Alioune B. M. DIANKHA

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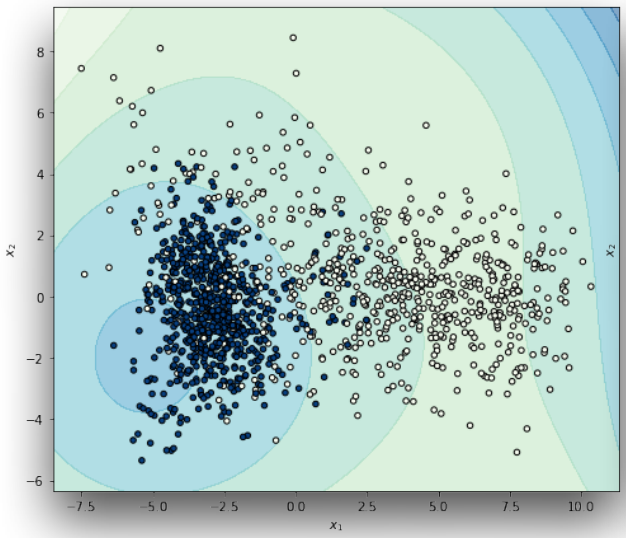
Report

Implementation of a kernel logistic regression model and a kernel ridge regression model and submission to the Kaggle competition.

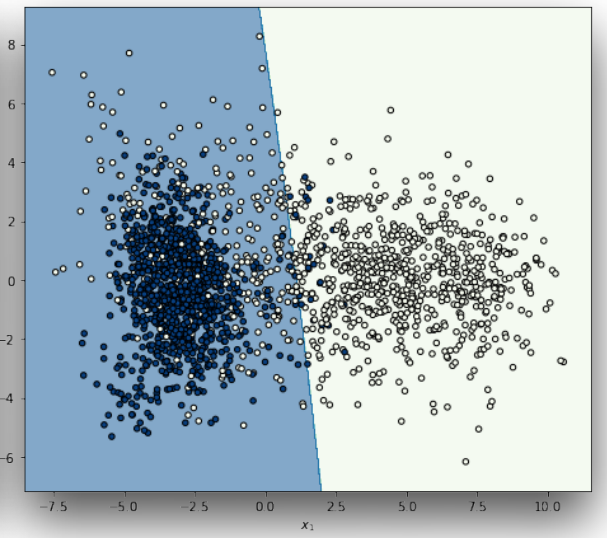
In order to get an overview of our data, we conjectured that the structure of our data will be preserved by applying pca to plot our data and the boundaries of our decision function model and we get a rather interesting figure:

Kernel Ridge Regression



```
lambda=6.e-05,
kernel = 'polynomial'
```

Kernel Logistic Regression



```
Lambda = 5.
Kernel = 'rbf'
```

The model

Two models were trained and tested on the data set and different accuracies were obtained after fine tuning:

-For the logistic regression kernel, we obtained in the Kaggle competition an accuracy of 0.98000 on the private score and 0.96600 on the public score for the rbf kernel with a median selection of sigma.
-For the Ridge regression kernel

Our intuition that the performance of this model will be better than the regression model was invalidated under certain fine-tuning conditions with a private score of 0.96200 versus a public score of 0.95200 since we need a 5 degree kernel polynomial.

Reference

The source code was found in the Roman gITHUB and was adapted to our experiment:
https://github.com/rmenegaux/kernels-AMMI-2020.git
Our source code can be found in the GitHub:
https://github.com/ALIOUNEDIANKHA/Kernel.git