

# A Generalized Eigenvalues Classifier with Embedded Feature Selection

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Supervised classification is one of the most used methods in machine learning. In case of data characterized by a large number of features, a critical issue is to deal with redundant or irrelevant information. In order to get an effective classifier it is necessary to identify a set of features, as small as possible, able to determine the discrimination. We propose a classifier with embedded feature selection, based on the Regularized General Eigenvalue Classifier (ReGEC) [1], equipped with a L1-norm regularization term. Preliminary numerical results, obtained on some real-life data sets, show that the approach we propose is able to produce a remarkable selection of the features, without losing accuracy in the classification with respect to the ReGEC. Our algorithm seems to compare favorably with the SVM\_L1 method. In particular the absence of accuracy deterioration allows to outperform the SVM\_L1 classifier in terms of accuracy of classification without losing the ability to select relevant features.

**keywords:** Supervised classification, Feature selection, Eigenproblems, Embedded methods.

## References

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