

Music & AI

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History of Music Generation

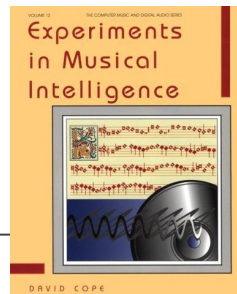
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18th century



1956
First musical
composition created by
computer
Illiac Suite by Lejaren
Hiller

1980s
MIDI revolutionized
music production



Late 2000s - 2010
David Cope's
EMI

 OpenAI

 Meta AI

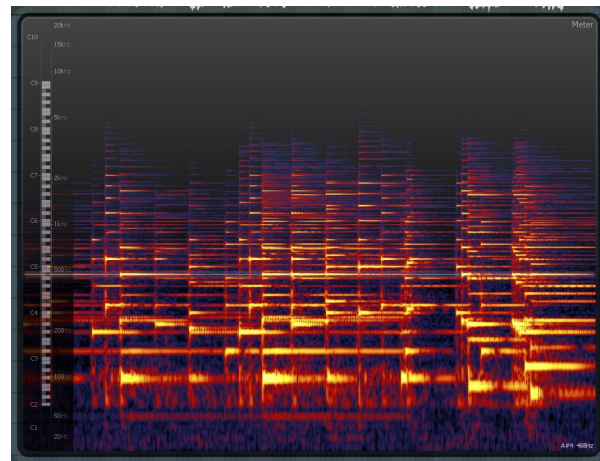
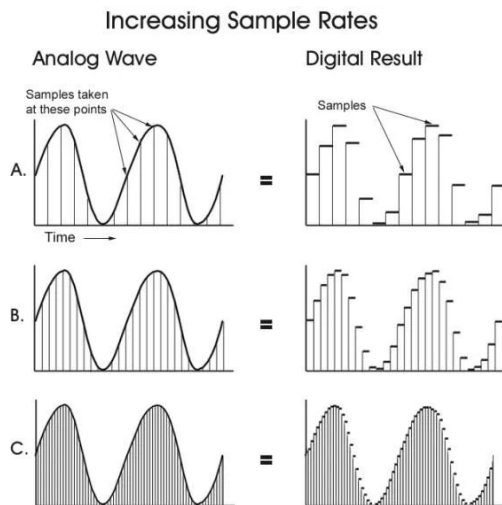
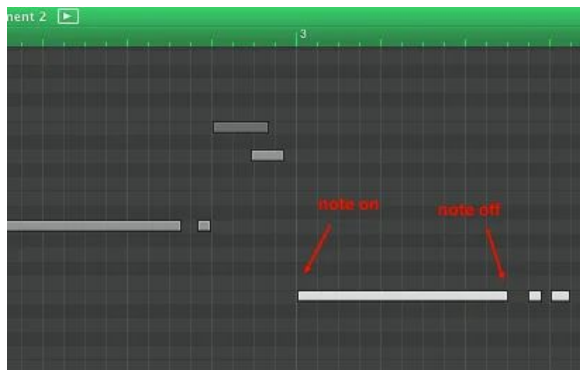


 Riffusion

2016 - Now
Deep Neural Network

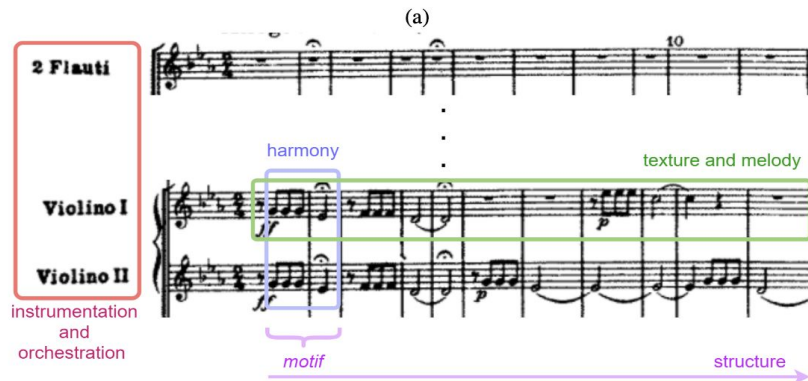
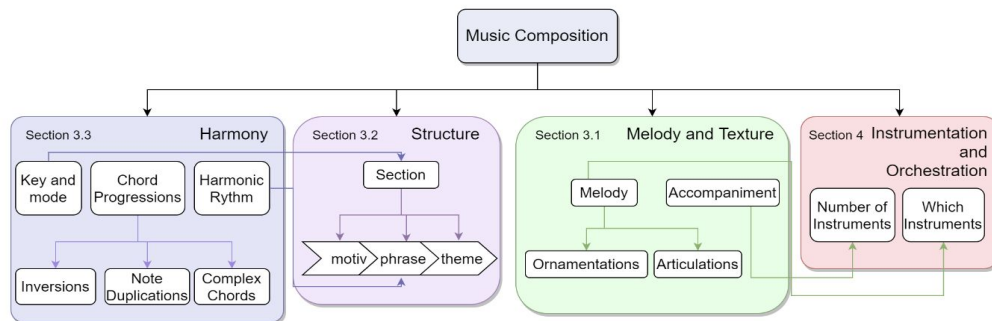
Music Representations

- MIDI – Musical Instrument Digital Interface
- Waveform – captures the analog waves of digital audio
- Sound Spectrum – displays different frequencies of a sound



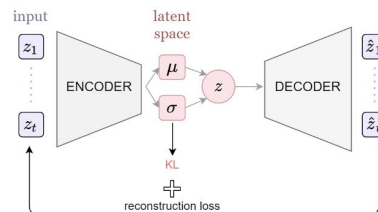
Understanding Music Generation

- Music composition process
 - Time and harmony dimension
 - Time - Notes and melody
 - Harmony - Chords, Alignment, Instrument
 - Multiple different ways of composing.
Analogy: Chinese / English are both languages, but the composition is different
- Audio Generation
 - Performance audio - Sounds, Audio, Beats, Emotions
- Type of problems
 - Symbolic music generation
 - Accompaniment & Orchestration
 - Style transfer
 - Audio Alignment

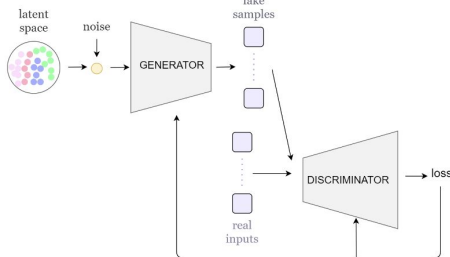


State-of-art Approaches

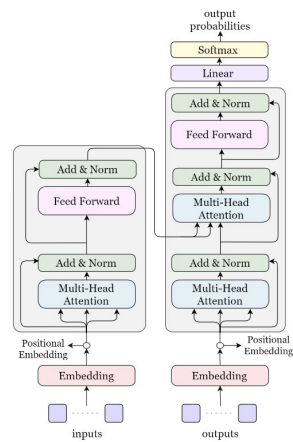
VAE



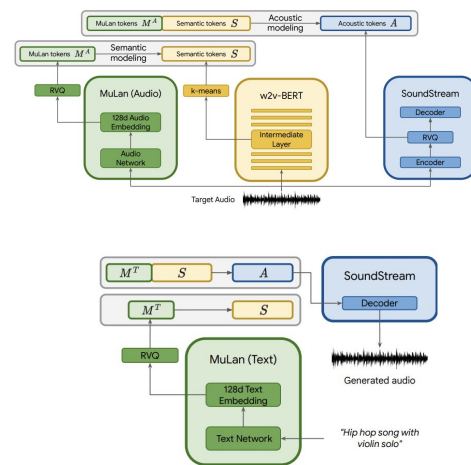
GANs



Transformers



Large Pre-trained Model



Check it out..

AIVA - first virtual composer to be recognized by a music society <https://www.aiva.ai/>

MusicLM - Google latest text-to-music tool <https://blog.google/technology/ai/musiclm-google-ai-test-kitchen/>

Suno AI - Create your own music with Lyrics <https://www.suno.ai/> Open Source Models - Bark [github](#) [huggingface](#)

Musicfy - Voice cloning to realistic music <https://musicfy.lol/>

Riffusion - Generate music from Lyrics <https://www.riffusion.com/>

Jukebox - Audio music generation <https://jukebox.openai.com/>

Music Transformer - Symbolic music generation model [Post](#) | [Paper](#)

Voice Transfer - So-Vits-SVC <https://github.com/voicepaw/so-vits-svc-fork>

- Colab <https://colab.research.google.com/drive/1128nhe0empM7u4uo5hbZx5lqjgjG10Sf>