TOWARDS AUTOMATIC MUSIC RECOMMENDATION FOR AUDIO BRANDING SCENARIOS

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ABSTRACT

Within the MIR community, most prediction models of musical impact on listeners focus on mood or emotional effects (perceived or induced).

The ABC_DJ project investigates the associative impact of music on listeners from the specific perspective of music branding that surrounds us in our everyday lives. We present a general concept for applying automatic music recommendation within this domain. Creating a scientifically validated basic terminology for communicating brand attributes and human emotions in this field is the key challenge.

As a first result, we introduce the Music Branding Expert Terminology (MBET), a comprehensive terminology of verbal attributes used in music branding, upon which a prediction model will be developed to facilitate automatic music recommendation in the context of music branding.

1. INTRODUCTION

Within the MIR community, a significant amount of research has been carried out in the past years in order to continuously improve predictions of mood and emotion effects [7,9,11]. These scientific results can be seen as essential ground work for enhancing music recommendation in general. Music streaming services used by people around the world in almost every listening context profit from this research in particular.

Music Branding: In the recent years, companies and brands become more and more involved in automated music recommendation activities. Marketing strategists’ goal is to transport specific meaning using music in order to convey a certain brand image within consumers. To conceptualize this scenario, music branding can be interpreted as a special case of sign-based communication. An adopted version of Egon Brunswik’s (1956) ‘lense model’ [2] exemplifies this approach.

Figure 1. Lens model of music branding interpreted as a special case of sign based communication

The aim of ABC_DJ is to predict brand attributes and emotional expressions (such as ‘rebellious’, ‘reliable’, ‘sentimental’ or ‘confident’) based on a variety of lower and higher order acoustic features from musical content.

In order to investigate the relationship between audio content on one hand and brand attributes and emotional expressions on the other, a two steps approach is followed:

1) Develop a terminology for audio branding

2) Perform a large-scale online listening experiment where participants use this terminology in order to describe their music-induced associations

2. TERMINOLOGY FOR AUDIO BRANDING

The first major challenge for conducting this listening experiment is to create a comprehensive terminology of attributes used in the context of audio branding. Since no such common terminology has been developed yet on an empirical basis, the approach is to systematically collect and select the most important and most commonly used human attributes and emotions that can potentially be
mapped to music and brands. The approach to achieve this goal addresses two requirements:

- Integration of findings and existing terminologies from existing research literature in the field of marketing research and music psychology
- Integration of relevant practice experiences from the audio branding domain

To address the first requirement, a comprehensive literature review was carried out and existing terminologies were analyzed. Within the field of marketing, two concepts were identified as particularly relevant: The brand personality concept, referring to a set of human personality traits associated with each brand [1,3] and the brand value concept, referring to a set of universal human values associated with each brand [8,13]. Results within the field of music psychology could be categorized in either research works dealing with the expressive dimensions of music [4,6] or drawing on the emotional effects of music [5,10,12].

To address the second requirement, an expert focus group was set up including stakeholders from the marketing, audio branding and music label sectors. Since a lot of practice strategies of the audio branding field are not covered in scientific literature yet, we asked them to translate their informal practitioners’ knowledge into a list of concrete terms which complement the existing terminologies from marketing and psychology.

2.1 MBET - Music Branding Expert Terminology
The preliminary Music Branding Expert Terminology (MBET) consists of 130 attributes grouped into 19 dimensions. Table 1 represents the expressive dimensions of music suitable for branding.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Expression</td>
<td>Very specific emotions expressed</td>
</tr>
<tr>
<td>Emotional Valence</td>
<td>Positive or negative emotional expression</td>
</tr>
<tr>
<td>Emotional Energy</td>
<td>Arousing or calming potential</td>
</tr>
<tr>
<td>Complexity</td>
<td>The degree of complexity</td>
</tr>
<tr>
<td>Sophistication</td>
<td>The degree of perfection</td>
</tr>
<tr>
<td>Intellectuality</td>
<td>An intellectual demanding or cognitively inspiring potential</td>
</tr>
<tr>
<td>Traditionalism vs. Progressiveness</td>
<td>The reliance on traditional vs. progressive values</td>
</tr>
<tr>
<td>Inclusiveness vs. Exclusiveness</td>
<td>The assumed breadth of addressees</td>
</tr>
<tr>
<td>Conformity vs. non-Conformity</td>
<td>The degree of (non-)conformity</td>
</tr>
<tr>
<td>Hedonism vs. Seriousness</td>
<td>The degree of seriousness</td>
</tr>
<tr>
<td>Gender</td>
<td>A gendered appeal</td>
</tr>
<tr>
<td>Eros</td>
<td>Erotic and sexual qualities</td>
</tr>
<tr>
<td>Scale</td>
<td>The felt impact</td>
</tr>
<tr>
<td>Inspiration</td>
<td>Felt emotional and creative challenge</td>
</tr>
<tr>
<td>Time Reference</td>
<td>References to time epochs in abstract words</td>
</tr>
</tbody>
</table>

Table 1. MBET dimensions: expressive dimensions of music relevant for audio branding

This preliminary version of MBET needs to be further refined. Thereto, we will conduct a survey with marketing experts in order to reduce the current terminology to a number of 60 most relevant attributes.

3. LARGE-SCALE ONLINE LISTENING EXPERIMENT
As a next step, a large-scale online listening experiment with 6,000 participants will be conducted in which the participants will annotate a corpus of several hundred music excerpts from 15 different genres using the MBET terminology. The unique and comprehensive empirical ground-truth resulting from this study will also include listener characteristics such as socio-demographic data and milieu affiliation.

4. AUTOMATIC PREDICTION MODEL
Finally, based on the results of this experiment, a statistical model will be developed in order to predict semantic connotations of musical pieces in a comprehensive music archive. Software tools, using this prediction, will be developed that enable brands and branding agencies to identify brand-fitting music titles from large music archives in order to automatically create music selections that can be used for various marketing activities like point of sale music branding or audiovisual advertisements.

5. CONCLUSIONS AND OPPORTUNITIES
This article introduces the concept and challenges of applying automatic music recommendation to the audio branding domain. It introduces the Music Branding Expert Terminology (MBET), a dimensioned list of brand attributes suitable for annotating music within the context of audio branding. This forms the first step of a music branding prediction model to be created in a later phase of the research project ABC_DJ. Recommender Algorithms derived from such a model have the potential to vastly stimulate not only the music branding sector and cooperation within related industries, but will also form a whole new future research field for the MIR community.

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REFERENCES


