

G. Kostopoulos, I.E. Livieris, S. Kotsiantis and V. Tampakas. [CST-Voting - A semi-supervised ensemble method for classification problems](#)

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**Abstract** - Semi-supervised learning is an emerging subfield of machine learning, with a view to building efficient classifiers exploiting a limited pool of labeled data together with a large pool of unlabeled ones. Most of the studies regarding semi-supervised learning deal with classification problems, whose goal is to learn a function that maps an unlabeled instance into a finite number of classes. In this paper, a new semi-supervised classification algorithm, which is based on a voting methodology, is proposed. The term attributed to this ensemble method is called CST-Voting. Ensemble methods have been effectively applied in various scientific fields and often perform better than the individual classifiers from which they are originated. The efficiency of the proposed algorithm is compared to three familiar semi-supervised learning methods on a plethora of standard benchmark datasets using three representative supervised classifiers as base learners. Experimental results demonstrate the predominance of the proposed method, outperforming classical semi-supervised classification algorithms as illustrated from the accuracy measurements and confirmed by the Friedman Aligned Ranks nonparametric test.