Cover letter

for the paper "Principal Component Analysis for Supervised Leaning: a Minimum Classification Error Approach".

Dear Editors,

Please find enclosed the manuscript after the modification due to the review's comments. Following a list of improvement in the paper after each reviewer's comment.

Reviewer B: *"The experimental analysis should be extended. There is a need for more real-world datasets to show the practical value of the proposed method. How useful is the method, given that the computation of the Bayes error rate imposes restrictions on the dataset as the authors state (e.g., restriction to 2 classes)?"*

- We added seven more real-world datasets in the experiments, achieving a total of nine datasets. For each dataset, we use four different classifiers. A total of 36 plots are analyzed to show that the proposed method usually find more discriminant features.

Reviewer B: *"Also the new synthetic experiments should be extended to datasets with more features, otherwise the need of PCA is not justified - using only 2 featuresdoes not justify the need of PCA."*

- Due to the limitation of the numbers of pages, we have to remove some experiments with synthetic data. We left a single artificial example for better explain how the proposed method works and how it differs from PCA. This experiment highlights that PCA strategy is not the best for classification tasks.

Reviewer C: *Section 2, last paragraph: please, state present reasons on why selecting the eigenvectors of highest eigenvalues may not be the best strategy for classification problems.*

- We clarify why the feature selection strategy in PCA is not the more suitable for classification tasks. Moreover, we associate this statement with the example using artificial data and a citation.

Reviewer C: *English typos or rephrasing:*

Section 6, first paragraph: "two variables" (missing 's'), "It allows".
Page 12, paragraph "In this Case, PCA, ..." => please, review the English of the first sentence and of the last 2 sentences of the same paragraph.

The same on page 13, last paragraph before section 7.

- We perform a grammar checking for remove some typos in the text.

Best regards,

Tiago B. A. de Carvalho.   August 28th, 2017.