The Generative Adversarial Network usage in the classification problems

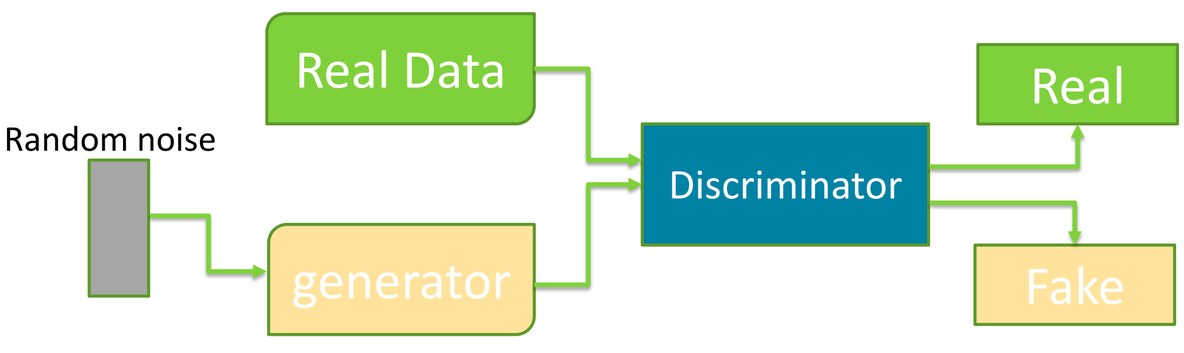
Joao Sauer and Leandro dos Santos Coelho

INTRODUCTION

Nowadays, the musical genre can be very ample and in some cases, creates discussions about what a person would consider it as only one particular genre. This kind of classification makes machine learning algorithms struggle to analyse it correctly. However, some new technologies like Generative Algorithm Networks could be manipulated and used as a classification tool to try to solve problem. Helping to identify correctly a particular kind of music focusing only in identifying the most important genre of a music.

CONTRIBUTIONS

The contributions expected from this work is the usage of Generative adversarial network (GAN)[1] to be used as classification tool for the identification of the main musical genre from a song. This research combines two musical datasets The Million Song Dataset (MSD)[2] and Last.fm dataset[3]. The MSD contains features extracted from one million songs. The Last.fm dataset gives the genre of the music based on the opinion from humans. In addition, this research compares K-Means[4], T-SNE[5], SVM[6] and Random Forest[7] and analyse the results from each of these methods.The original GAN be showed as in the example below:



And the contribution suggested would change it to be:

CONCLUSIONS

As explained before, this work has just started. The development is still a long working in progress. There are several work to be done, as showed by the results obtained so far. The dataset features are not the best ones to be used right now and its necessary to have a better approach of selecting them.

On the other hand, it's possible to say that the GAN can be changed to fit the proposed work.

So far the results are as showed:

	K-Means	Random Forest	CVS	Kernel CVS
accuracy	0.056	0.529	0.338	0.519
F1_score	0.056	0.529	0.338	0.519
recall_score	0.056	0.529	0.338	0.519
precision_score	0.056	0.529	0.338	0.519

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CONTACT

Joao Sauer
Universidade Federal do Paraná
Electrical Engineering Sector
joao.sauer@gmail.com

Leandro dos Santos Coelho
Universidade Federal do Paraná
Electrical Engineering Sector
lscoelho2009@gmail.com