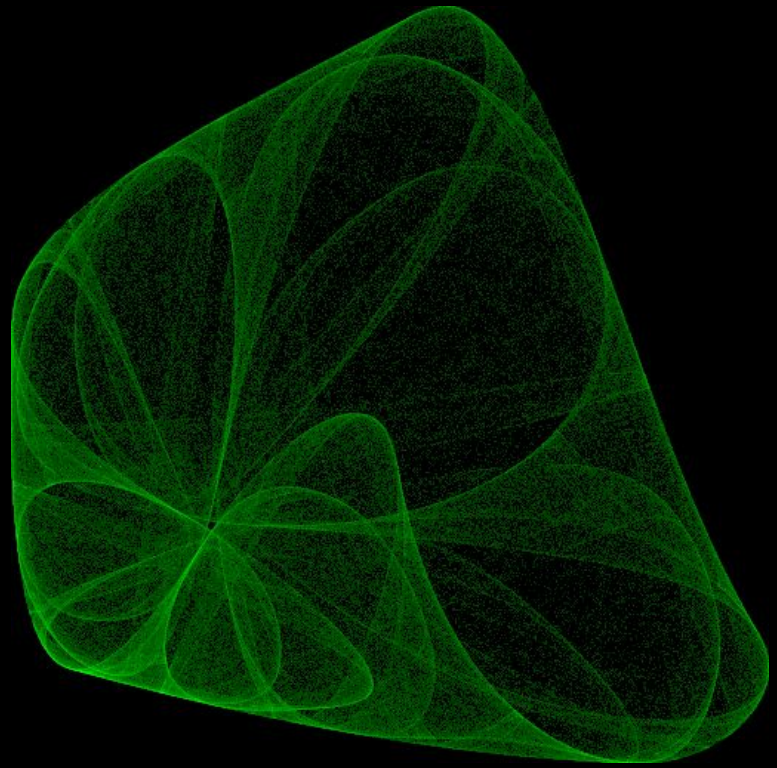
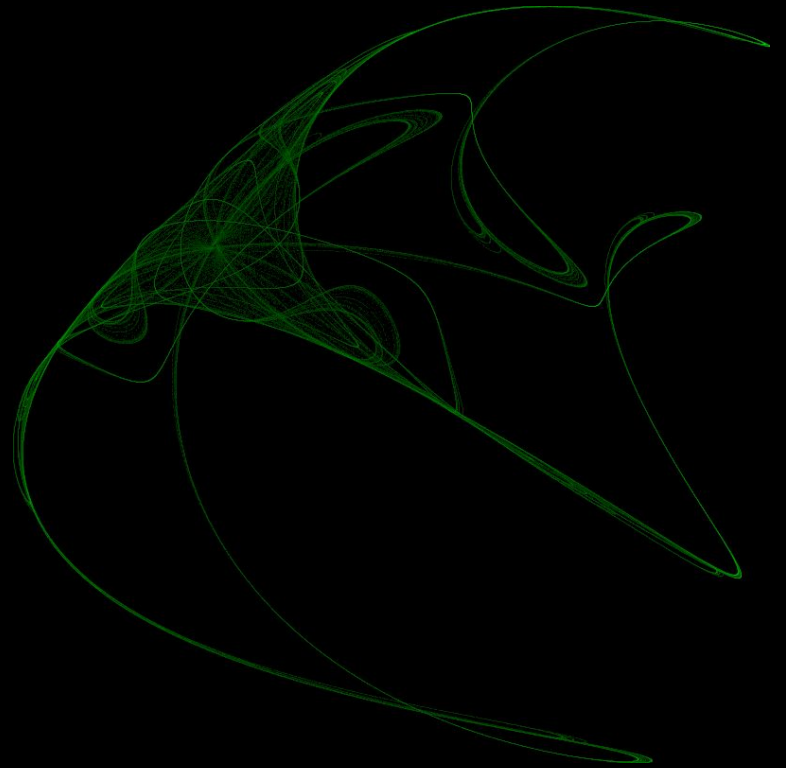
DADA Science: Machine Ignorance





https://github.com/augeas/quadrat augeas@eleusis.social

Automatic Generation of Strange Attractors

J.C. Sprott Comput. & Graphics 17, 325-332 (1993)
https://sprott.physics.wisc.edu/pubs/PAPER203.HTM

$$x_{n+1} = a_1 + a_2 x_n + a_3 x_n^2 + a_4 x_n y_n + a_5 y_n + a_6 y_n^2$$

$$y_{n+1} = a_7 + a_8 x_n + a_9 x_n^2 + a_{10} x_n y_n + a_{11} y_n + a_{12} y_n^2$$

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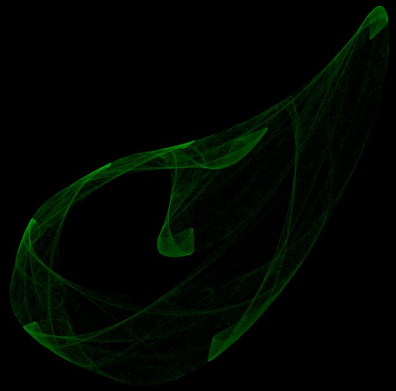
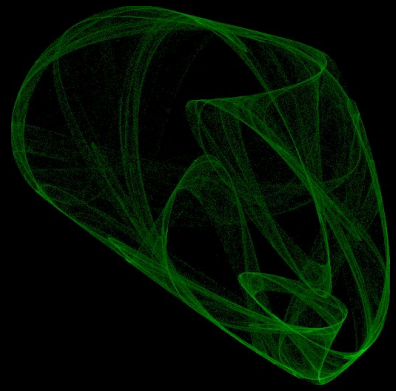
To Iterate is Human, to Vectorize is Divine

$$P_{n+1} = B + CV_n$$

$$P_{n+1} = \begin{bmatrix} x_n + 1 \\ y_n + 1 \end{bmatrix}, B = \begin{bmatrix} a_1 \\ a_7 \end{bmatrix}, C = \begin{bmatrix} a_2 & a_3 & a_4 & a_5 & a_6 \\ a_8 & a_9 & a_{10} & a_{11} & a_{12} \end{bmatrix}$$



$$V_n = \begin{bmatrix} x_n \\ x_n^2 \\ x_n y_n \\ y_n \\ y_n^2 \end{bmatrix}$$



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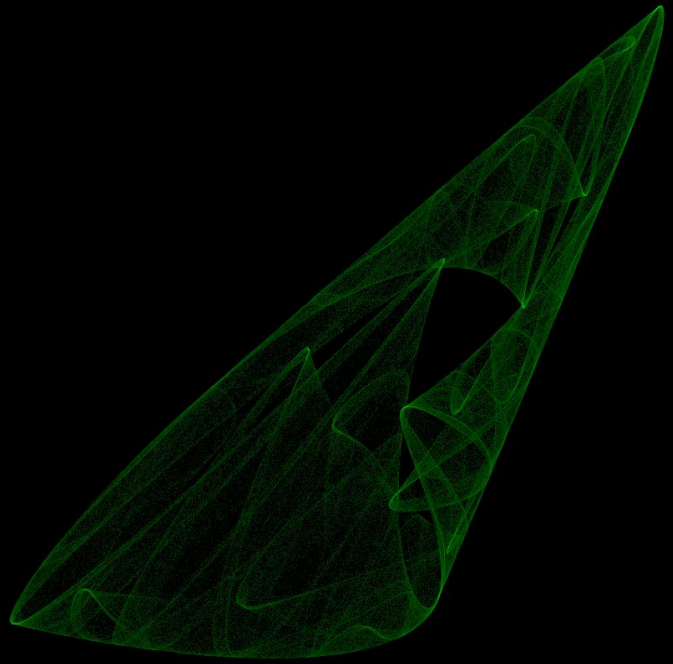
What’s in a name?

26 possible values of the coefficients, -1.2 to 1.2 in intervals of 0.1.
Random coefficients evaluated by:
* Lyapunov exponent
* Correlation dimension



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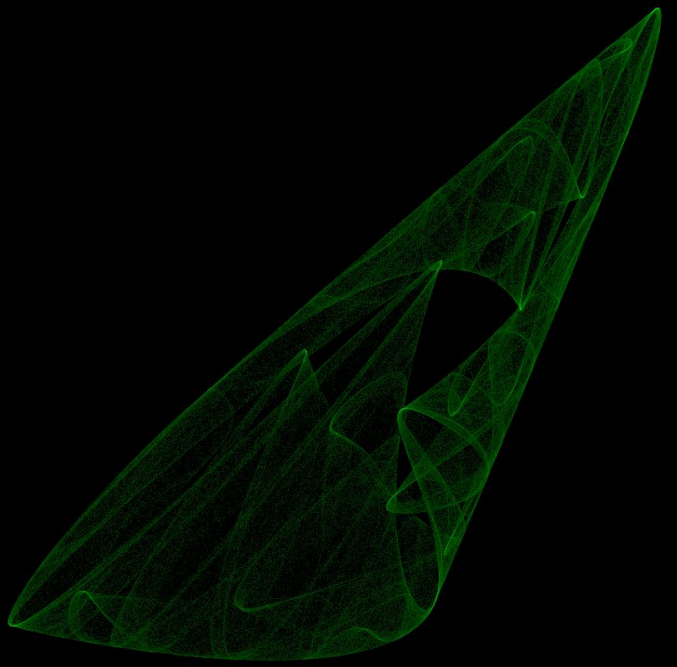
As They Should Sound

For each point in the attractor:
* row → real part of spectrum
* column → imaginary part of spectrum

(other way round in the other channel)
* Inverse Short-Time Fourier Transform
* Multiply signal by a window function
* Overlap segements and sum them.



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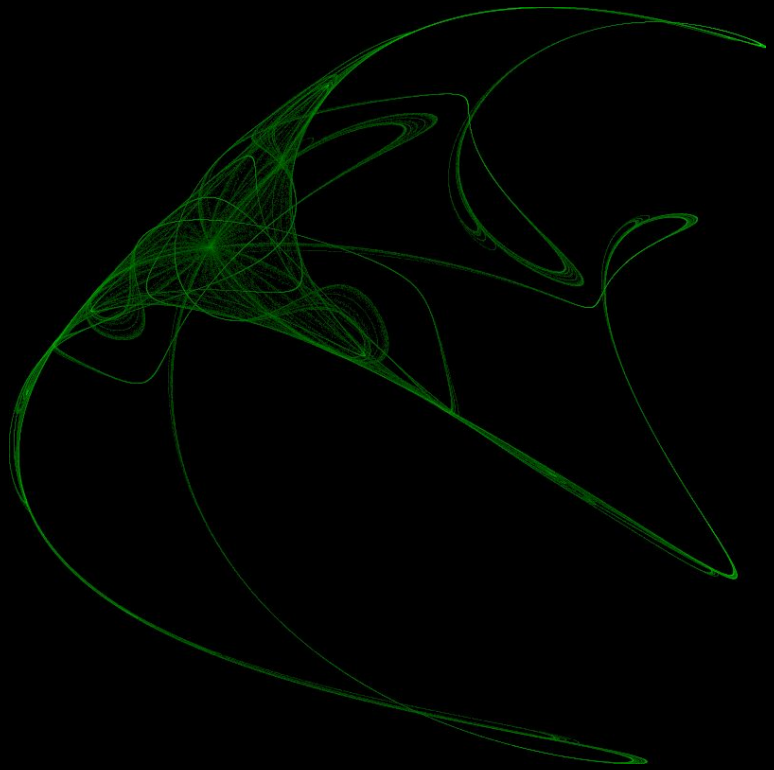
Got to teach and everything you learn

The sound of each point in time is determined by the distribution of all the other points, as if they already existed.

Will point to the fact that time is eternal

https://youtu.be/HDsCeC6f0zc?si=EW0L16UeBuXfRgcY

Can I move? I’m better when I move.



IJGVCSOXLHJT
Animating the attractors
Choose three coefficients.
Rotate them around a random axis.
Are the images still aesthetic?
If not, try again.
Rotate full-circle, create a loop.

https://www.youtube.com/shorts/yEmxSySZnWg