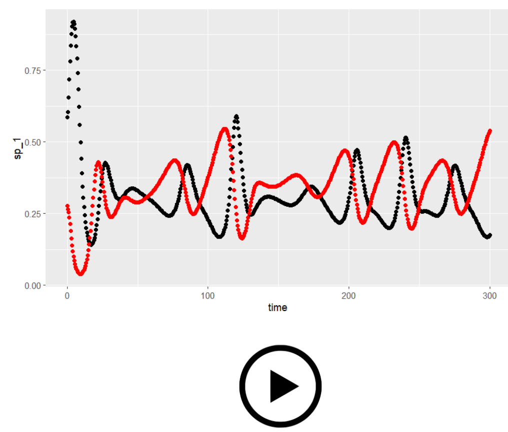
Max Jerdee (b. 1998)
Feathers, 2024

Mathematica

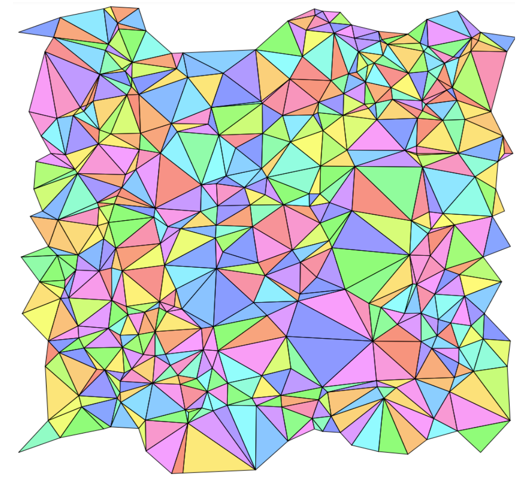
This bird-like image is formed by a Voronoi tesselation from points along the trajectory of a chaotic Lorentz attractor. The colors correspond to the number of edges of each cell.

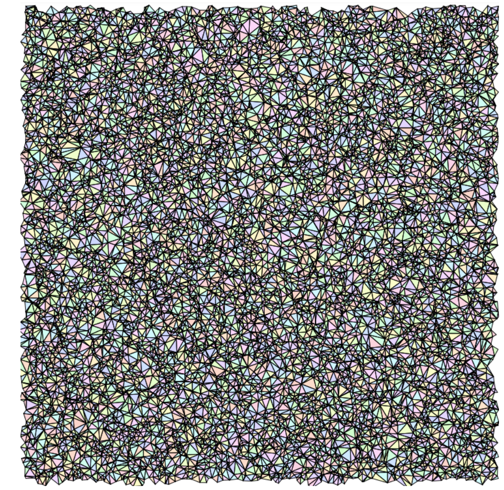


Shane Scaggs (b. 1989)
Lotka-Volterra Music, 2024

R

To play this melody, a chaotic system is created from a 4x4 matrix using the Generalized Lotka-Volterra model. Two of these chaotic oscilators are then mapped onto a two octave scale of notes using the {datagoboop} package in R.

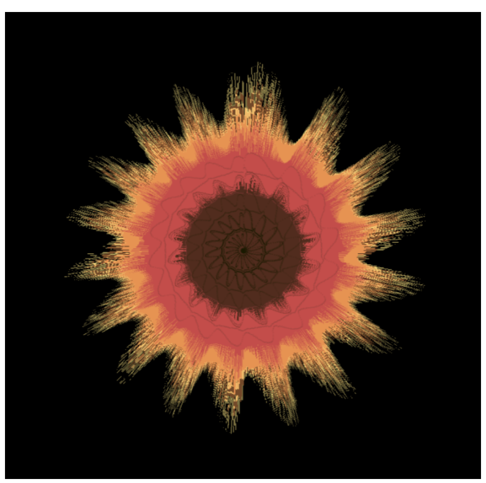




Adam Becker (b. 1984)
Triangulation I & II, 2009

Mathematica

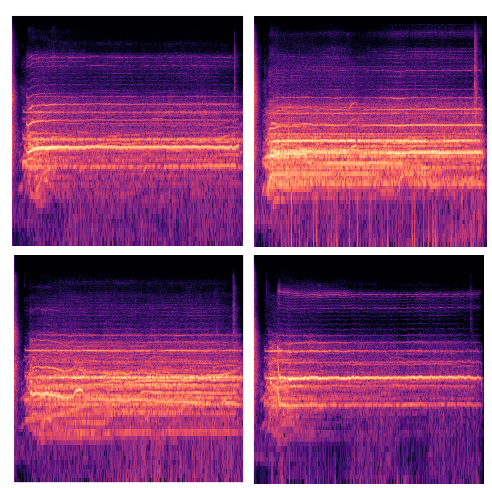
These images are the Delaunay network (the dual to the Voronoi network) for a set of random points on a torus: 600 points for Triangulation I, 10,000 points for Triangulation II. Note that opposite edges of both diagrams fit together, as the torus has been unrolled along both circumferences.



Shane Scaggs (b. 1989)
Lotka-Volterra Sunflower, 2024

R

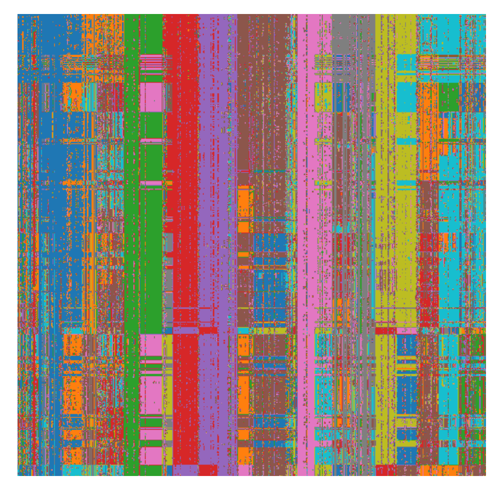
The radial pattern is generated by first defining a pair of oscillators using a Lotka-Volterra system. The states of these oscillators are repeatedly rescaled. At each new scale, Gaussian noise is added and then the points and lines at that scale are colored along a gradient.



CSSS24 (b. 2024)
Harmony, 2024

Spectrogram of vocal performance

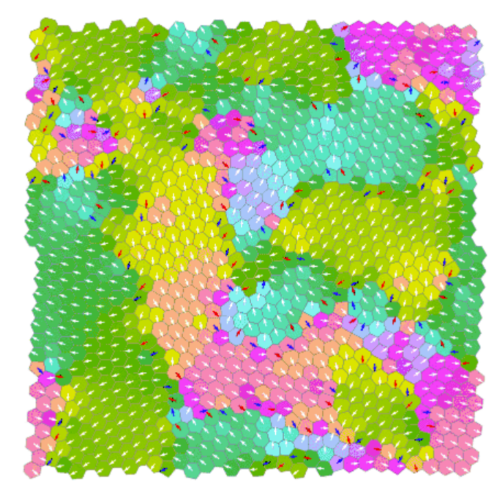
Spectral representations of the voices of four CSSS 2024 participants during a collective experiment to converge to the same tone. The frequency (pitch) is plotted vertically while time is horizontal.



Max Jerdee (b. 1998)
Community?, 2024

Python, C++

Each column of this pixel grid represents a high school student. The colors represent possible friend groups among these students, inferred from friendship data. Each row is a possible structure, representing ambiguity in our group divisions.



Sungyeon Hong (b. 1991)
Ordering Transition via Lloyd Process, 2024

Python

Given a point pattern, Lloyd's algorithm considers its Voronoi tessellation to iteratively replace every point by the centroid of the associated Voronoi cell, resulting in the development of hexagonal domains (grouped by similar colors) with aligned cell orientations (vectors, colored by cell type).