques ought to be used to obtain results in reasonable periods of time. Typically, quantities related to the light curves and their Fourier coefficients have been choosen to perform an automatic classification. However, their calculations are computationally expensive and the accuracy of the classifiers depends heavily on the quality of the light curves used to train them. We present a new set of features based on robust descriptive statistics of the light curves that does not need to be manually checked, and the trained classifiers are highly accurate. We calculate this set of features for a sample that includes a subsample of variable stars selected from the OGLE-III catalogue, which includes six types of variability, and a set of Be Star Candidates reported in the literature. We consider K-Nearest Neighbours, Classification Trees, Random Forests, Support Vector Machines, and Gradient Boosted Trees. We estimate the recall and precision of these classifiers and use existing implementations of the classifiers in the R statistical computing environment. We validate these classifiers in a set of OGLE-IV light curves and use them to select a new sample of Be star candidates in the OGLE-IV Gaia South Ecliptic Pole Field.

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