

# Sequencing

Chance as composition

Mari, Sebastian and Anders

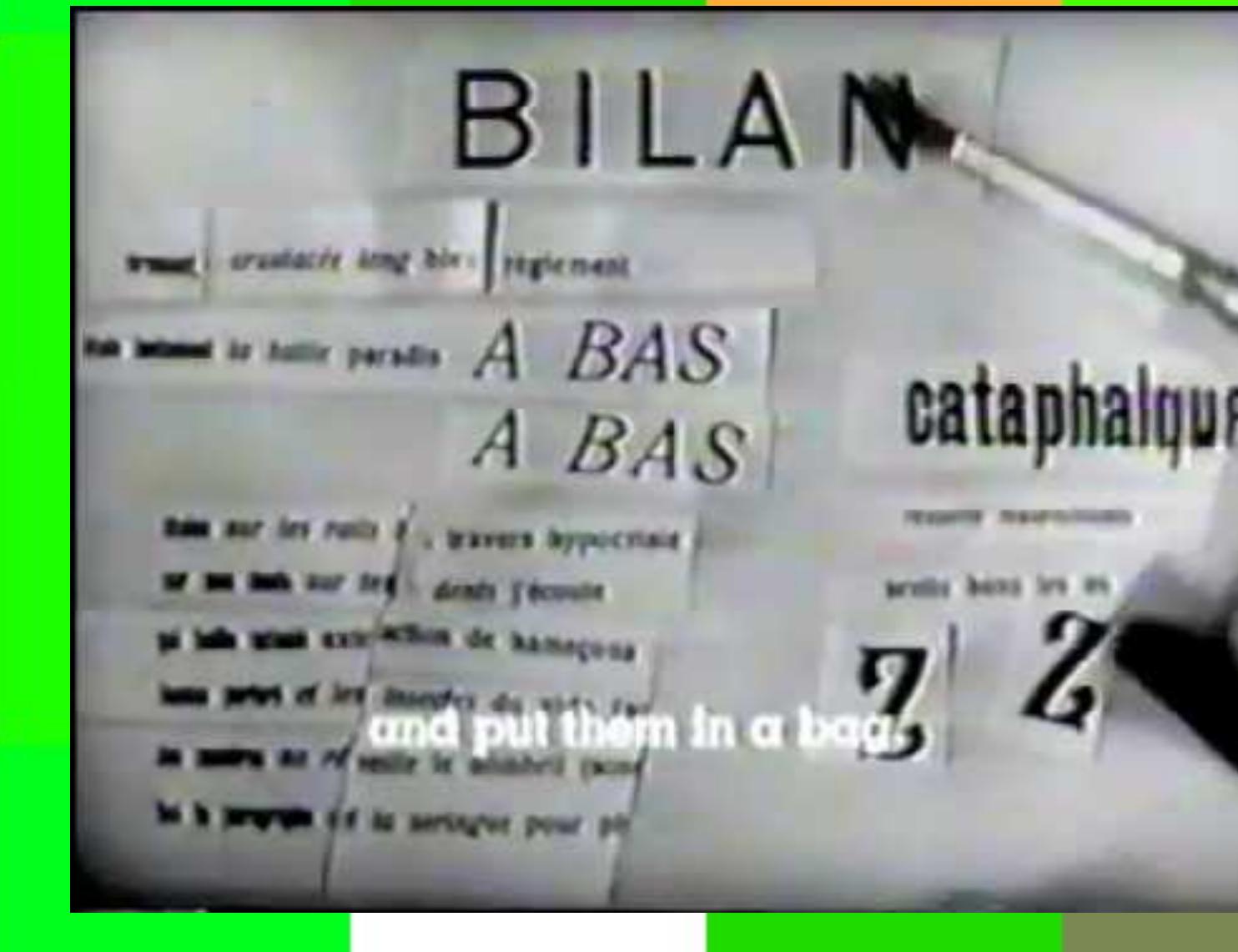
**«Chance comes in here  
to give us the unknown»**

**John Cage to Pierre Boulez, January 17, 1950**

# DaDa

## - after the Great War

- Post-war (WW1) depression
- European avant-garde
  - Rejection of logic, reason, aesthetics and modern capitalist society
- Brought in nonsense, irrationality as well as humour, to the art scene
- Anti-art



# Fluxus

1960s and 1970s

- Worldwide avant-garde movement,
- Reacted upon the restrictions of human culture and art
- Explored un-normal human behaviour
- Jokes and gags, live-performance
- Inspired by DaDa, but took many more angles of approach

# Chance & indeterminacy

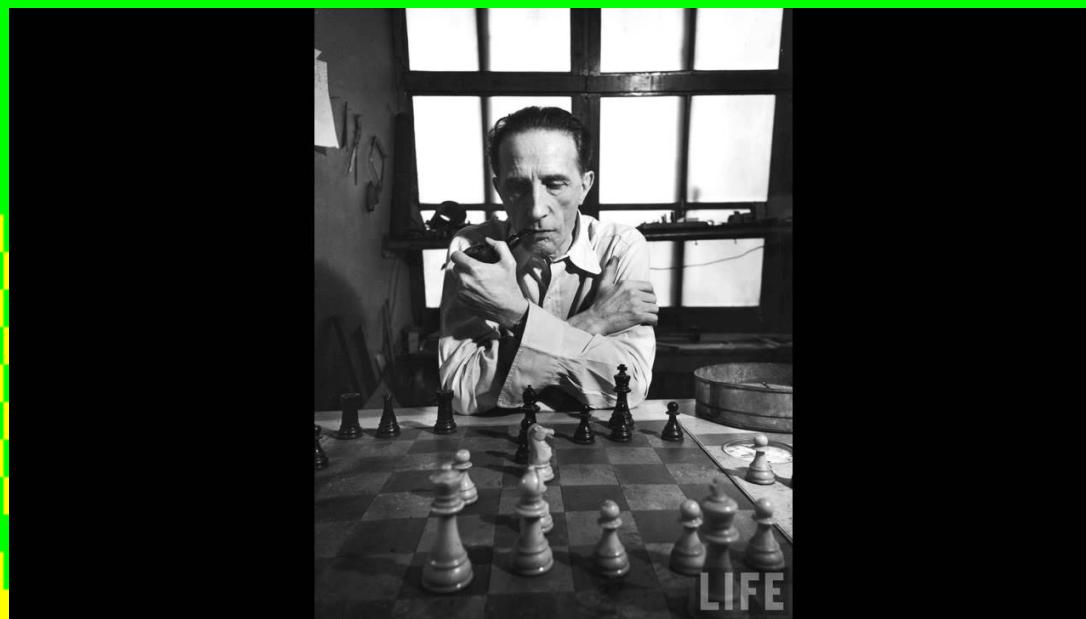
## in music

- *Erratum Musical* (1913), Marcel Duchamp
  - Dadaistic composition for three voices
- *Double Music* (1941), John Cage/Lou Harrison
  - Independent pieces performed together as one
- *Music of Changes* (1951), John Cage
  - Set of rules, I Ching used for decisions
- *Give Guitars to People* (2019-), Jochen Arbeit, NATürlich



*Fountain* (1917), Marcel Duchamp

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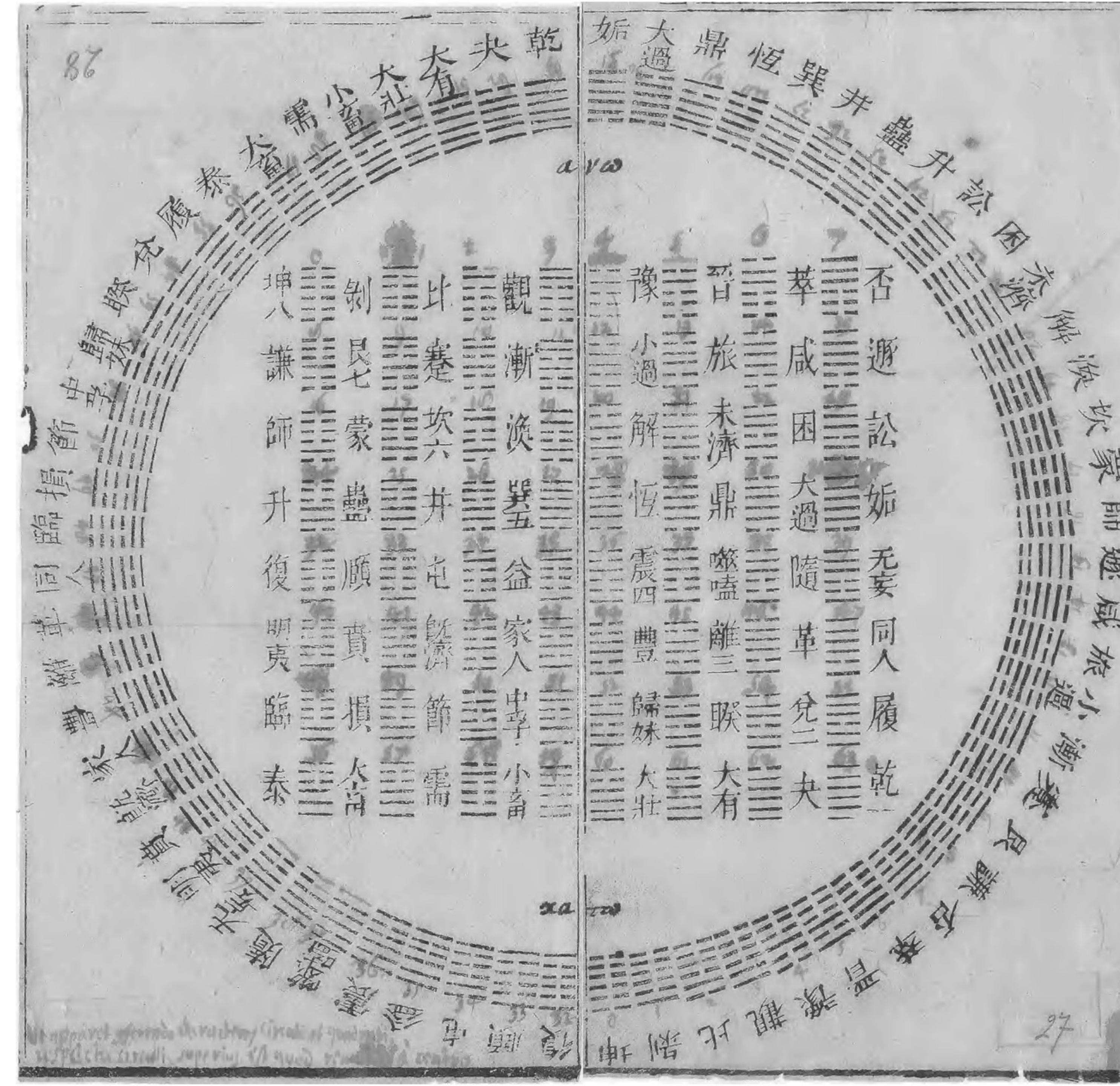
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# I Ching

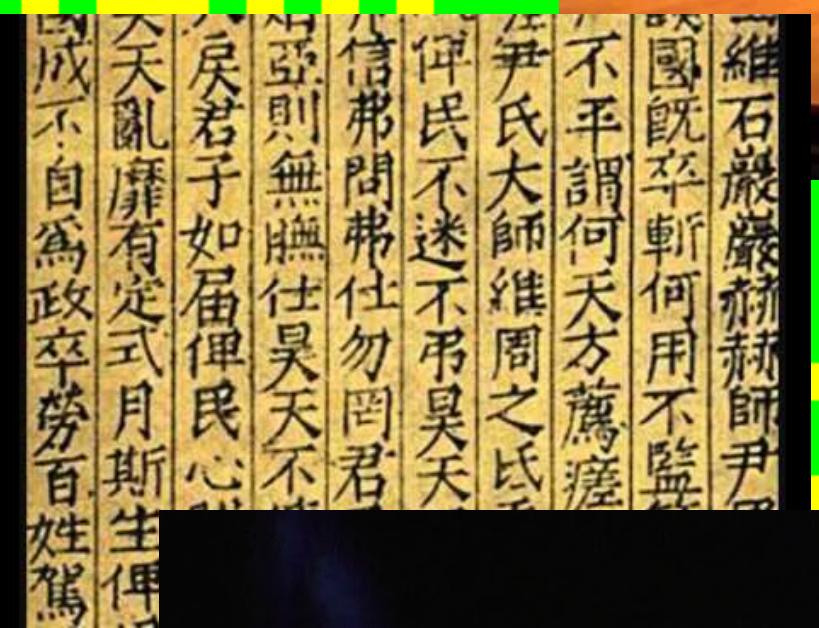
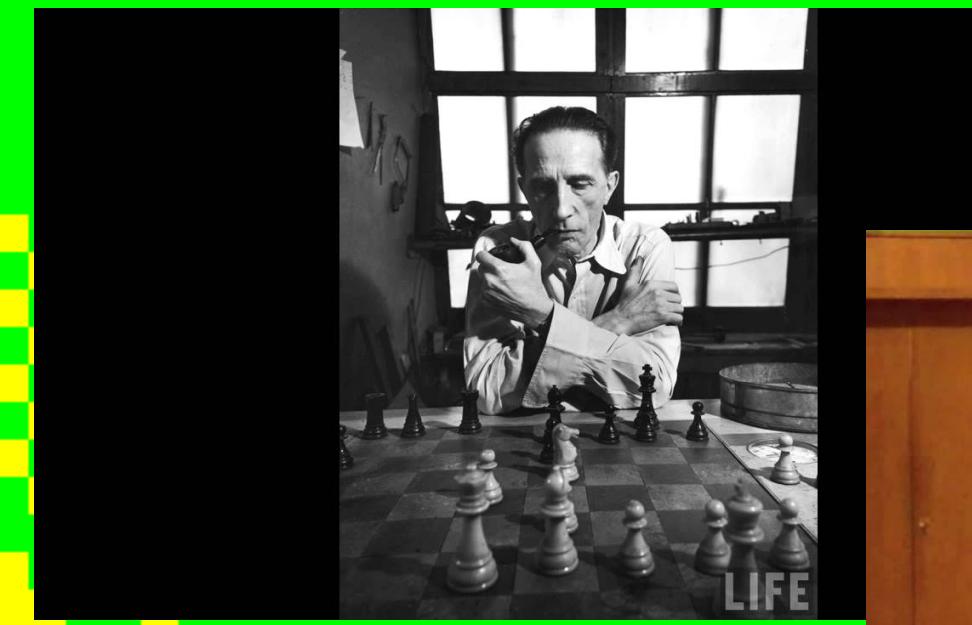
## Eastern Philosophy

- 64 hexagrams
- Six lines, broken (yin) or unbroken (yang)
- Cleromancy, divine will
- Book of Changes



# Chance & indeterminacy in music

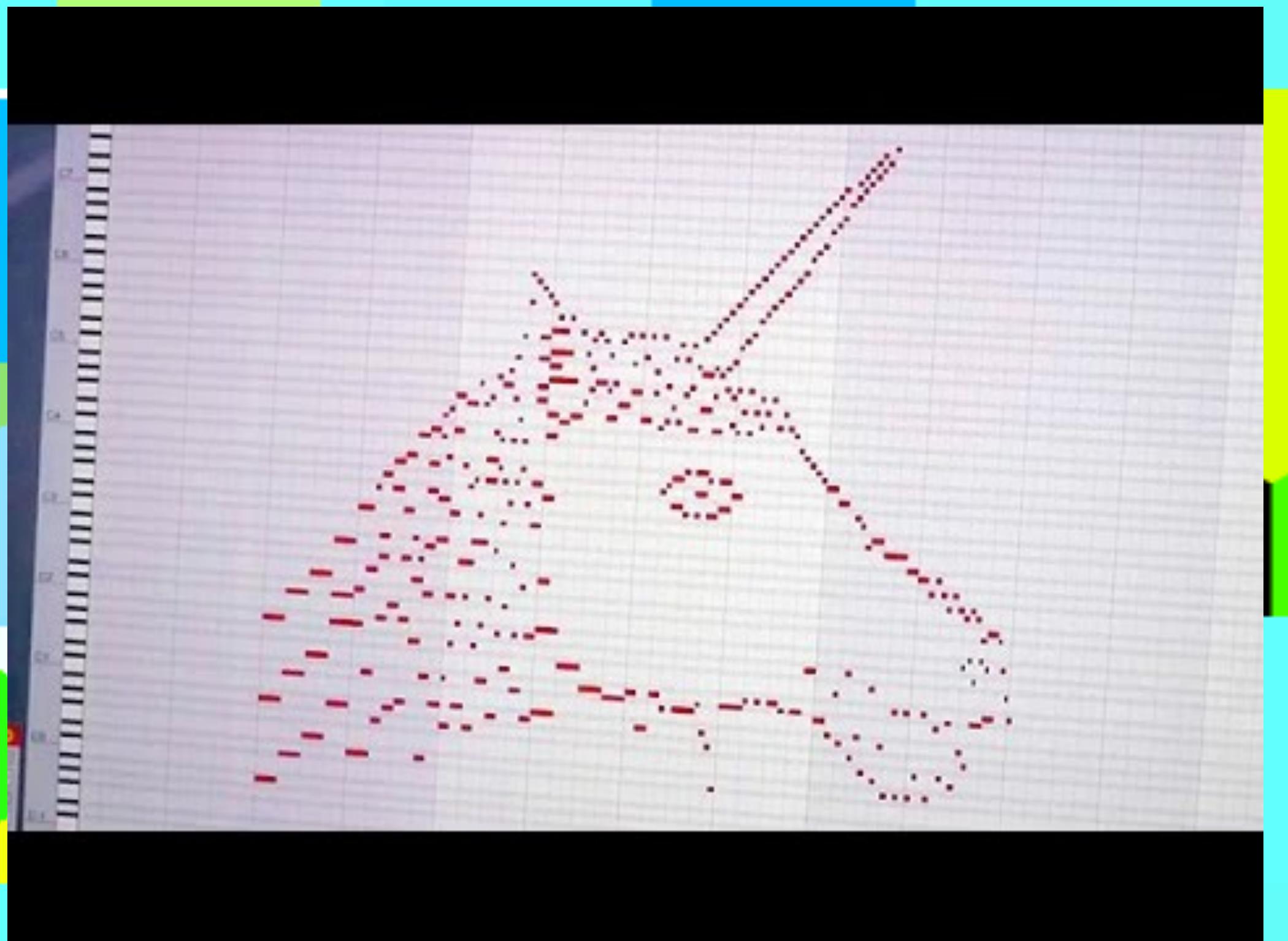
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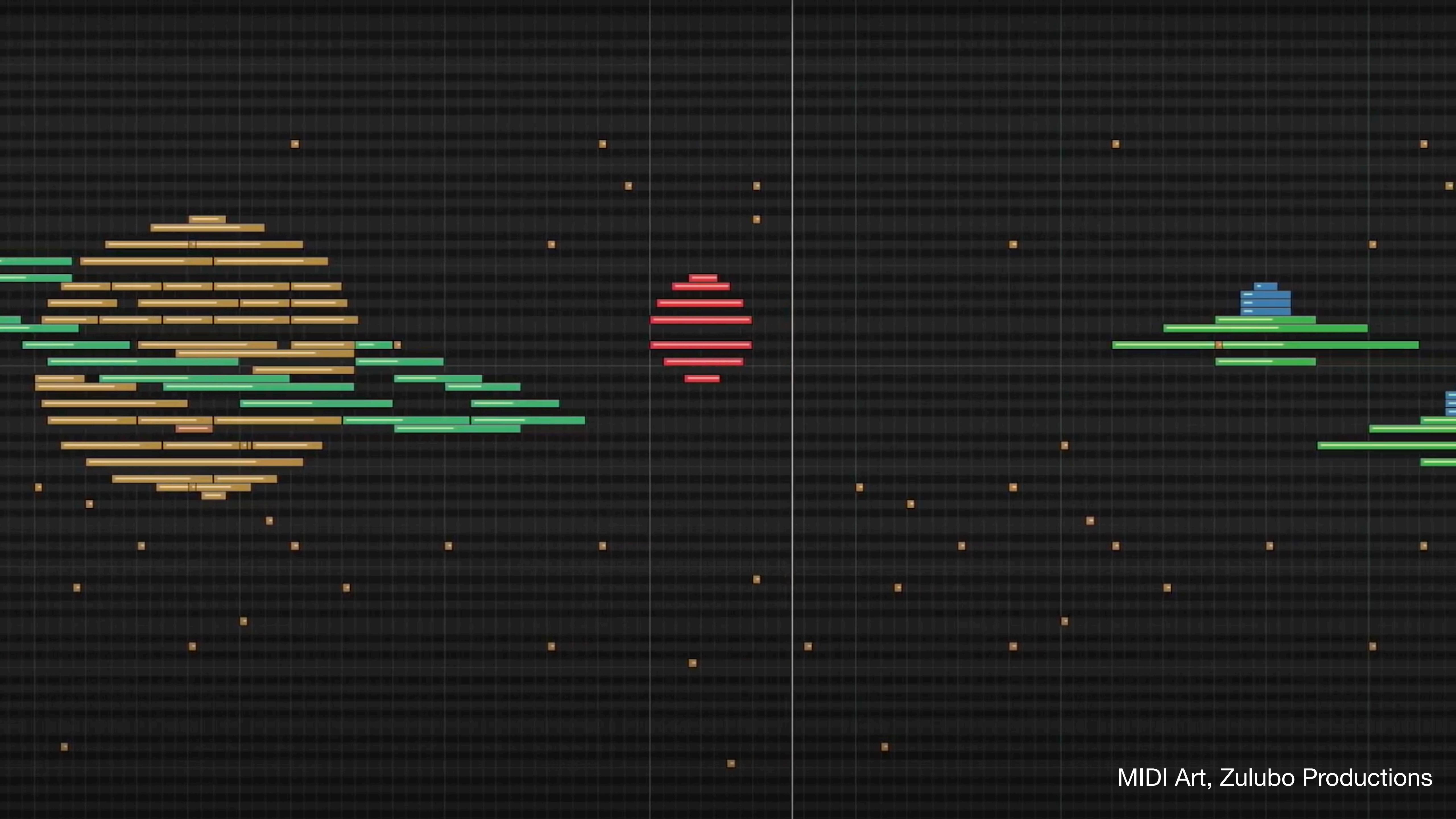


# From Fluxus to MIDI Art

## in music

- *Glorious MIDI unicorn* (now), youtuber Andrew Huang
  - Drawing pictures with MIDI notes
  - Focus on making it sound like music





MIDI Art, Zulubo Productions

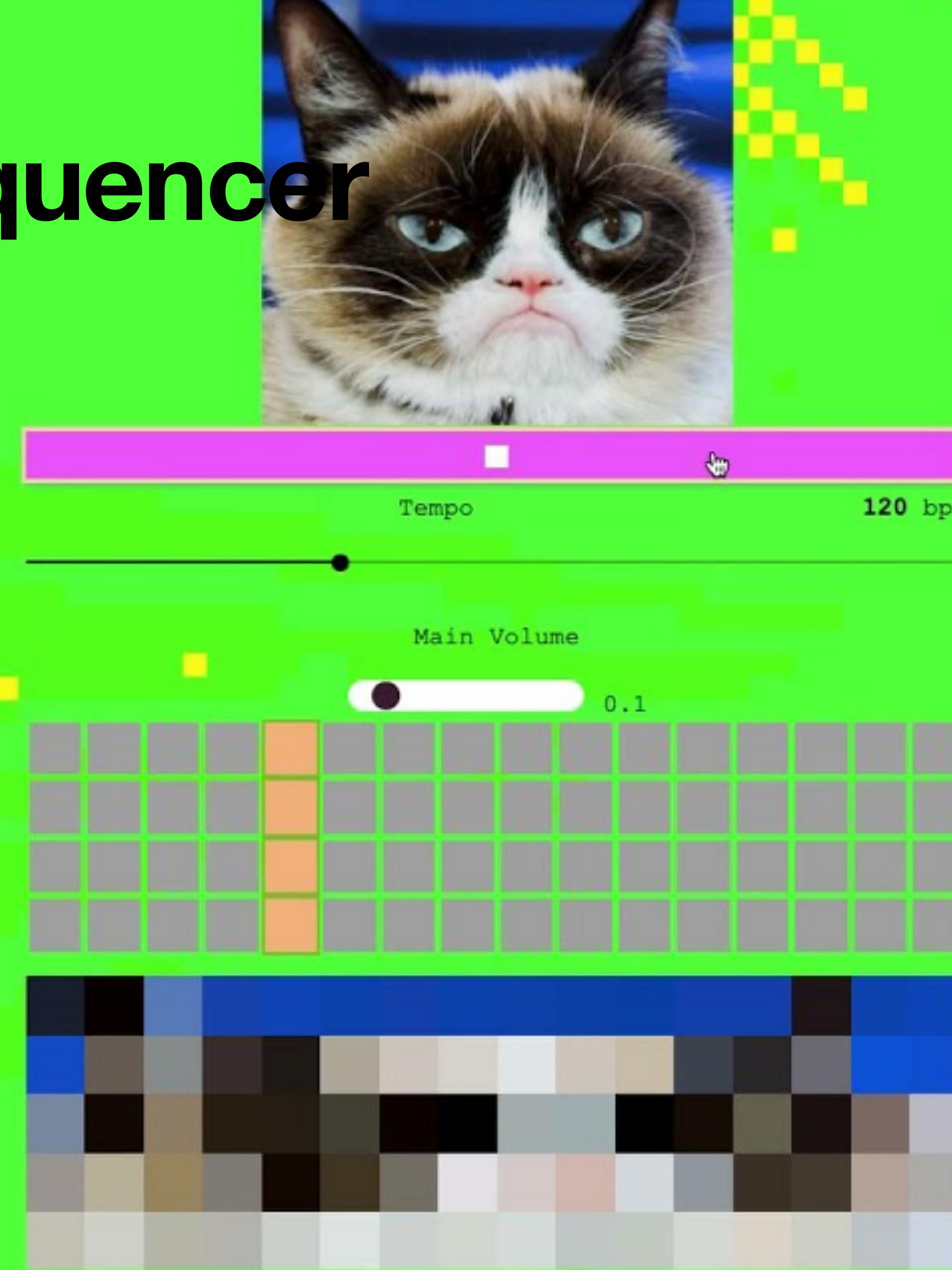
# System Sounds

## Pillars of Creation Sonification

- NASA-collaboration
- Translating the universe into sounds



# The Pixel Sequencer



# The Pixel Sequencer

## About

- Interactive web-application
- Adjust parameters
- Upload picture
- Press Play
- Add drums
- Explore and compose

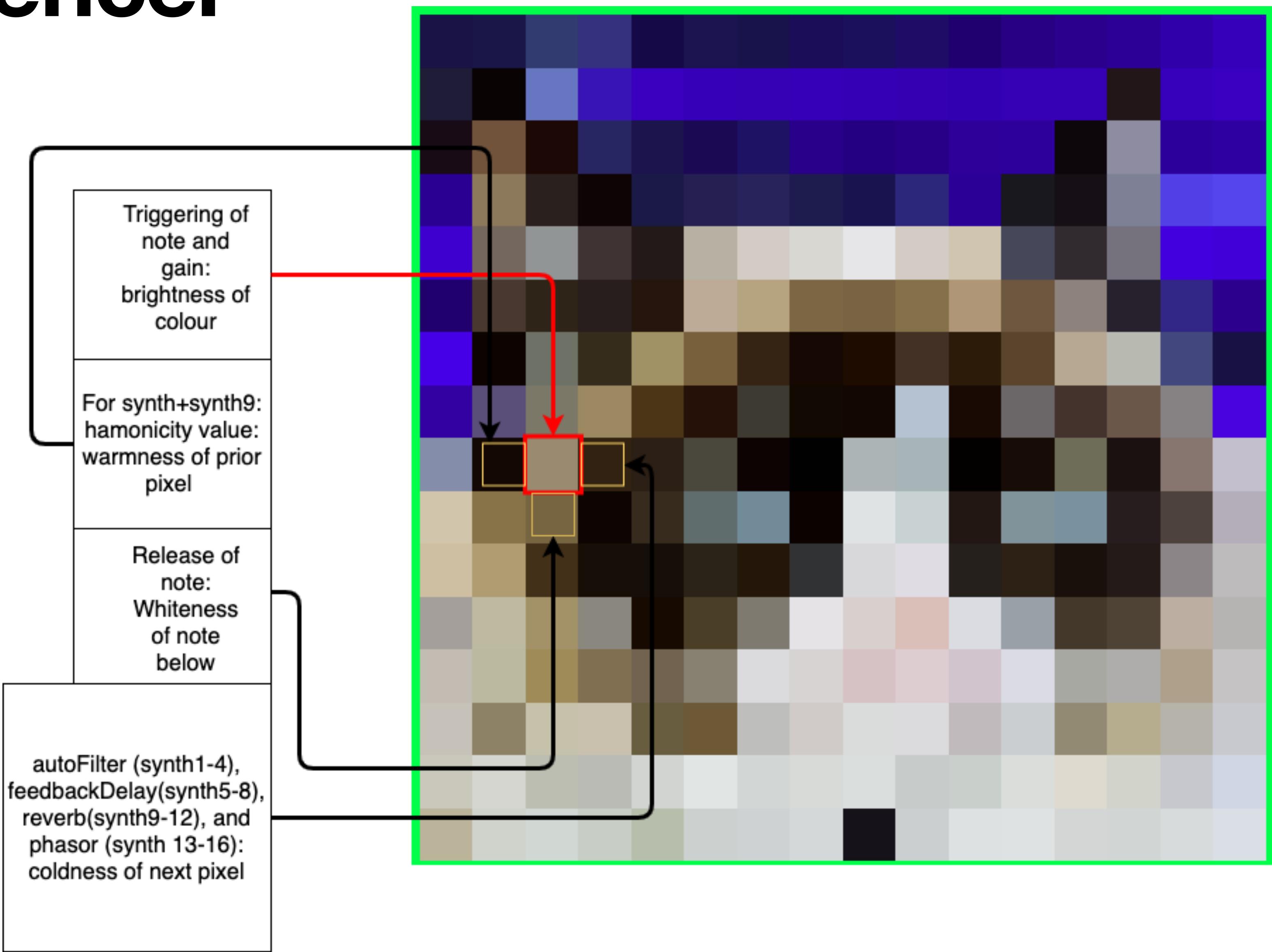
# The Pixel Sequencer

## Format

- Accessibility, democratization of art
- Exploring intersection between visual arts and music
- Aesthetics applies to internet trends, retro game(r)s

# The Pixel Sequencer

How does it work?



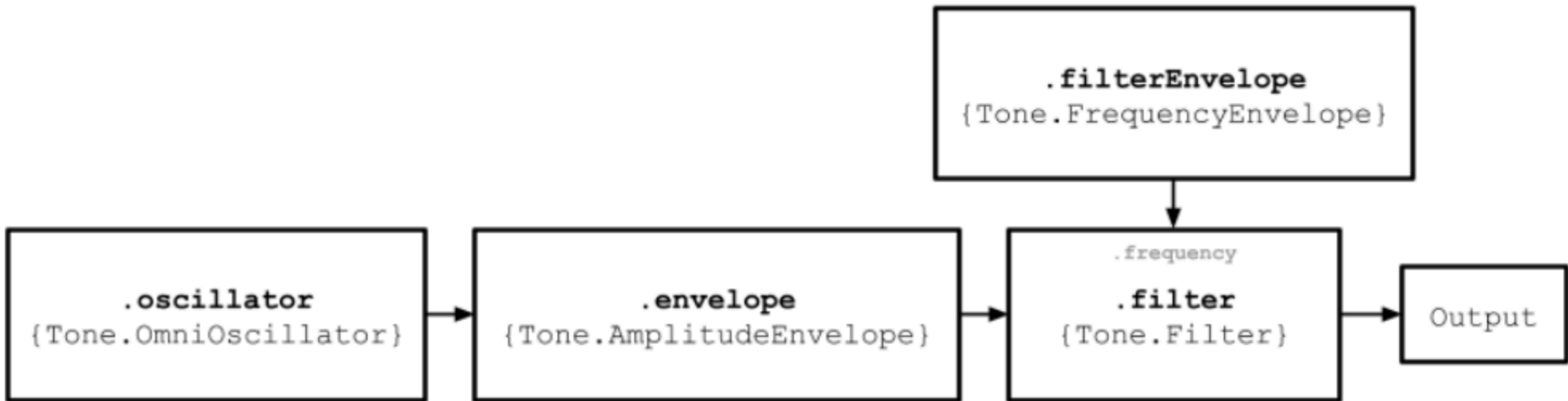
# Tone.js

over Csound ...

- Interactive synthesis in a browser
- Pre-built synthesizers, implemented by creating a constant
- Subtractive-, FM- and Karplus-strong string synthesis

# Routing example

## Tone.Monosynth



# Setting up a synth using Tone.js

- Pre-built Tone.MonoSynth
- Define waveform
- Amp envelope
- Define filter-type
- Filter envelope
- To master

```
const synth = new Tone.MonoSynth({  
    oscillator: {  
        type: "square"  
    },  
    envelope: {  
        attack: 0.05,  
        decay: 0.1,  
        sustain: 0.5,  
        release: 0.2,  
    },  
    filter: {  
        Q: 1,  
        rolloff: -12,  
        type: "lowpass"  
    },  
    filterEnvelope: {  
        attack: 0.05,  
        baseFrequency: 200,  
        decay: 0.1,  
        exponent: 2,  
        octaves: 3,  
        sustain: 0.5,  
        release: 0.2,  
    },  
}).toDestination();
```