AUDIO LATIN MUSIC GENRE CLASSIFICATION: A MIREX 2014 SUBMISSION BASED ON A DEEP LEARNING APPROACH TO RHYTHM MODELLING

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ABSTRACT

This MIREX 2014 submission approaches the task of latin music genre classification from a rhythm modelling perspective. This year, the submission is a variant of the algorithm that was presented by the contributor of the submission in [1], whereas in the MIREX-2013 competition an exact implementation of the algorithm was proposed.

1. BRIEF DESCRIPTION

The core algorithm underlying this contribution is presented in [1]. In this abstract we only summarize the basic steps and differences compared to the MIREX-2013 submission:

- Feature Extraction stage: multiple rhythmic signatures (patterns) are extracted per music recording based on the self-similarity analysis of the recording. A difference this year is that we are not using signature derivatives at all.

- The rhythmic patterns form a training set which is used to train a 3-layer architecture (5-layers in MIREX-2013). This deep architecture consists of 3 Restricted Boltzmann Machines followed by an associative memory. A major difference this year is that the visible layer of the first RBM (the one to which the rhythmic signatures are clamped) consists of Gaussian stochastic units (and not binary stochastic units as in MIREX-2013).

- After the deep architecture has been trained, it is employed as a classifier; the unknown recording is processed to yield a set of rhythmic signatures, each one of which is in turn classified by the network to a latin music genre. A majority rule assigns the recording to the genre which has been assigned the largest number of signatures.

The reader is referred to [1] for more details.

2. REFERENCES

[1] A. Pikrakis: "A deep learning approach to rhythm modeling with applications," *Proceedings of the 6th International Workshop on Machine Learning and Music (ML 2013)*, held in conjunction with the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2013), Prague, Czech Republic, September 23, 2013.