

A BRAZILIAN POPULAR MUSIC ORIENTED DIGITAL LIBRARY FOR MUSICAL HARMONY E-LEARNING

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ABSTRACT

This poster presents a Brazilian popular music oriented digital library proposal conceived for a virtual community of people interested in acquiring knowledge about Brazilian popular music harmony, particularly in *choro*. This Brazilian musical style is a complex popular music form based on improvisation, although it contains classical music elements such as the counterpoint. We are proposing two ways of accessing the music virtual library content: a guided navigation mode, in which users interact with a cooperative Web-based learning system; and a free navigation mode, in which users can make their own queries, both through browsers or client applications.

1. INTRODUCTION

Although Brazil has a variety in popular music, the professional teaching of national musical traditions has been passed, almost completely, in traditional environments of musical teaching. An elementary historical description of Brazilian professional music teaching that points to social and economical topics of resources application in Music teaching demonstrate the hegemony of the so called classic music at formal education, which makes the popular music teaching away from the formal environments.

There is a large gap in the production of good didactical material that focus on Brazilian music. Facing this fact, digital and organized contents, that have as main goals the rescue and broadcast of important composers of the Brazilian tradition, bring a very important contribution to the country cultural identity.

On the other hand, the vertiginous enhancement of information available at the Web, mostly multimedia, has generated a considerable demand for tools to access and manipulate them. Specifically, on musical information, despite

the many proposals with experimental or commercial aspect, they have frustrated public expectations.

Obviously, the amount of musical material available has followed the general tendency. Nowadays, they are available to computer users around the world and new bases continue to be created and constantly updated. Despite the several works developed in the sense to make tools available to search and to get musical sheet [1, 2], there are no satisfactory results that justify its broad use. It happens because they do not necessarily mean natural and effortless accessibility from its users. Actually, this is a reality not only in musical field, but in all and today's forms of contents available at the Web. To find and filter units of data of interest and insert them in personalized and updated spaces of relevant information represent an even more difficult obstacle faced by users, as well as by those involved in the search of such problems.

2. THE HARMONY TREES THEORY

José de Alencar Soares (a.k.a. Alencar Sete Cordas) is a guitar player and a music teacher, and has been building a compilation of the most common harmonic structures found in popular music for more than fifteen years. From this compilation, he constructed a corpus of popular songs, used it in an informal statistical analysis giving the probability of occurrence of particular harmonic sequences, and proposed a musical harmony theory [9]. This theory has been used with success to explain the harmonic structures within tonal music, particularly in the Brazilian popular music. The theory is represented by diagrams, which show graphically the harmonic possibilities involved.

The diagram shown in Figure 1 depicts the basic minor harmony tree, which contains the harmonic progressions found in most popular songs in minor keys.

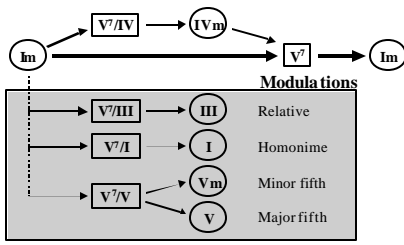


Figure 1. The basic minor harmony tree.

Roman numerals are used to represent chords relatively to the first degree of the key (I). Minor chords are represented adding a letter “m” after the Roman numeral. When two Roman numerals are involved, the first one represents the degree relatively to the second one. The square shapes in the diagram represent dominant chords which prepares to the resolution (round shapes) following them.

The simplified diagram shown in Figure 1 depicts too the harmonic progressions found in minor tones, and presents the most common modulating degrees. The modulation to, and the return from a key through the most common modulation path in each of the previous diagrams, can be exemplified for the C-minor scale as follows: Cm – B7 – E – A7 – Cm.



Figure 2. The first 4 bars from “Naquele Tempo” by Pixinguinha and Benedito Lacerda.

3. ARCHITECTURE

The general architecture of the system is presented in Figure 5.

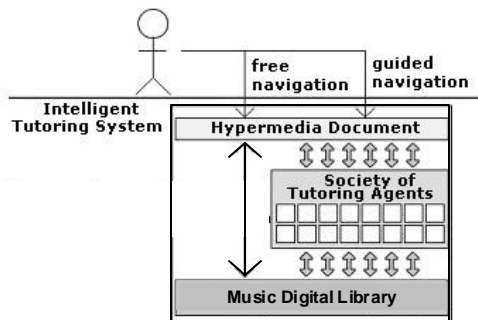


Figure 5. General overview of the proposed system.

The hypermedia document is formed with web pages. Its modules are made of objects disposed in a hierarchical manner. In the non-guided navigation, the learner has total control of his/her own decision. In the guided navigation, the system determines which is the next document exhibited, based on the learner’s profile. The mechanism of definition of the next step in a guided navigation, as well as a profile inspection by the apprentice is described in [13].

The definition of tutoring agents society is based on the musical harmony domain modelling presented in [12]. Each agent is responsible for a certain aspect of domain’s partition in musical harmony.

For this project, the musical digital library is a repository of musical works and didactic material that serve as a resource base to agents in guided navigation and to the learner in a non-guided navigation [14,15]. This component is also connected to tutoring agents. In a didactic way, there is a need to assure an appropriate exemplification of the harmony trees. The mechanisms of searching and indexing excerpts of songs are based in this theory. For instance, a beginner must be faced with searches employing the basic structure I – V7 – I or its instantiation in a specific key.

The Music ITS system is being developed on a agent based platform named COMPOR[16]. The digital library is being built to provide scores of Brazilian popular music represented as MusicXML objects [17].

4. CONCLUSIONS

This paper describes an effort made by between Brazilian multi-disciplinary research groups to help the consolidation of virtual communities of people interested in acquiring knowledge and sharing experiences about Brazilian popular music.

Currently, these efforts are focused on building (i) a digital library containing representative musical pieces from the Brazilian popular repertoire, particularly Choro pieces; (ii) a Web-based course on Music Harmony based on the Harmony Trees Theory; and (iii) a virtual environment to support virtual communities of people interested in Brazilian music. A Knowledge-based System is also being developed to provide musical analysis based on the Harmony Tree Theory.

There is a running experience dealing with “Choro”, which is a very skilled popular Brazilian music style [19], and its harmony, melody and cultural history is already mapped and should be soon available for this proposed community.

5. REFERENCES

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