

The DML Research Project: Digital Music Lab – Analysing Big Music Data

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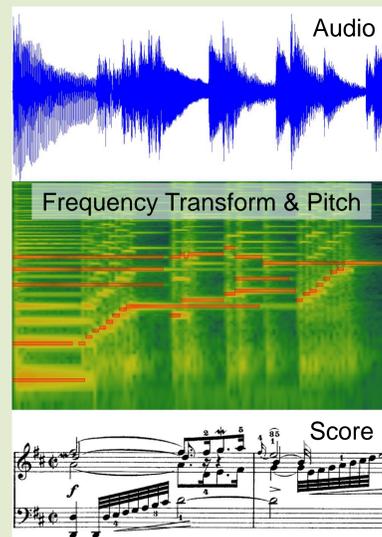


Joining the Forces of MIR and Musicology

- Music research, particularly in systematic musicology, ethnomusicology, or music psychology, has developed as “**data oriented empirical research**”, which benefits from computational methods. In ethnomusicology there has been a recent growing interest in computational musicology. Traditional analysis methods designed for **symbolic music representations** can be complemented with analysis on **audio data**. However, this music research has so far been limited to relatively small datasets, because of technological and legal limitations.
- On the other hand, Researchers in Music Information Retrieval (MIR) have started to **explore large datasets**, particularly in commercial **recommendation** and playlisting systems (e.g. The Echo Nest, Spotify).
- The Digital Music Lab will support music research by **bridging the gap to MIR** and enabling access to large music collections and powerful analysis and visualization tools.

Unlocking MIR Methods for Big Data

- Use of MIR methods for large scale exploration and quantitative research
- Scalable tools for analysing music **audio**, **scores** and **metadata**
- Combination of **state-of-the-art music analysis** on audio and symbolic data
- Enable **intelligent collection-level analysis**



Example Data Types and Analysis



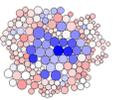
An Infrastructure for Large-Scale Music Analysis

- Software **infrastructure** for exploring and analysing large scale music collections.
- Built on **strongly parallelisable software architecture**
- For analysis of **large and heterogeneous** data sets
- Short response times** enable exploratory research
- Integration with existing tools** for music research
- Accumulate derived data** and enable the deployment of new analysis tools
- Share** intermediate and final results as **open linked data**



Large-Scale Computational Musicology

- Highly **interactive visual interfaces**
- Enable study of **characteristics on collection level**
- Musical **timing and structure** in **piano, folk, and world music**
- Relating **similarities** on audio and metadata.



Use and Produce Big Music Datasets

- Access to big datasets:
British Library (>3M) and **I like Music (1M)**
- Often: Access to audio data restricted by copyright
- Derived data** can be made freely available and produced on demand
- Automatic **transcription and alignment** with scores
- Annotation** and linking of audio files with metadata and external resources
- Use of **open standards** such as the Music Ontology



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