

# Pairwise Optimization of Bayesian Classifiers for Cost-Sensitive Learning

Clément Charnay\*, Nicolas Lachiche† and Agnès Braud‡

ICube, Université de Strasbourg, CNRS  
300 Bd Sébastien Brant - BP 10413, F-67412 Illkirch Cedex

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## Abstract

In this paper, we present a new approach to enhance the performance of bayesian classifiers. Our method relies on the combination of two ideas: pairwise classification on one hand, and threshold optimization on the other hand. By introducing one threshold per pair of classes, we increase the expressivity of the model, therefore we also increase its performance on complex problems such as cost-sensitive problems. We compare our algorithm to other cost-sensitive approaches to show that it reduces the global cost.

**Keywords:** Pairwise supervised learning, Cost-sensitive learning, Bayesian classifier, Threshold optimization, Machine learning.

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\*clement.charnay@icube.unistra.fr

†nicolas.lachiche@icube.unistra.fr

‡agnes.braud@icube.unistra.fr