

Introduction to Multimodal Music Analysis

16th International Conference of Students of Systematic Musicology, Sheffield, UK 18-20 October 2023

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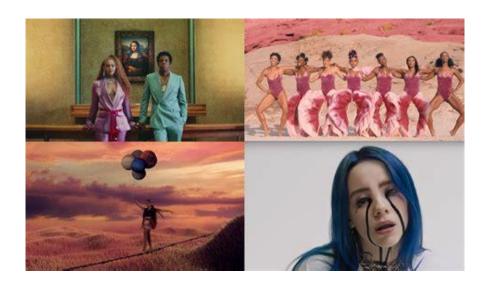
Multimodal Data Analysis

Data interpretation of various sources

Modalities in music: audio, video, motion capture data, metadata, etc.

The Significance of Multimodal Analysis in Music Research

- Music exploration from various perspectives
- Uncovering of music connections
- Complete view of music



Benefits of Multimodal Music Analysis







CONTEXTUAL EXPLORATION

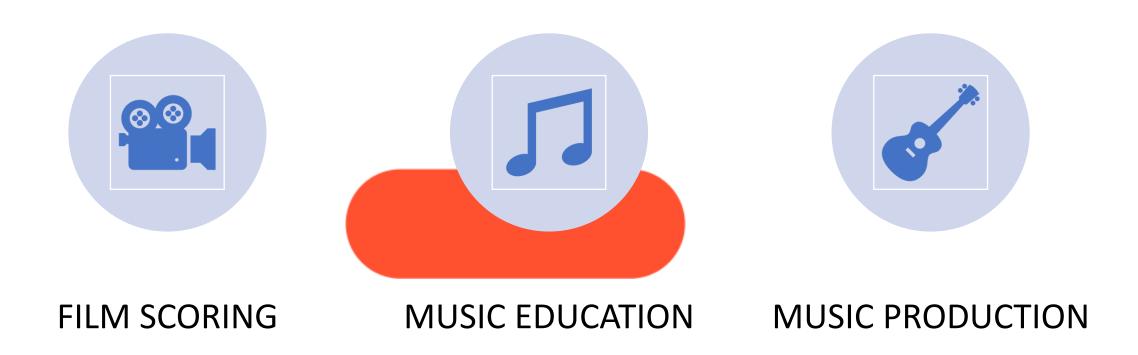


INNOVATIVE CREATIVITY



INTERACTIVE EXPERIENCES

Real-World Applications



Modalities Overview







Video



Motion Capture

Audio Data



Definition: music sound representation



Significance: deeper understanding of music structure

Video Data

- Definition: Music visual representation
- Significance: further musical context



Motion Capture Data

- Definition: capture of music gestures
- Significance: comprehension of music embodiment



Step-By-Step Workshop Plan - Audio Analysis



Digital Signal Visualization

Waveform

Spectrogram



Hearing our example



Feature Extraction

Dynamics

Rhythm

Timbre

Tonality





Step-By-Step Workshop Plan – Video Analysis

- 1. Watching our video example
- 2. Basic processing techniques
- 3. Motion Analysis
- 4. Visualization of analysis results

Step-By-Step Workshop Plan — Motion Capture Analysis



Plotting the Motion Capture Signal



Visualization of the Motion Capture Figure



Pre-Processing

Checking for missing values
Filling the gaps



Step-By-Step Workshop Plan — Putting it all together

- 1. Discussing Alignment Options and Issues
- 2. Synchronizing our plots
- 3. Rhythmic Analysis
- 4. Al implementation prospectives
- 5. ...and many more!

Motion Capture Analysis - Challenges

- 1. Alignment and Synchronization
- 2. Storage Issues
- 3. Filtering of Noise and Artifacts
- 4. Ethical Considerations

Conclusions

- 1. Multimodality as the future of Music Analysis
- 2. Importance of audio, video, and motion for a holistic understanding of music
- Multimodal Music Analysis as a tool for music movement and emotion analysis
- 4. Innovative applications in research, education, and industry

Thank you!



