From Sound to Sight: Towards AI-authored Music Videos

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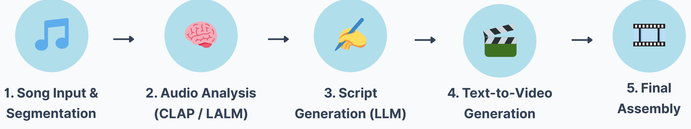
Abstract

Conventional music visualization systems often depend on hand-crafted, abstract transformations with limited expressive power. This research introduces **two novel pipelines** to automatically generate complete **music videos** from any user-specified song, whether instrumental or vocal. By leveraging off-the-shelf deep learning models, the system analyzes audio for musical qualities like **emotion** and **instrumental patterns**, distils them into textual scene descriptions using a language model, and then generates corresponding video clips. A preliminary user study suggests the generated videos show potential for **storytelling**, **visual coherence**, and **emotional alignment** with the music, highlighting the power of deep generative models to expand the art of music visualization.

The Generation Pipeline

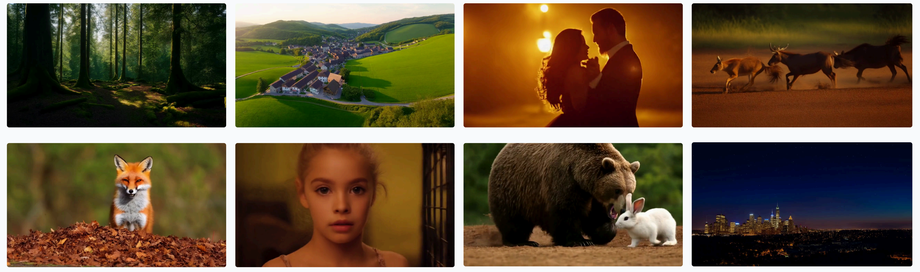
Both proposed pipelines (CLAP and LALM-based) follow a similar multi-step process to generate a music video from any audio, ensuring each stage is **human-readable** and **interpretable**.



Challenges

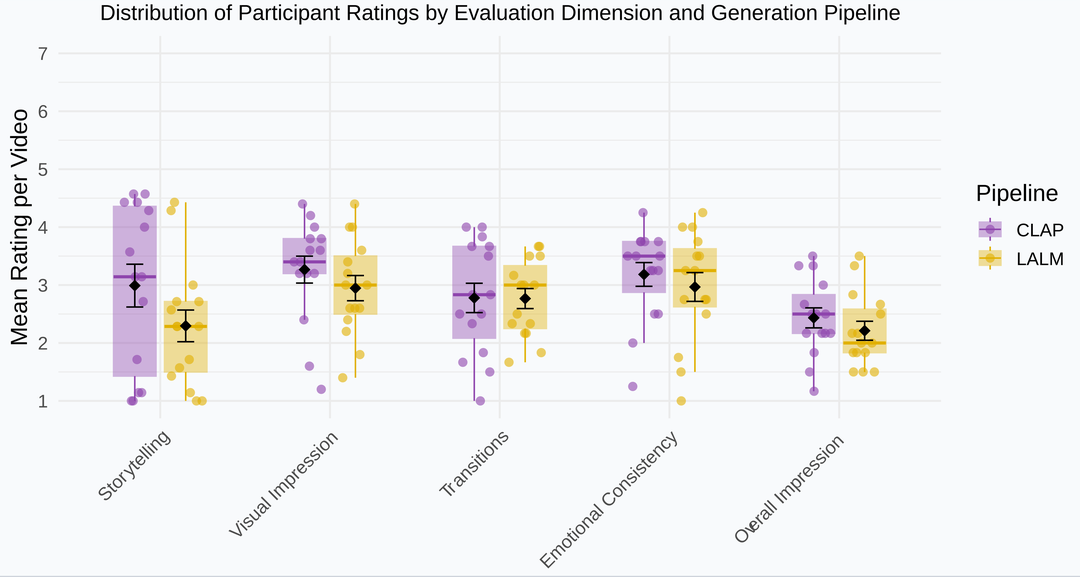
- **Expressiveness**: Older systems rely on shape/color transformations.
- **Lyric Dependency**: Existing solutions require textual input and guidance.
- **Lack of Cohesion**: Visuals often lack narrative structure and consistency.
- **Quality Assesment**: There are no metrics for music visualization.

Experiments - Selected Frames from Generated Videos



Example music video

Results - Human Evaluation



Conclusion & Future Work

The proposed pipelines demonstrate significant potential for creating conceptually coherent music videos by integrating audio analysis with LLM-driven text-to-video generation. Next steps will focus on improving **visual consistency**, incorporating **lyrics**, expanding **user studies** and exploring an end-to-end, **music-to-video** based approach without relying on text as intermediary.

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Paper

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