MUSIC GENERATION WITH GENERATIVE MODELS

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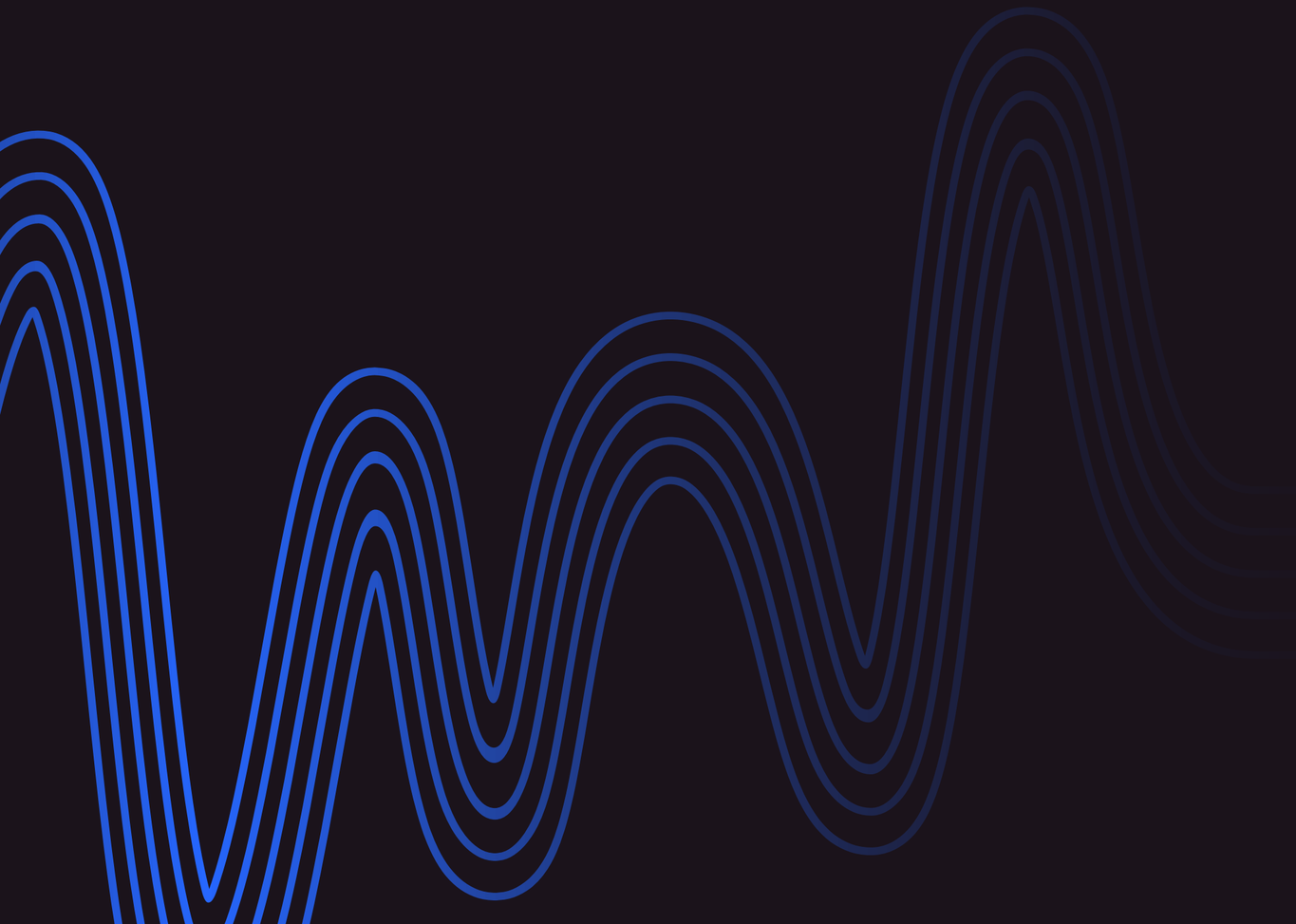

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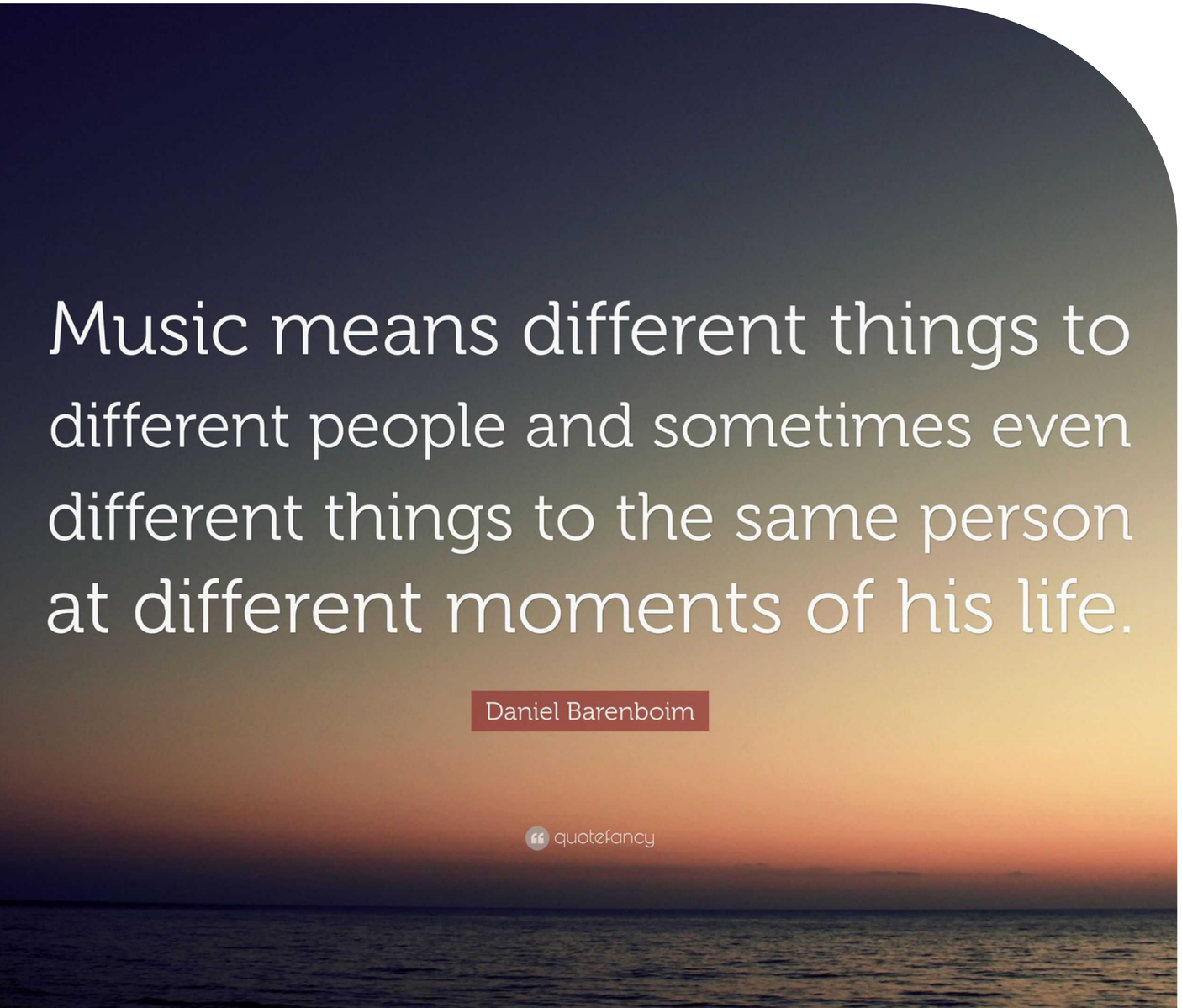


Motivation& Agenda

The **motivation** behind this project is to make sure everyone can enjoy fresh compositions without needing any music knowledge or experience, thus breaking down barriers to music appreciation.

With that aim in sight, our **agenda** is to explore :

- Use of advanced sequence-to-sequence generative models in generating human-like compositions
- Possibilities of generating artist/genre specific music

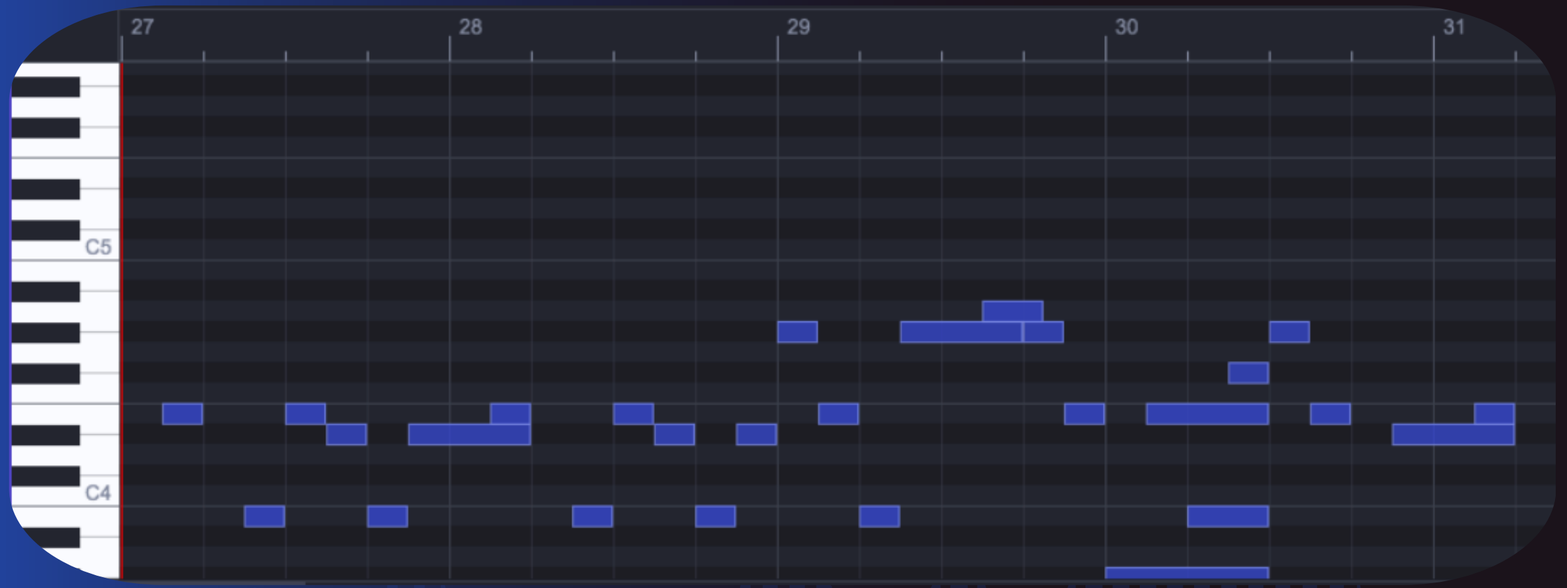
Datasets

TYPE OF THE DATA

MIDI - Musical Instrument Digital Interface files that can represent as single/multi-track compositions as pianorolls

DATASETS

The Lakh Pianoroll Dataset (LPD) is a collection of 174,154 multitrack pianorolls



Algorithms

We plan on starting with baseline implementations like :

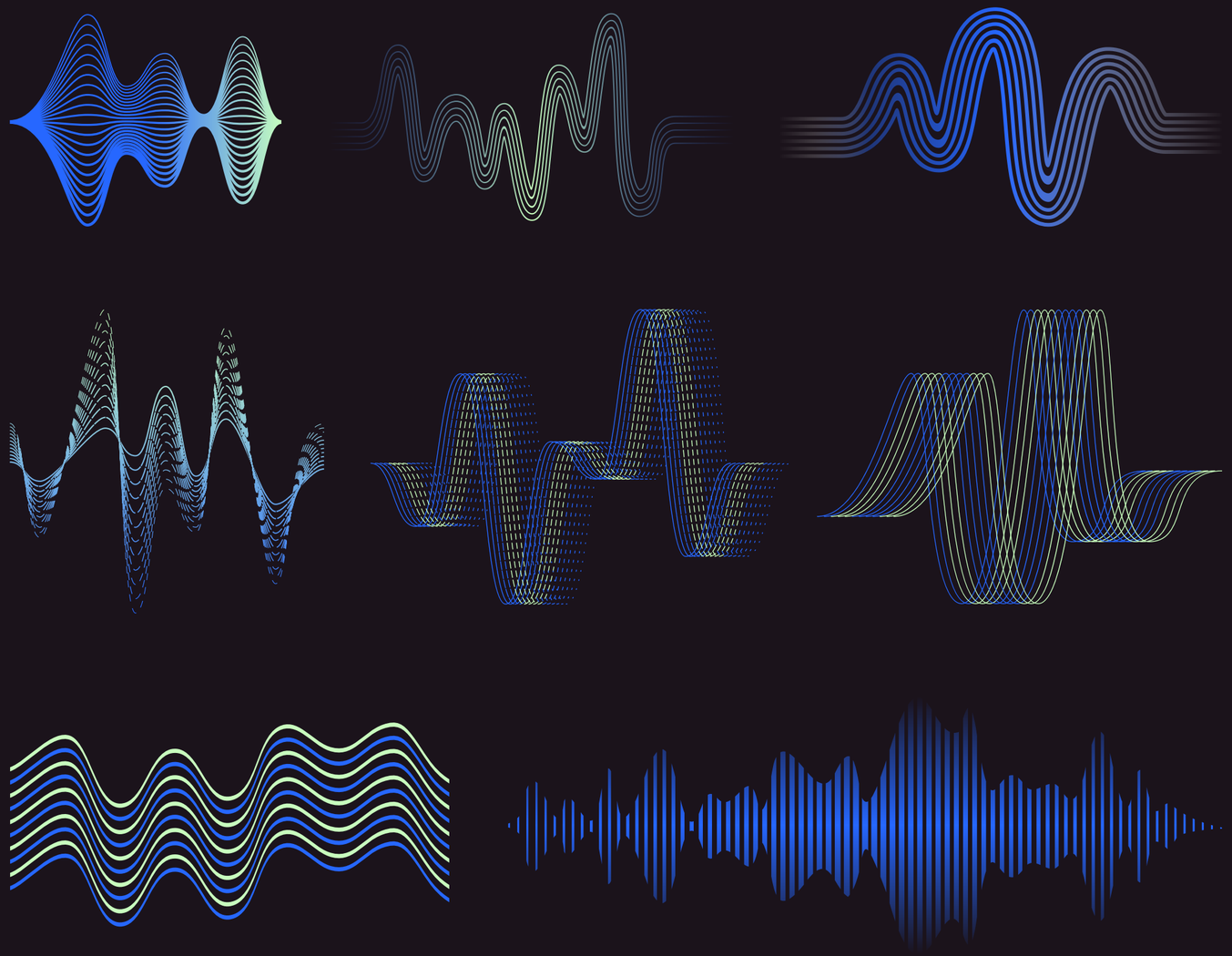
- Recurrent Neural Network Architectures
- GRUs and LSTMs

Then we would explore the potential of CNNs with:

- Autoencoders
- Variational Autoencoders

Then leverage attention-based models:

- Transformers



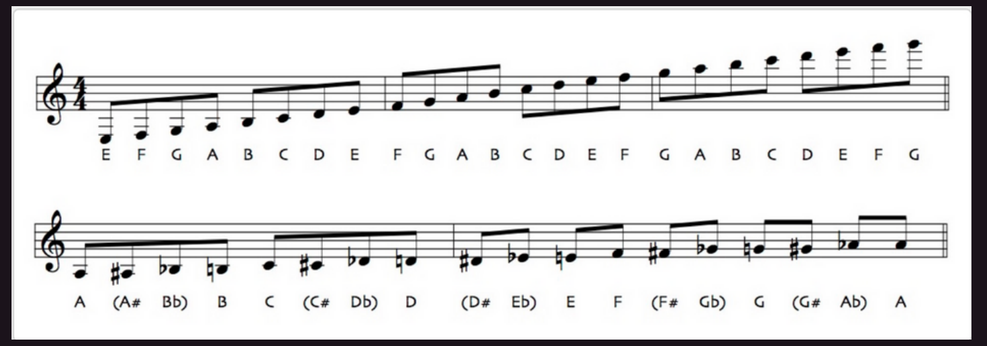
Experiments & Analysis

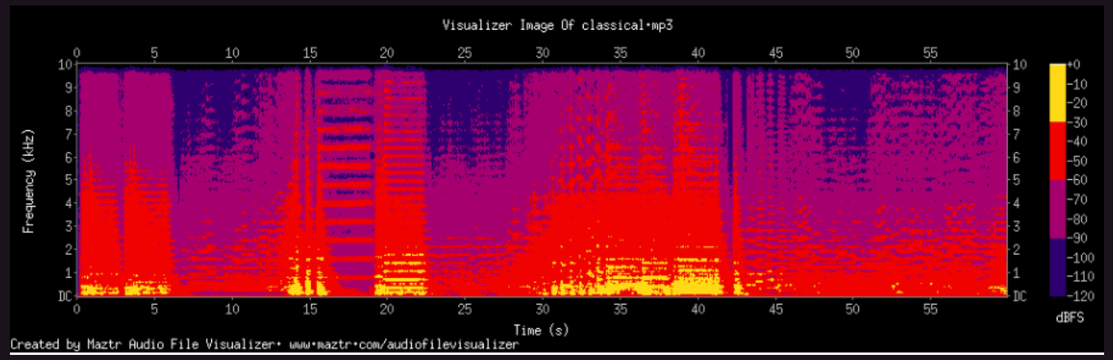
Experiment on :

- Model Architectures
- Subjective and Objective Metrics
- Music-representation

Analysis on :

- Single vs Multi-track performance
- Influence of Composers' Metadata and learned latent variables in the generations
- Capabilities of model to generalise on unseen compositions with Few-Shot Learning



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E---(3)------------|-x--x--x--x-x-|--------------|--3--3--3--3-3--|
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Proposed Timeline

Mid-term Report

REVIEW LITERATURE

ACQUIRE AND PROCESS DATA

FINISH BASELINE MODEL