

The Use of Social Media for Music Analysis and Creation Within the GiantSteps Project

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ABSTRACT

GiantSteps is an EU-funded project that aims at developing the next generation of music composition tools for the creative industries by bridging the gap between music information research and end users' requirements. An important component of the project is the extraction of musical and application-targeted knowledge from social media and web resources. In this paper, we sketch potential ways to exploit social media and web data for the tasks of music analysis, creation, and algorithm evaluation.

Categories and Subject Descriptors

Information systems [Information retrieval]: Music retrieval; Human-centered computing [Collaborative and social computing]: Social media

1. MOTIVATION

The description and annotation of music, particularly in a semantic way, is one of the core goals of music information retrieval (MIR). Typically, information leading to annotations of musically relevant concepts, such as beat, rhythm, key, chords, melody, structure (chorus, verse, etc.), as well as higher-level concepts like genre or style, is to be extracted directly from the signal (*content-based approach* [2]). With such descriptions available, a wide range of potential applications opens up, from music retrieval and recommendation to intelligent and educational music interfaces to advanced tools for music creators.

The development of such advanced tools for music creators is the goal of the recently started GiantSteps project.¹ With a clear focus on end-users' requirements [1], GiantSteps aims at developing the next generation of music composition tools for the creative industries. In addition to the musical information extracted directly from the audio content, an important component of GiantSteps is the extraction of musical and application-targeted knowledge from social media and

the web which are a rich source for information on *musical context* [4]. In the following sections, we sketch potential ways to exploit social media and web data for the tasks of music analysis, creation, and algorithm evaluation.

1.1 Social Media for Music Analysis

The web allows to extract explicit meta-data on individual music releases or contextual information such as the members of a musical band [3]. Furthermore, a platform like *Wikipedia* contains a large number of music related texts that describe even the most specific musical styles and their characteristics. In future research, this knowledge can be tapped to obtain very detailed descriptions of different musical categories and their properties, e.g., typical instruments used or characteristic chord patterns.

1.2 Social Media for Music Creation

Following the way to obtain detailed descriptions of musical genres described above, this information can be also used to support music creators. For instance, *digital audio workstations* could benefit from automatic tools that transform musical compositions into another style based on the knowledge gained from web sources (e.g., rhythm structures or additional sound sample material).

1.3 Social Media for MIR Evaluation

Finally, we can extract very specific descriptions of particular sound material, such as tempo information, from dedicated user forums, e.g., from the DJ scene. While this cannot provide comprehensive annotations for every piece of music, the partial information obtained can be used as a ground truth to develop and optimize MIR algorithms.

2. ACKNOWLEDGMENTS

This work is supported by the European Union Seventh Framework Programme FP7/2007-2013 through the GiantSteps project (grant agreement no. 610591).

3. REFERENCES

- [1] K. Andersen. Using props to explore design futures: Making new instruments. *Proc CHI 2014 workshop on Alternate Endings: Using Fiction to Explore Design Futures*, 2014.
- [2] M. A. Casey, R. Veltkamp, M. Goto, M. Leman, C. Rhodes, and M. Slaney. Content-Based Music Information Retrieval: Current Directions and Future Challenges. *Proc IEEE*, 96:668–696, 2008.
- [3] P. Knees and M. Schedl. Towards Semantic Music Information Extraction from the Web Using Rule Patterns and Supervised Learning. *Proc 2nd WOMRAD*, 2011.
- [4] P. Knees and M. Schedl. A Survey of Music Similarity and Recommendation from Music Context Data. *ACM TOMCCAP*, 10(1), 2013.

¹<http://www.giantsteps-project.eu>

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SoMeRA'14, July 6–11, 2014, Gold Coast, Queensland, Australia.

ACM 978-1-4503-3022-0/14/07.

<http://dx.doi.org/10.1145/2632188.2632212>.