

PROPOSAL

For my final project, I will create a tool for generating graphic notation from audio files. The tool will be connected to a python notebook where I will extract the FFT information from the file. I am using part of this FFT analysis process for feature extraction in another class, so plan to modify this workflow. I plan to connect the python notebook to a P5JS sketch so the project can be easily accessed online. I will hopefully find some way to read the data from the notebook into an array in P5 that it can base the drawing off of.

The graphic notation tool will be a modified version of my drawing tool for my last project. I will be making drastic changes, but I am fond of the aesthetic and functionality of the initial project. I plan to make the canvas of these pieces very large.

The basic way that the initial tool worked: by clicking a specific xy point, many lines would shoot out in all directions from the point. The opacity was set very low so clear structures only form of a point has many layers. The colors were randomized but with a max target value of specific desired colors.

Basic modifications:

The fft will be taken of many smaller clips within the piece. Say 100 frames / clip divisions. Each frame will be the X, each Y will be the frequency at each bin, and magnitude will correspond to color and opacity.

Parameters:

Aesthetic / Style (this will determine geometric usage):
granular, smooth, angular, modular, organic, cloud, fluid

Timebase (this will determine the way points are plotted and arranged):
linear, circular, amorphous, fractal, outward

Resolution:
Min, Recommended, Max

I am thinking of more ways to customize the score.

Constants that will be set when info is read in:

Color palette - based on spectral centroid information

thinking of more

This project is motivated by my interest in graphic notation. I have used graphic notation for multiple projects in the past. I am convinced of its utilitarian value as well as its aesthetic value, as my custom graphic notation was essential to realizing my senior thesis concert. I want to develop this for my own use as well as for other composers of experimental and electronic music. Many generators that I have found are AI based or minimal / lacking - these are still cool but not what I would want to use. In the future, I would like to explore generating notation from no audio - to use as initial performance instruction, but for now this makes more sense to me. I will test it with my own pieces and hopefully make a drawing series on massive canvases to print out. I hope this tool could also be a useful pedagogic example in composition courses. The intended result is a mix between Xenakis and Cornelius Cardew's *Treatise*, creating clear architectural / geometric structures.

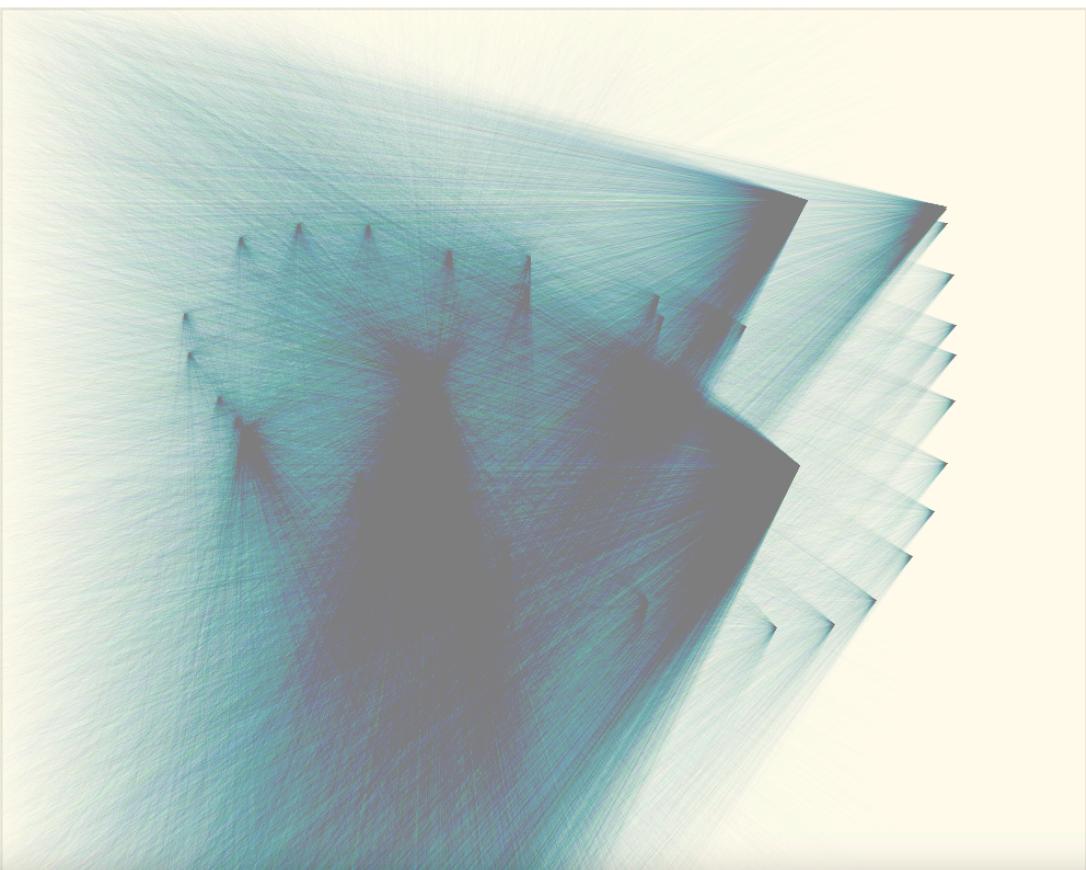
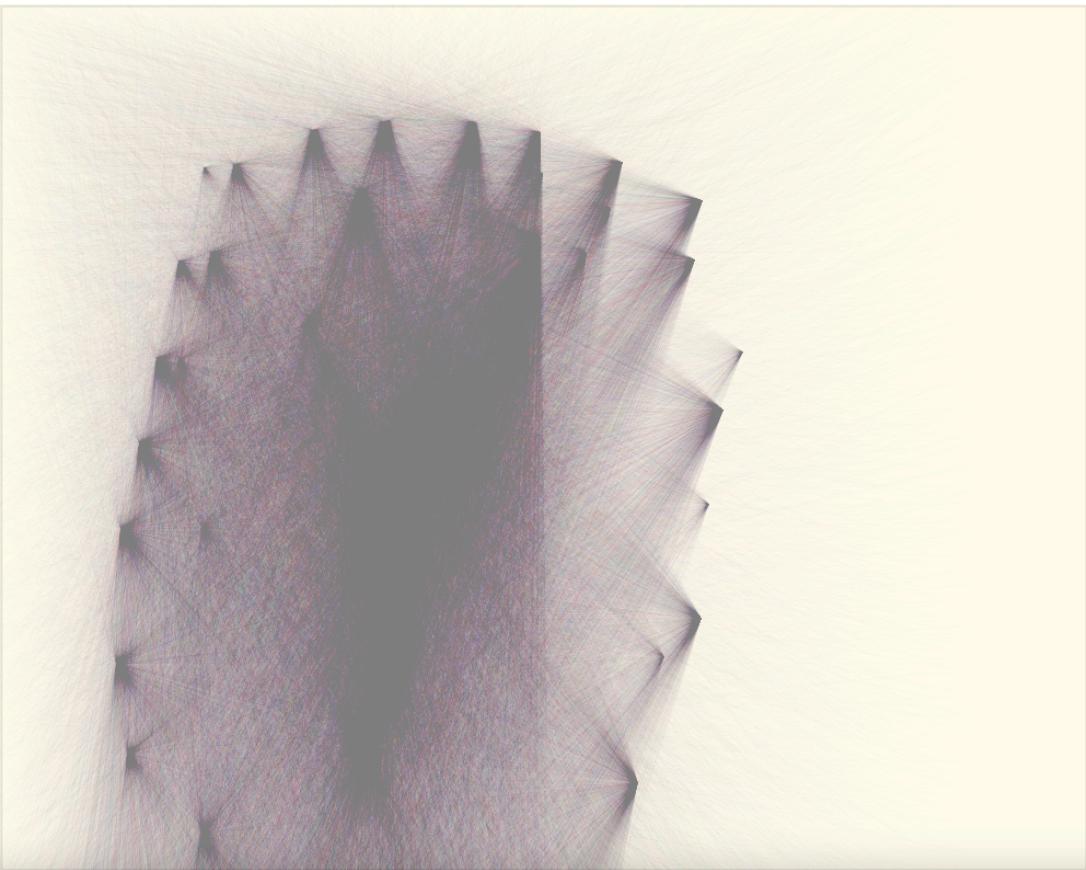
Challenges:

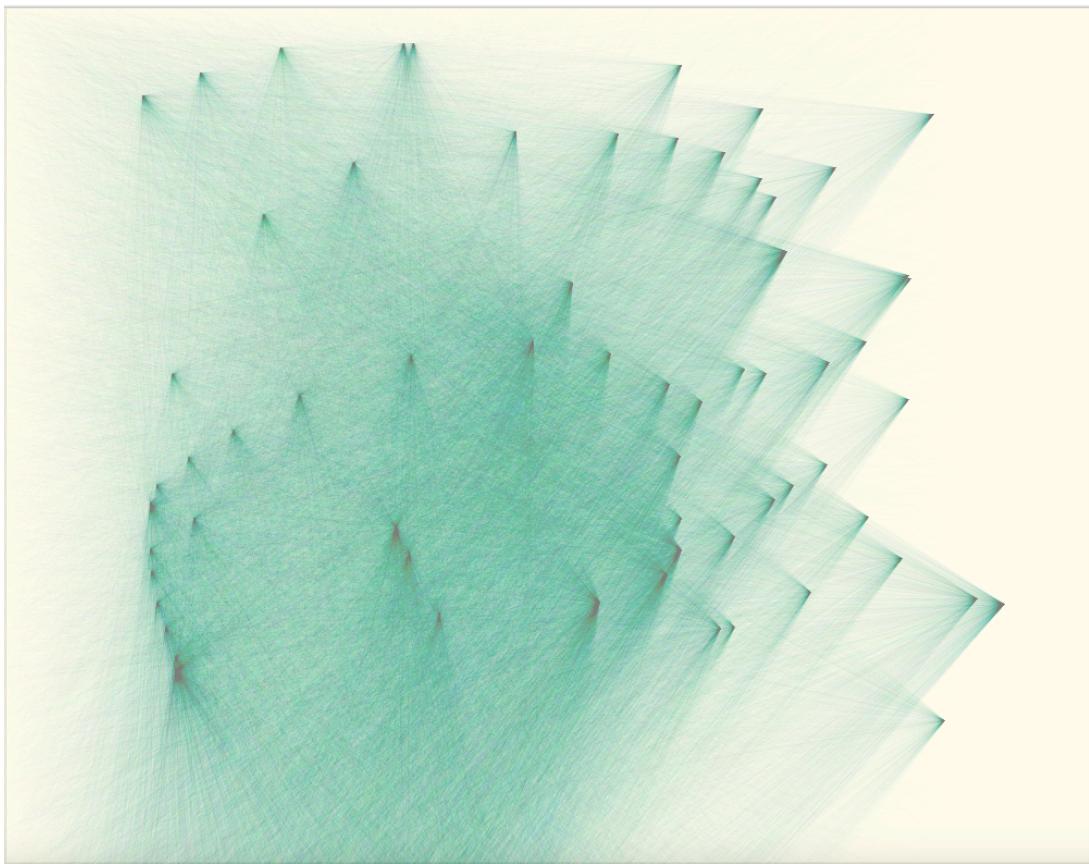
The python -> p5 pipeline will not be extremely difficult but will surely have challenges. I think creating the stylistic variation that I am striving for will be difficult. I think the different styles will be based on usage of geometric primitives and relationships between different plotted elements. It will be different to element the timebase, but I think that will have to do with scale and the direction elements are plotted. I would also like to create another parameter or two for microvariation, but I have not thought of anything yet.

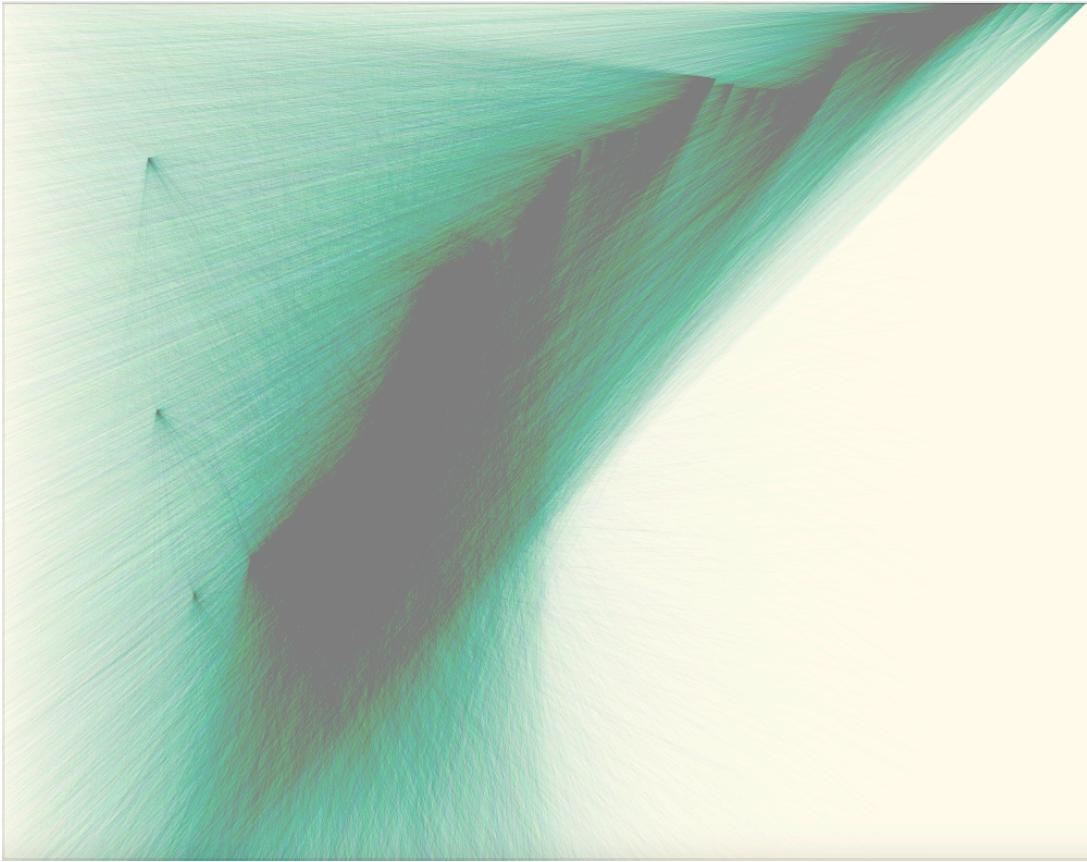
Evaluation:

First and foremost, I hope these graphic notation pieces are beautiful and have clear variations. After that, I hope that it is clear when the score represents audio, and when different stylistic scores are derived from the same audio.

SKETCHES FROM INITIAL DRAWING PROJECT







MY PAST GRAPHIC NOTATION



Shards Electronics Key

All parameters increasing left to right

Raw Signal



Delay time / mix



Reverb



Distortion



Pitch Modulation





Crushed by the Tide / Barely Afloat

Full Score

F Major + E Major (G major + F# Major for Transposing Instruments)

Grain Intro - Section 1

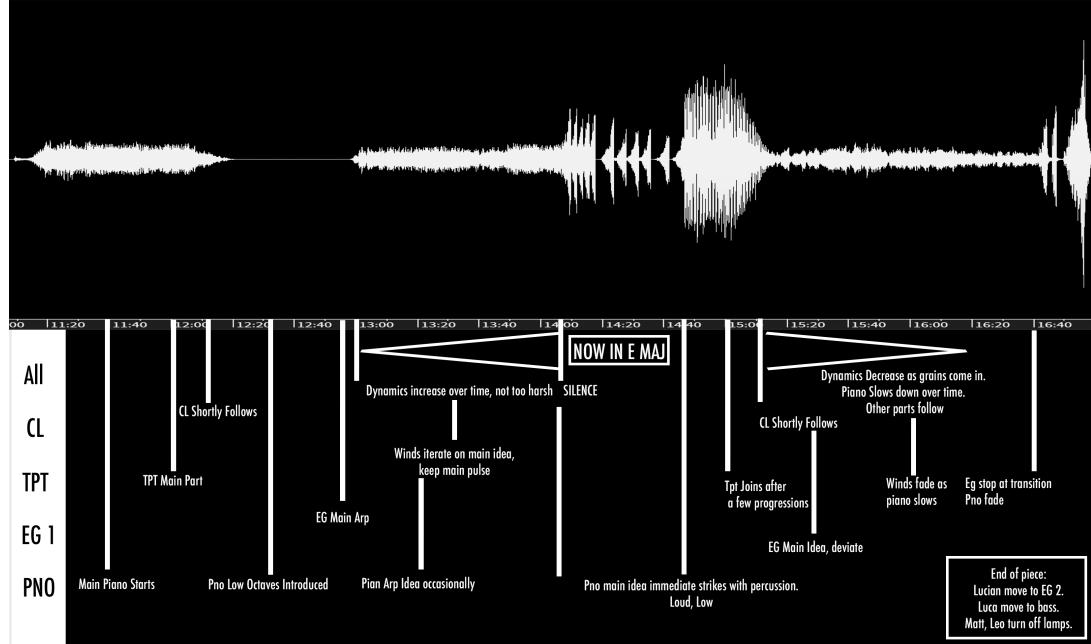
Grains = Last half of section

Bells

Bells end + Perc Start

Perc fades to grains

Guit end transition



Gasps

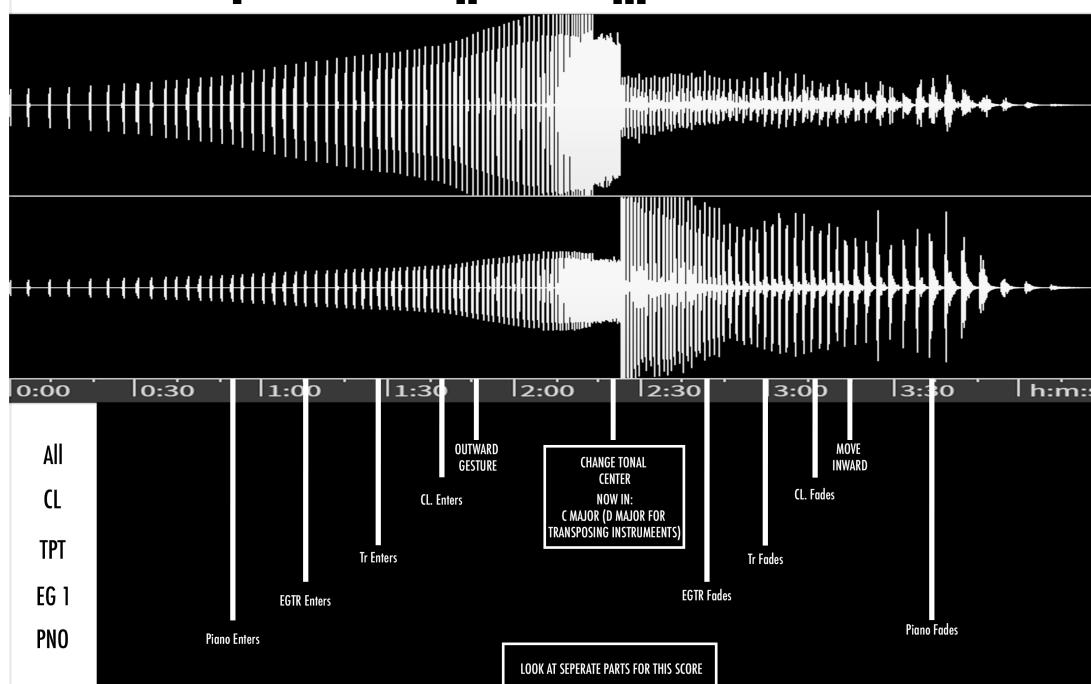
Full Score (See parts)

Bb Major + C Major (C Major + D Major for Transposing Instruments)

Beat begins to speed up

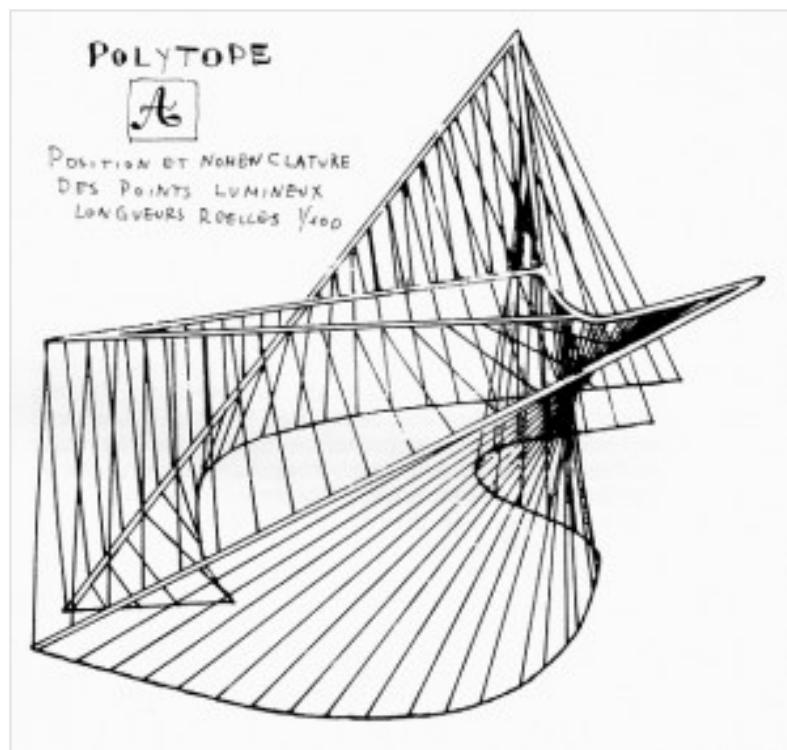
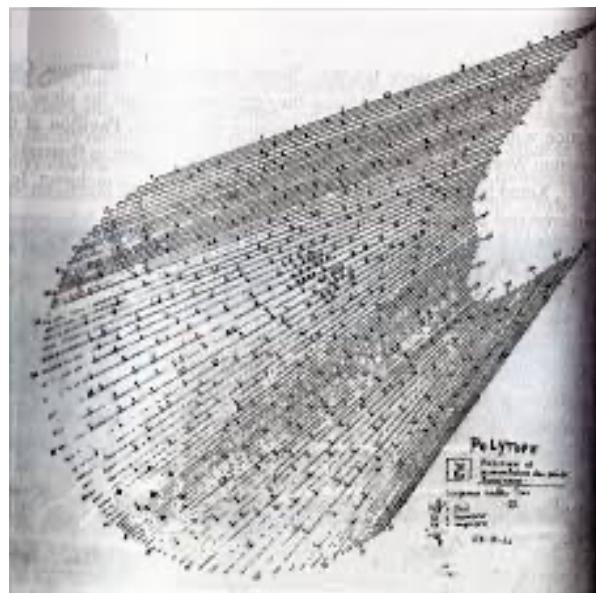
Speed / Swell

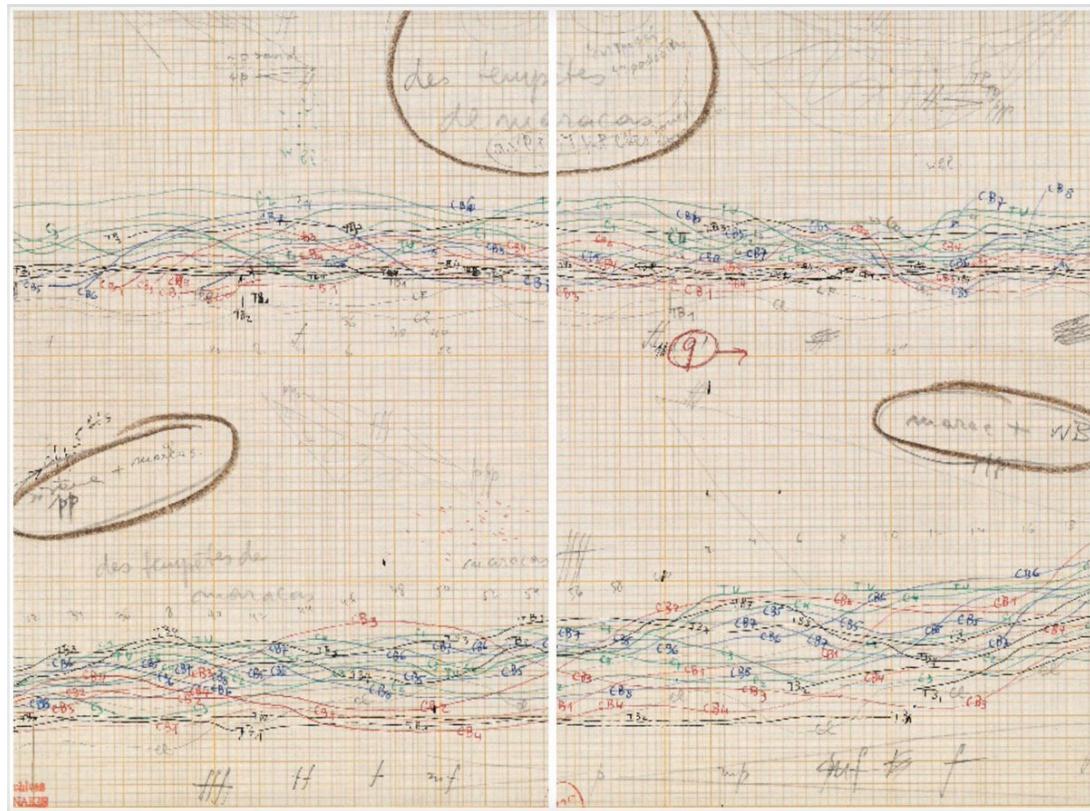
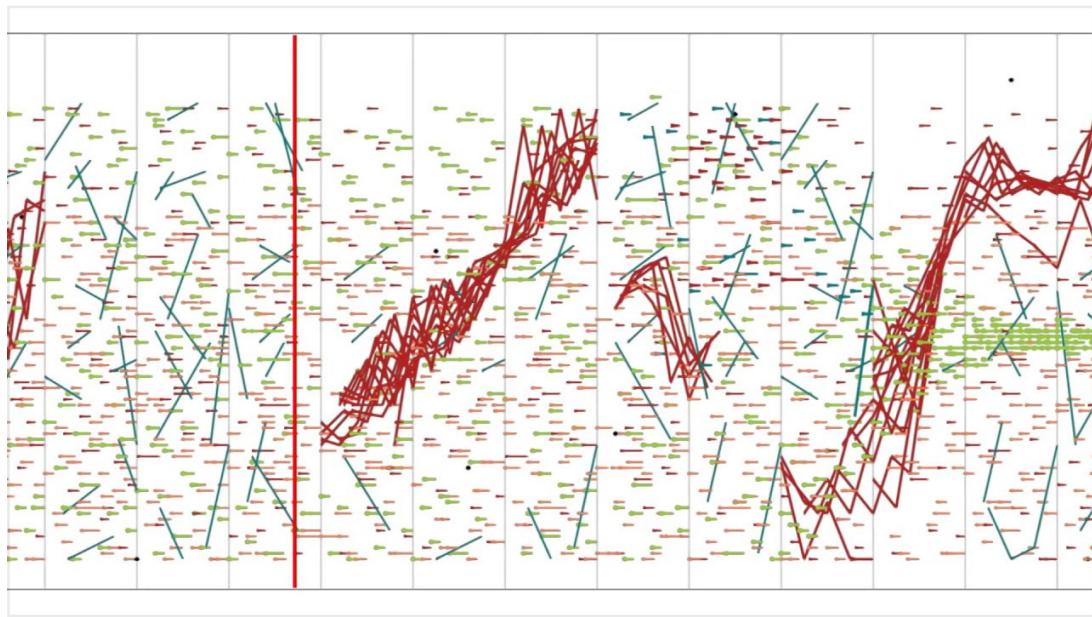
Key Change



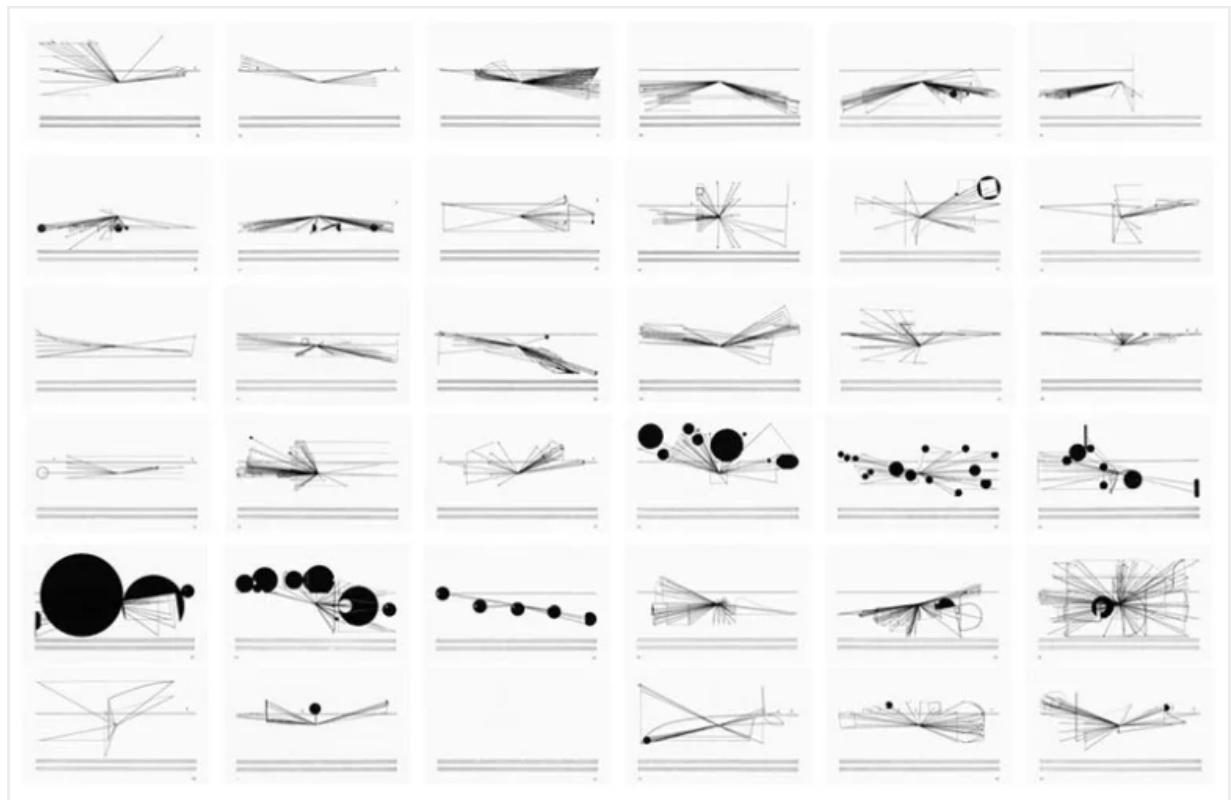
INSPIRATION

Xenakis

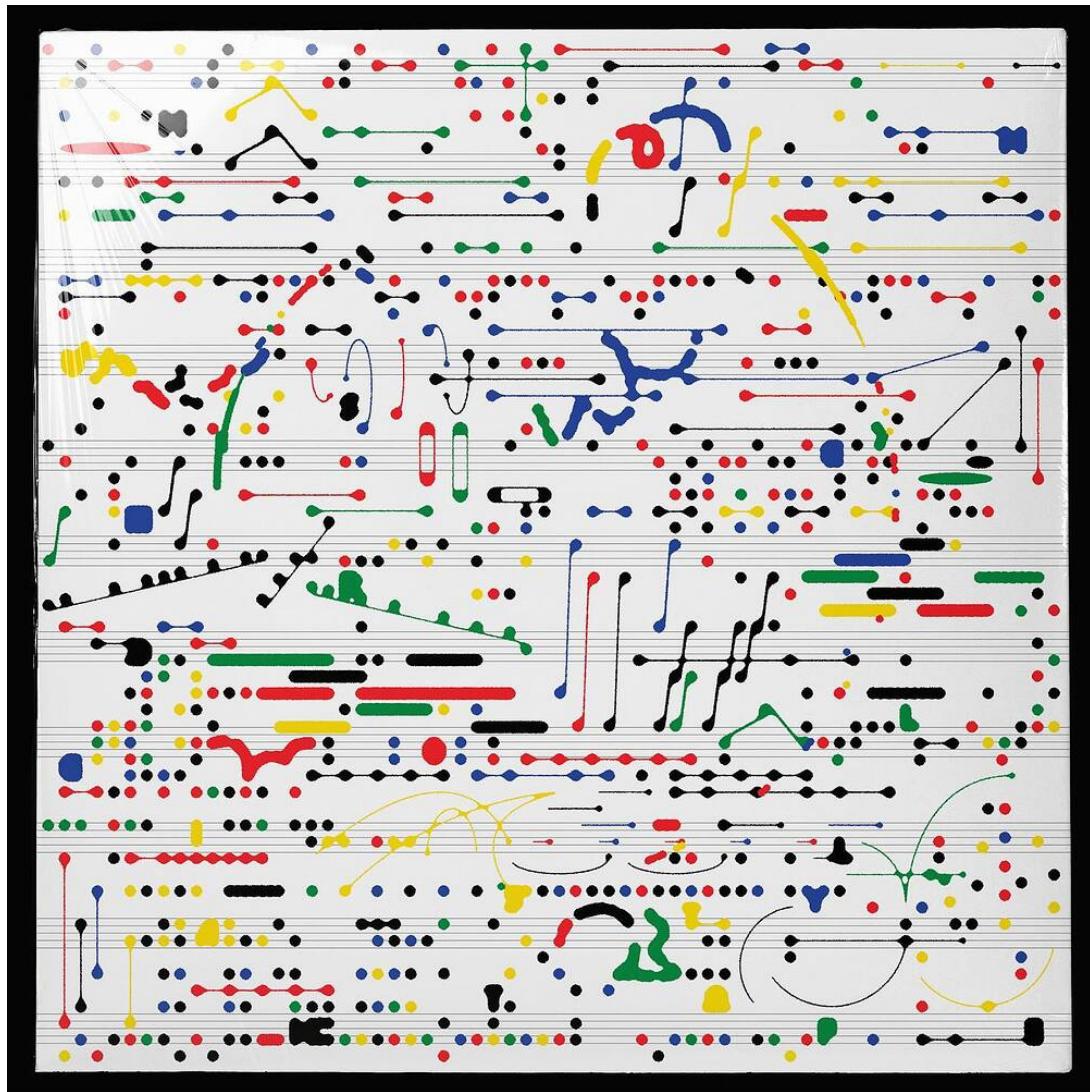




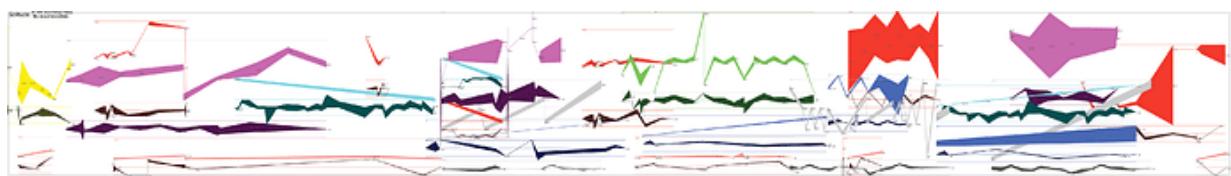
Cardew - Treatise



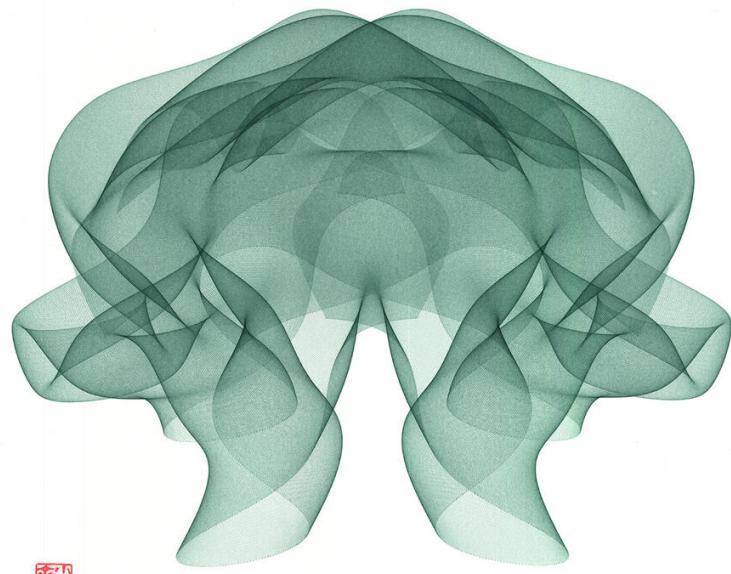
Diego Matos



Hans-Christoph Steiner "Solitude"

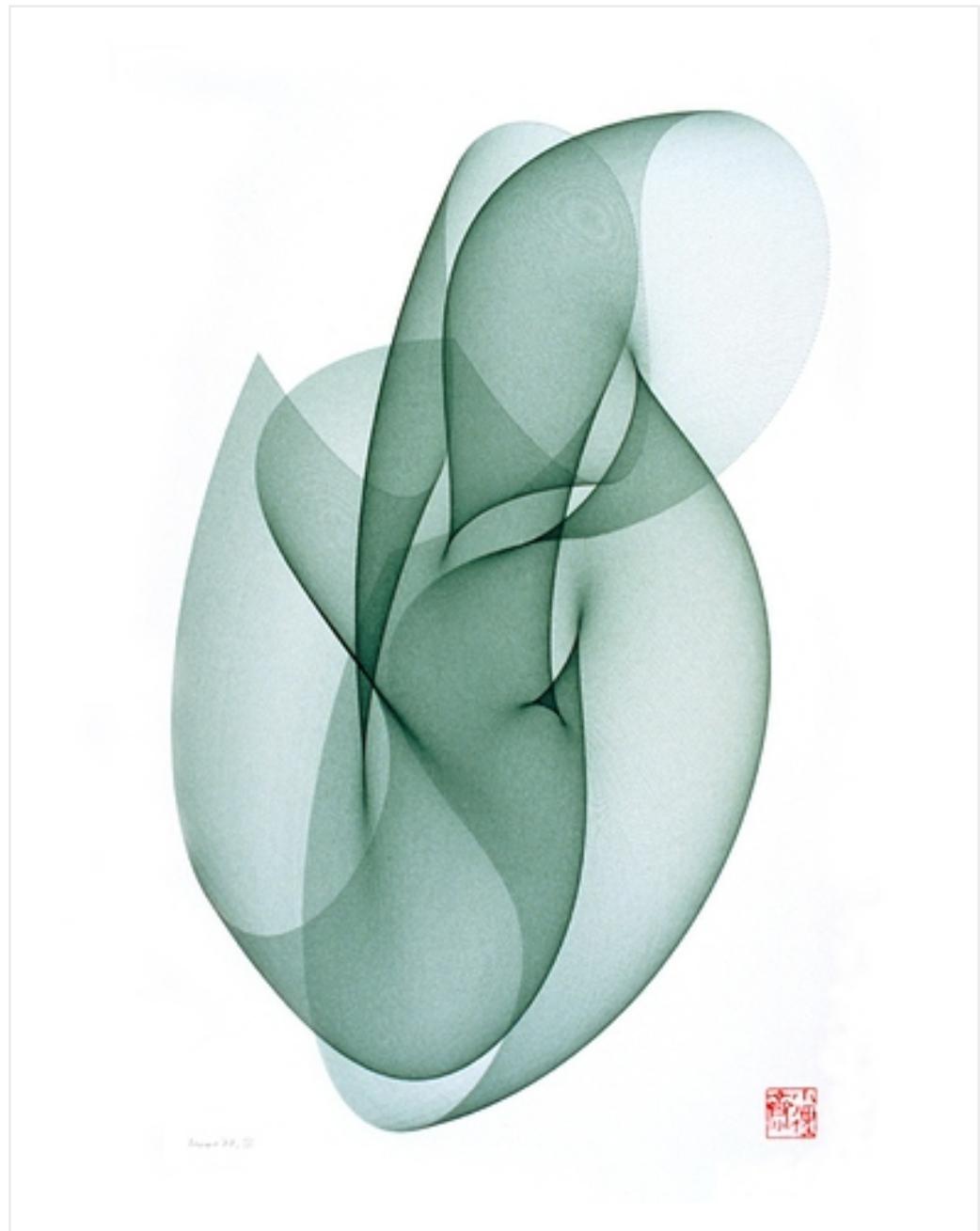


Roman Verostko - idea of cloud based algorithmic drawing

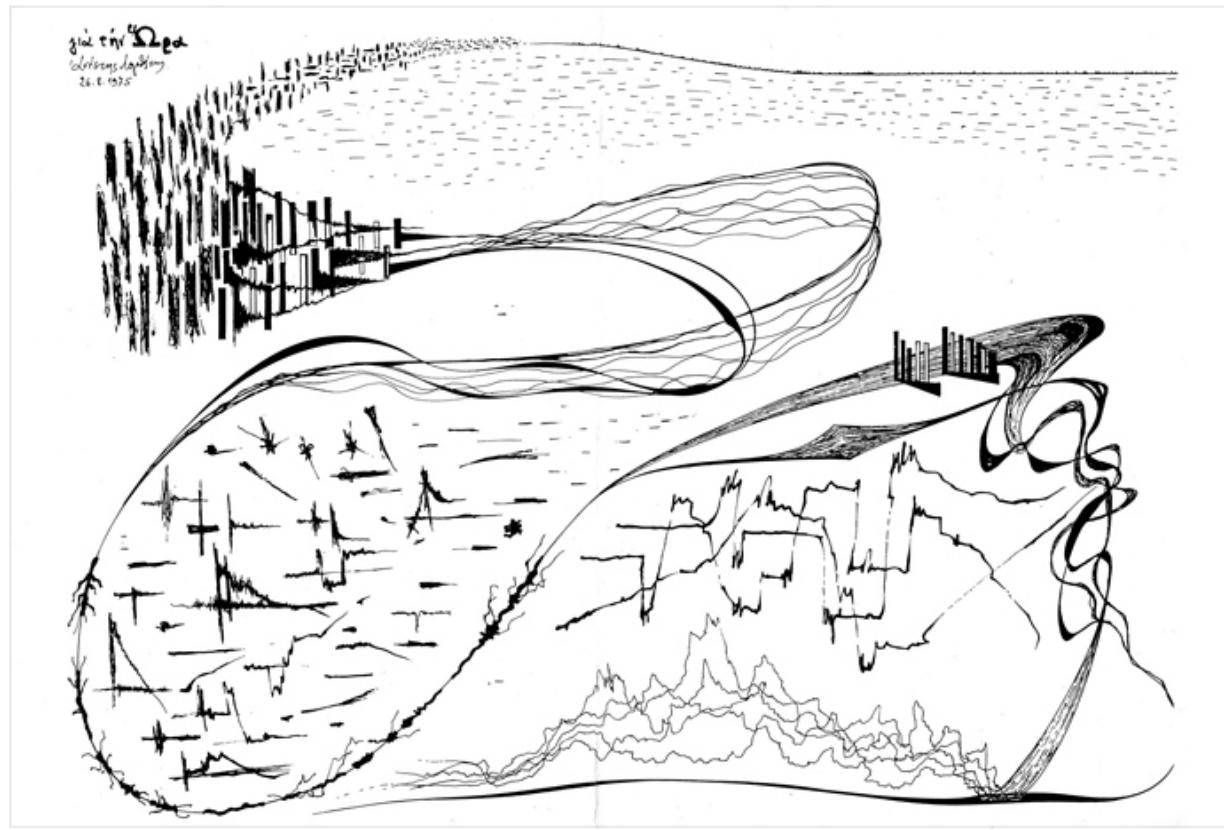


劉傳

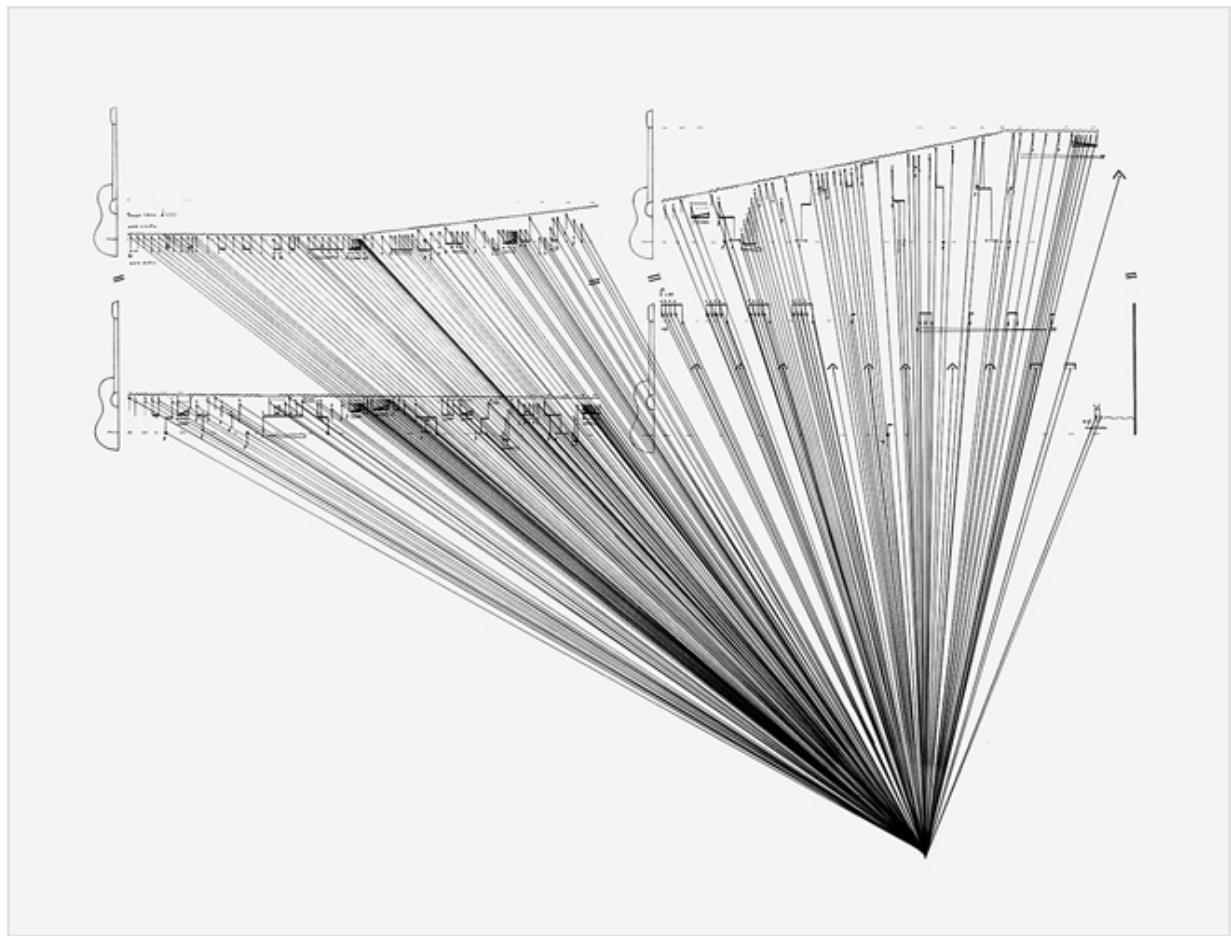
Rou Tsui



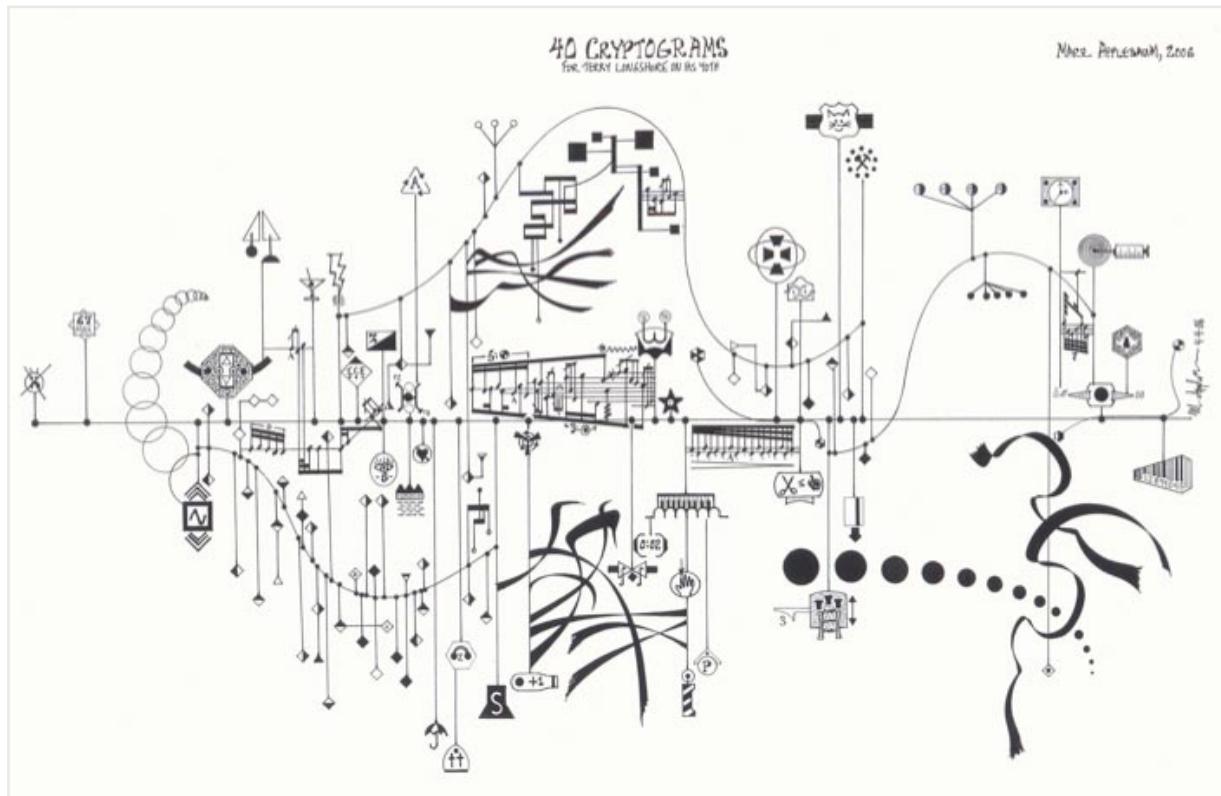
Anestis Logothetis:



Carlos Cruz De Castro (altered by Marco Fusinato):



Mark Applebaum:



Source for many of the inspiration images:

<https://||||||.co/t/experimental-music-notation-resources/149/94>