Chaos in stb

C library that simulates many fractals and attractors. You can generate them into terminal as ASCII art or into image rendered using stb library.

Cantor set

- [ ] Available in ASCII
- [ ] Available in stb

Sierpiński carpet

- [x] Available in ASCII
- [x] Available in stb

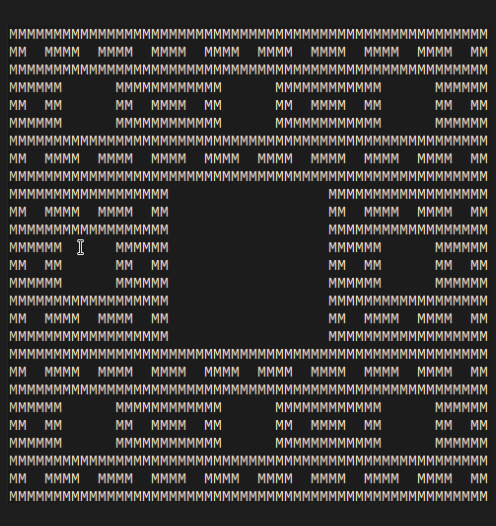
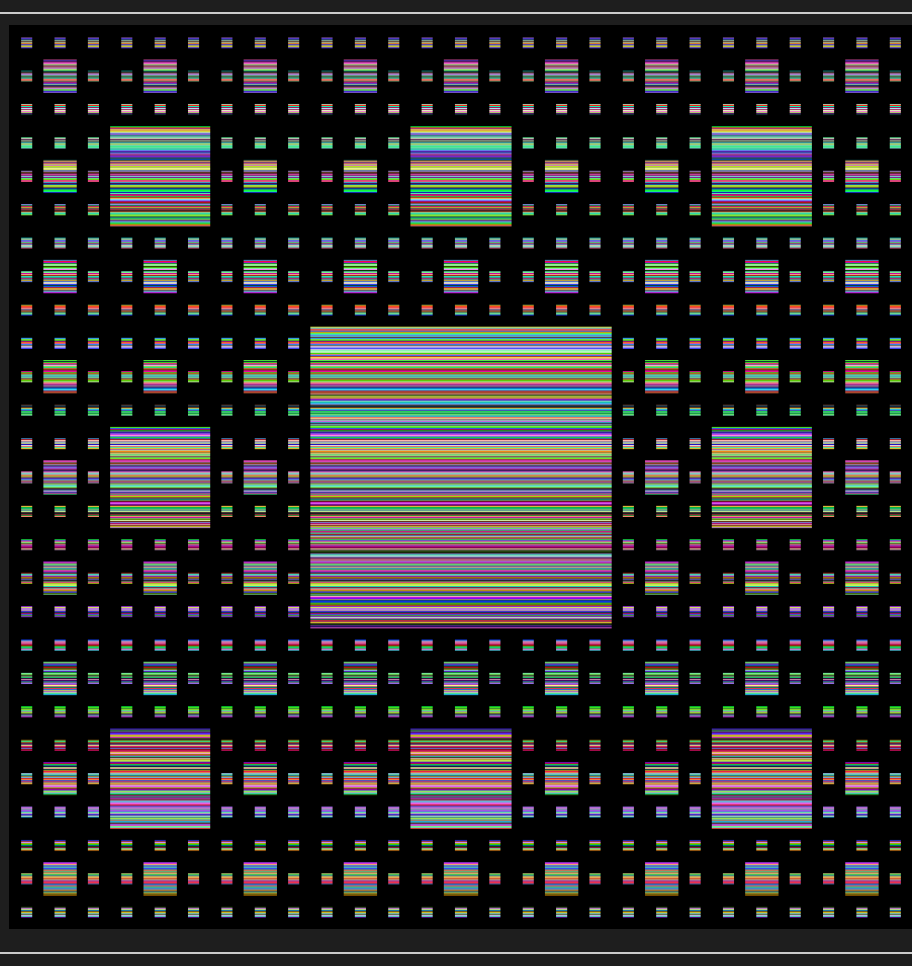
A Sierpiński carpet is a fractal formed by recursively removing squares from a surface. It is named after its founder, the Polish mathematician Wacław Sierpiński, who described it in 1916.

This fractal is a generalization of Cantor's set into two dimensions.

It is obtained by removing $\frac{1}{9}$ of the content from the square, and removing $\frac{1}{9}$ of their original content from the remaining 8 parts, each of which has $\frac{1}{9}$ of their content again in the same way. This procedure is repeated indefinitely. Again, it is easy to compute the area of a Sierpiński carpet that converges to zero.

The math proof: $1 - \sum_{n=0}^{\infty} \frac{8^n}{9^{n+1}} \implies a_1 = \frac{1}{9}, q = \frac{8}{9} \implies 1 - s = \frac{\frac{1}{9}}{1-\frac{8}{9}} = 1 - 1 = 0$

The Sierpiński carpet has a fractal (Hausdorff) dimension equal to $\frac{log(8)}{log(3)} \approx 1.8928\ldots$.

ASCII	stb
	

Sierpiński triangle

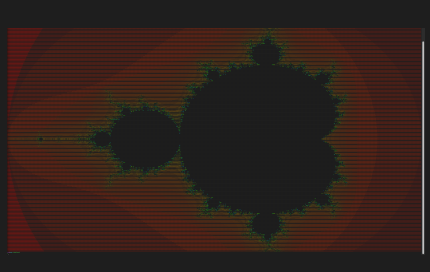
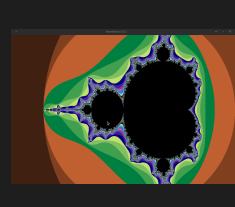
- [ ] Available in ASCII
- [ ] Available in stb

Lonentz attractor

- [ ] Available in ASCII
- [ ] Available in stb

Mandelbrot set

- [x] Available in ASCII
- [x] Available in stb
- [x] Available in SDL

ASCII	stb	SDL
		

Koch snowflake

- [ ] Available in ASCII
- [ ] Available in stb

Barnsley fern

- [ ] Available in ASCII
- [ ] Available in stb

Bifurcation graph

- [ ] Available in ASCII
- [ ] Available in stb

TODO

- [ ] ASCII User interface
- [ ] Cantor set
  - [ ] ASCII
  - [ ] stb
- [x] Sierpinski carpet
  - [x] ASCII
  - [x] stb
- [ ] Sierpinski triangle
  - [ ] ASCII
  - [ ] stb
- [ ] Lonentz attractor
  - [ ] ASCII
  - [ ] stb
- [x] Mandelbrot set
  - [x] ASCII
  - [x] stb
  - [x] SDL
- [ ] Koch snowflake
  - [ ] ASCII
  - [ ] stb
- [ ] Barnsley fern
  - [ ] ASCII
  - [ ] stb
- [ ] Bifurcation graph
  - [ ] ASCII
  - [ ] stb