



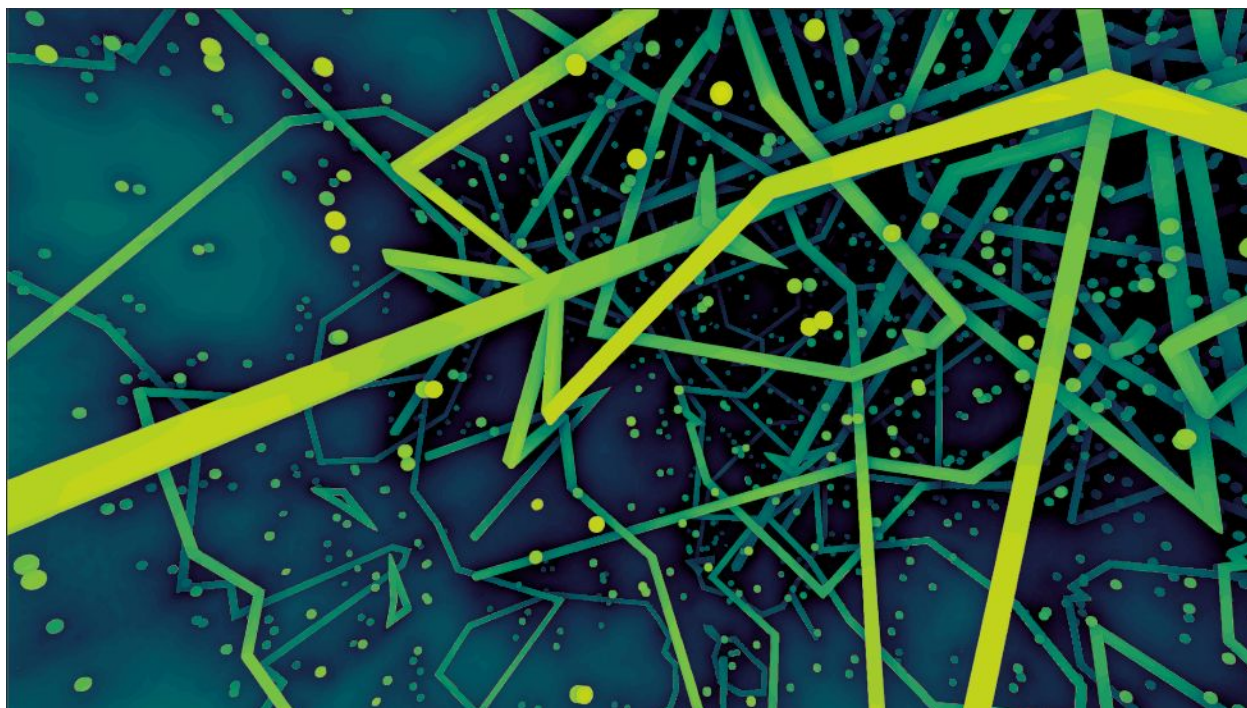
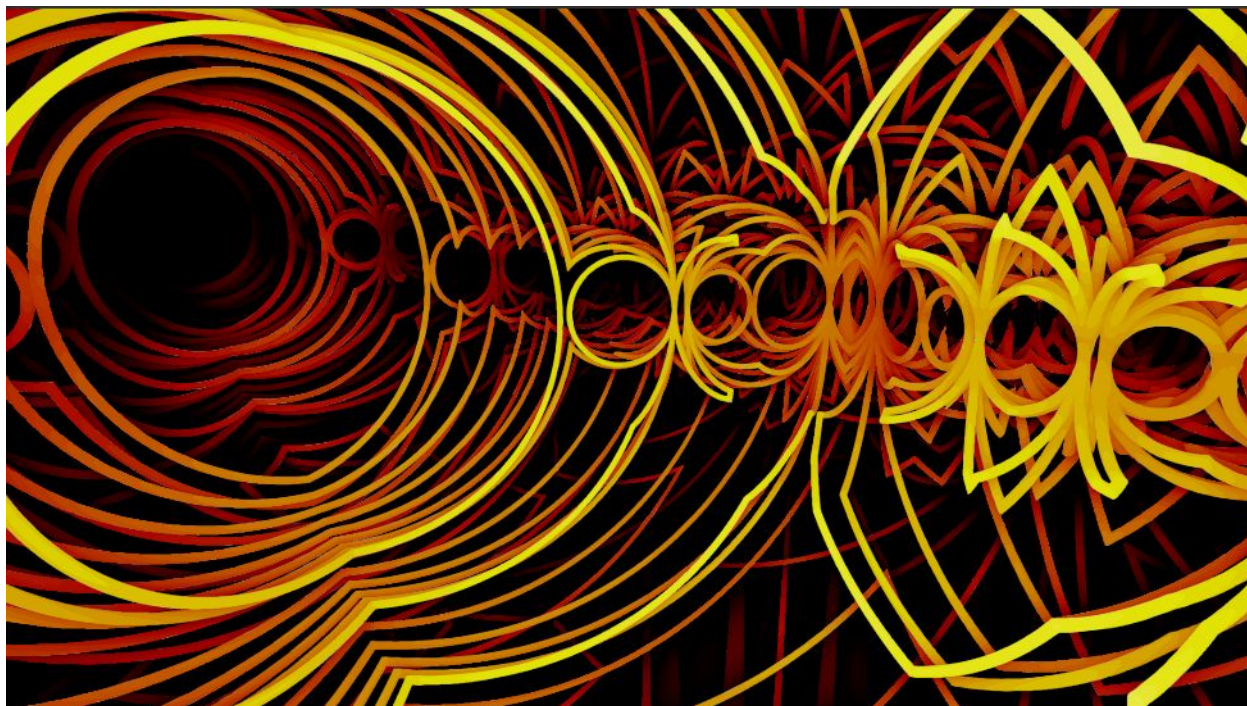
0  
2017

sheltron.co

FORM 0.0 8 June

# FORM 0.0 beta

Fractal Visualizer





1  
2017

sheltron.co

FORM 0.0 8 June

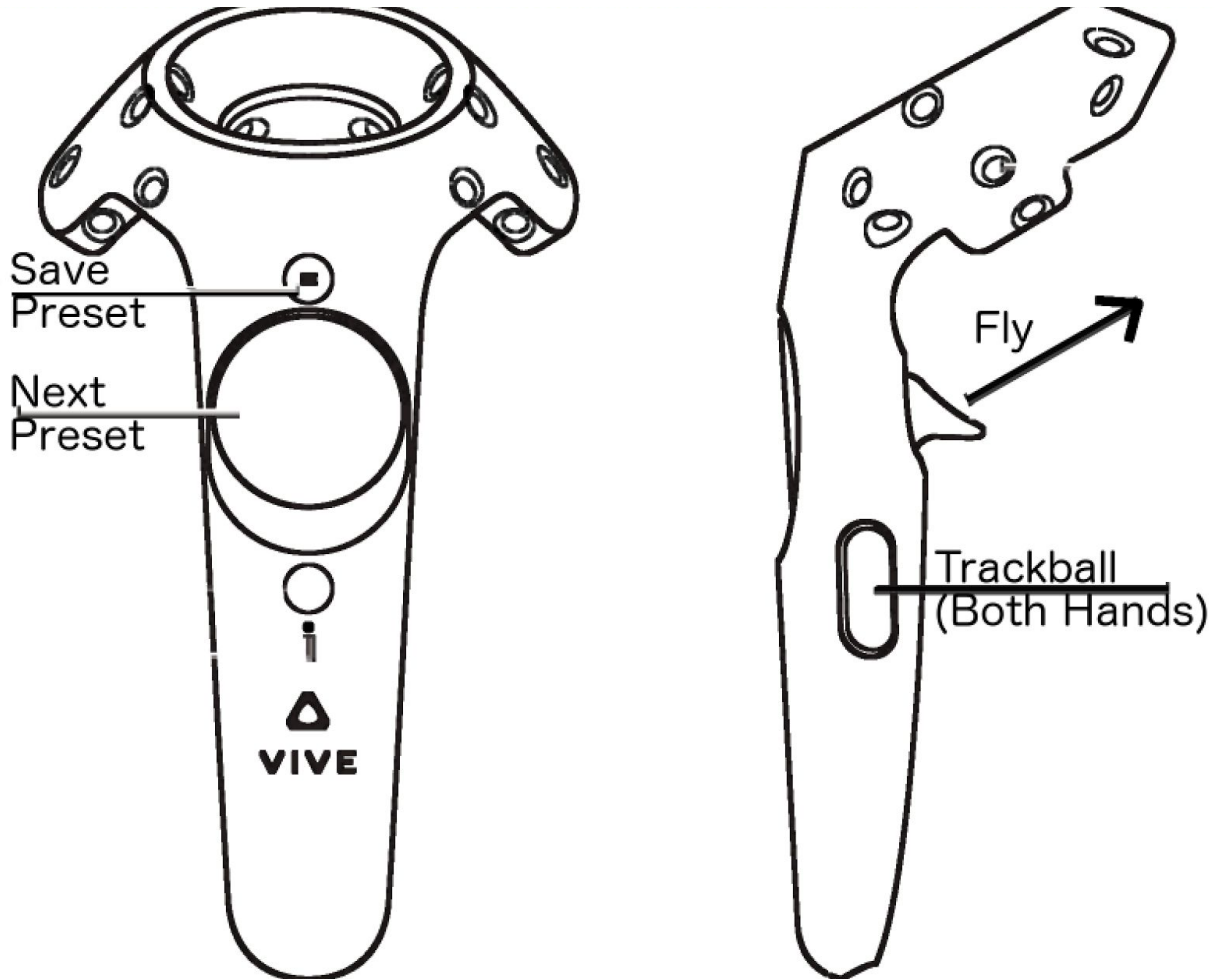
## Requirements

VR compatible graphics card, HTC Vive, SteamVR

## Running

[Download Here](#), Unzip, run FORM.exe

## Controls



## Installation Instructions:

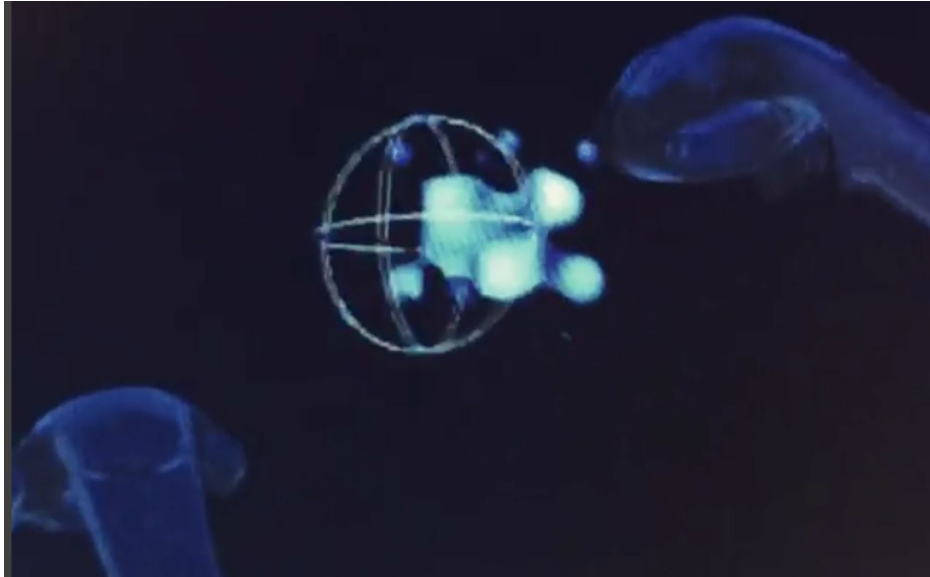
- Disable All Interactables: Using the on screen GUI click Disable Sliders button
- Use the trigger to fly (see flying below)
- If you get stuck, click the pad to go to the next preset



## Flying

- Trigger + Right hand = Fly forward.
- Trigger + Left Hand = Fly Backward.
- You can do both at once and not go anywhere.
- Controller orientation controls flying direction.
- The distance from the controller to head is the flying velocity.
  - Move your hand closer to your face to go slower, reach out to go faster.

## Trackball Manipulation



This is a common form of 3D manipulation on 2D screens. In VR it is slightly different, and will take some getting used to but it's probably worth it because it's awesome.

- hold the grip buttons on both hands simultaneously.
- The midpoint between the hands is the center of the trackball.
- While gripping:
  - To **Translate**: Move both hands in the same direction
  - To **Scale**: Increase or decrease the distance between hands
  - To **Rotate**: Grip Points rotate around the trackball center



## Advanced Controls

Onscreen GUI toggles these two features:

**Sliders** - using [NewtonVR](#) for interactions, there are some sliders to manipulate fractal parameters. These can accidentally be clicked while using the trackball, and are very sensitive.

**3D Boxes** - The position and rotation of the gray and white box controls some parameters of the fractal. This is under development. Having these visible will override the preset when it is loaded, so it's better to keep this hidden with the onscreen button.

In a public scenario the advanced controls should be disabled.

## Common Pitfalls

**Zooming in too far:** Zooming is awesome, but must be done carefully. You can zoom into the wrong spot, and totally change the scale of the world and then you won't be able to go anywhere. There is LOD in the renderer that will make things further away less detailed. If you zoom in too far, everything will disappear.

## Known Issues

Working on these

**Squashed Worlds:** Some presets are corrupted (because quaternions). So if there is a world that looks very distorted and flattened, just skip to the next one. Or check it out if you want.

**Inconsistent Scales:** polygon geometry (controllers, sliders, ui) is rendered at a different scale than the fractal, so they don't composite correctly.





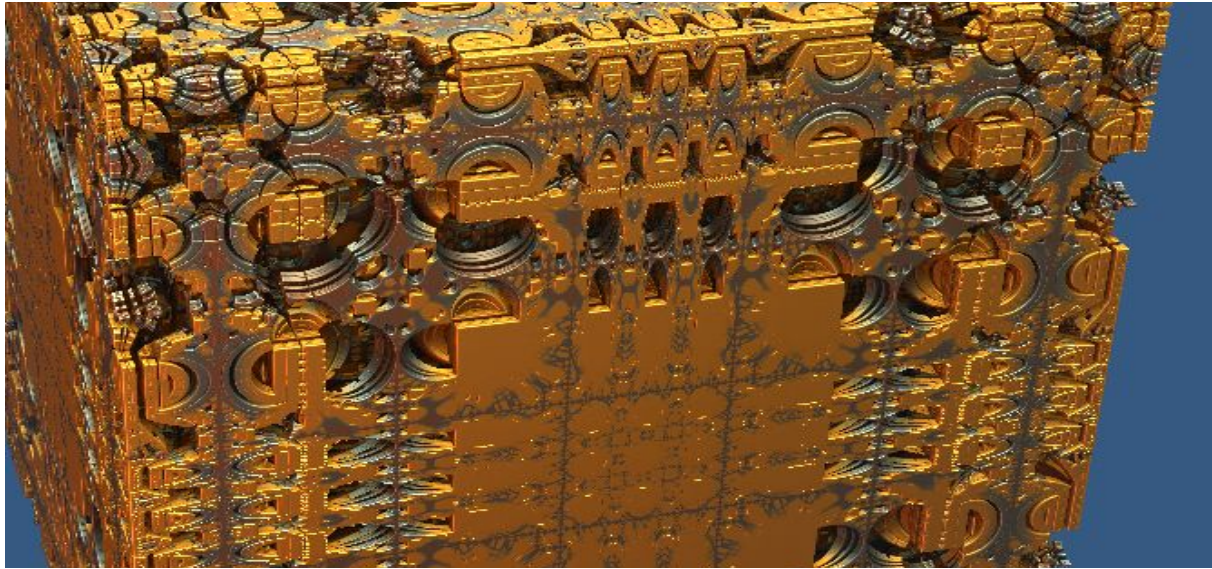
4  
2017

sheltron.co

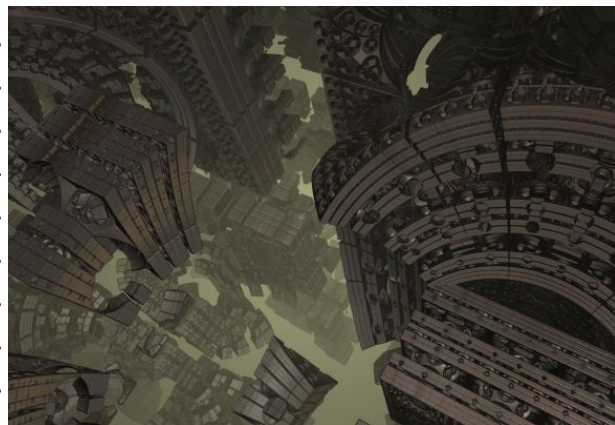
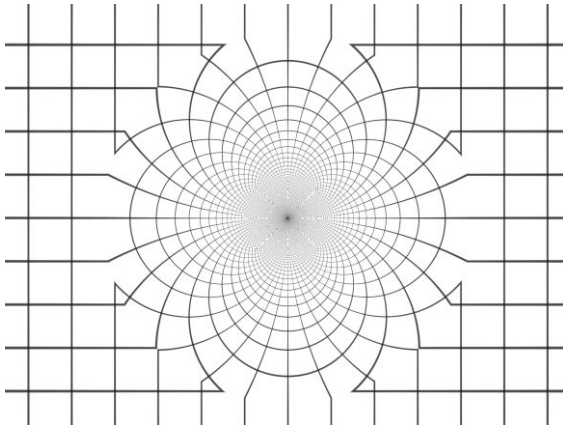
FORM 0.0 8 June

## About the Fractals

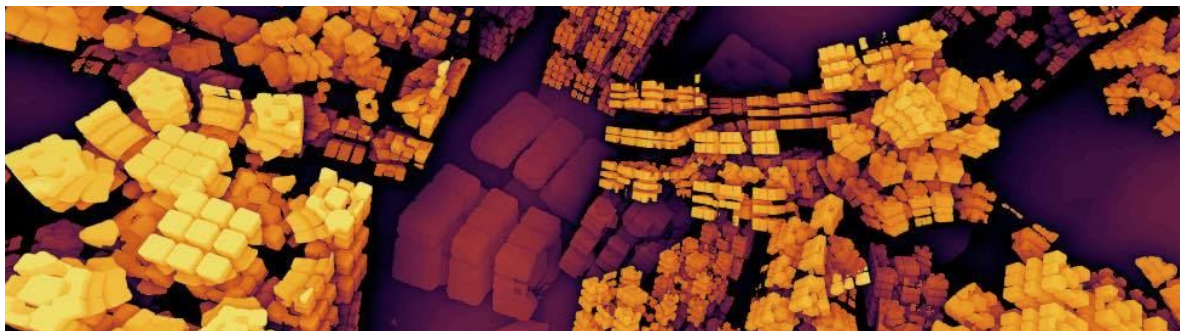
Mandelbox (`_FractalType = 0.0`)



[Wikipedia](#)



[Syntopia](#)





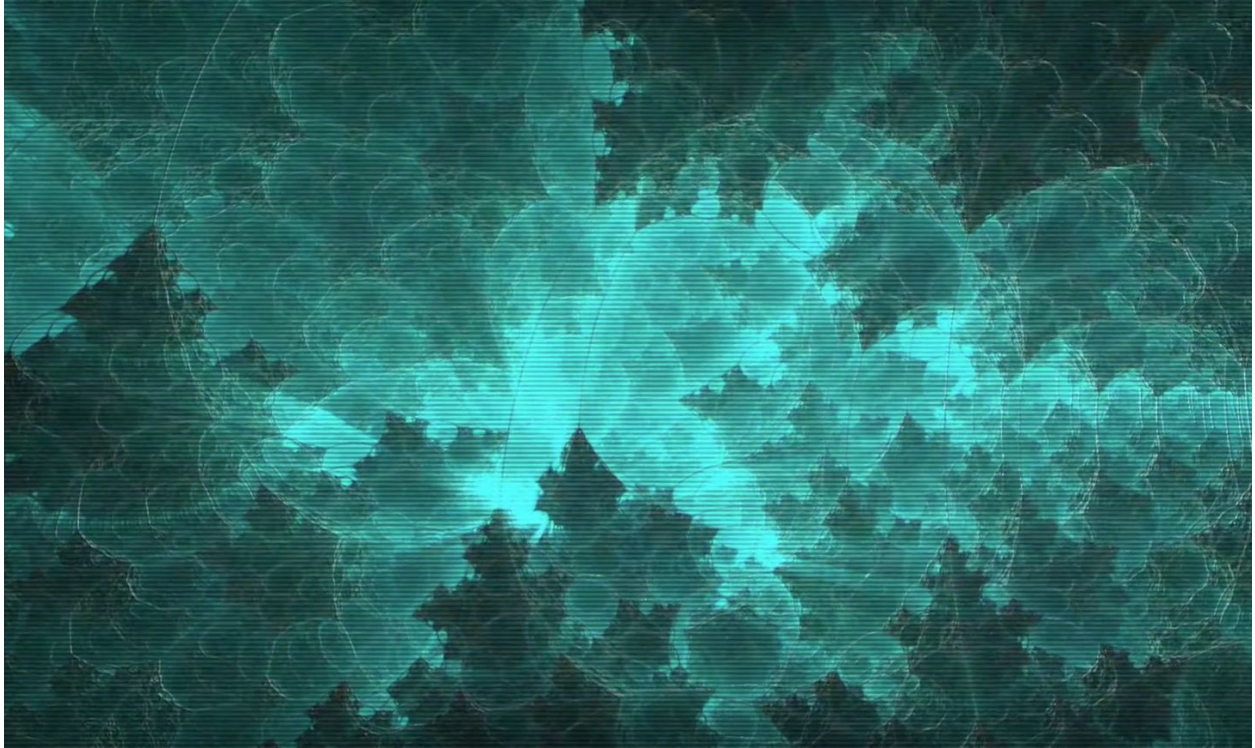


5  
2017

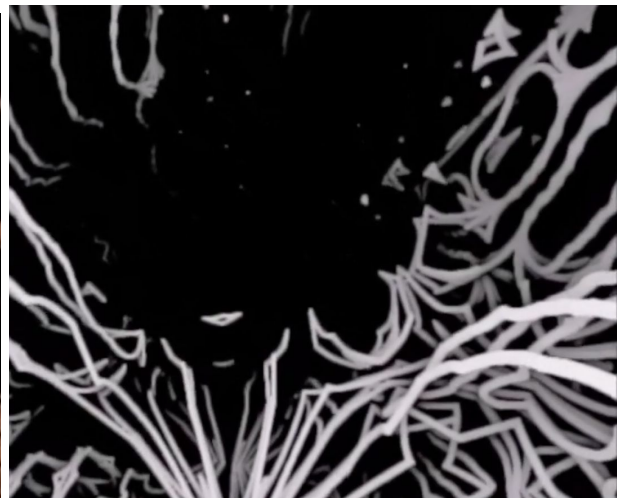
sheltron.co

FORM 0.0 8 June

Hartverdrahtet [Video](#) (`_FractalType = 0.5`)



Straight out of this sick [demo...](#) Found this [code](#) which I still don't understand but produces many interesting variants that are not seen in the original demo like:





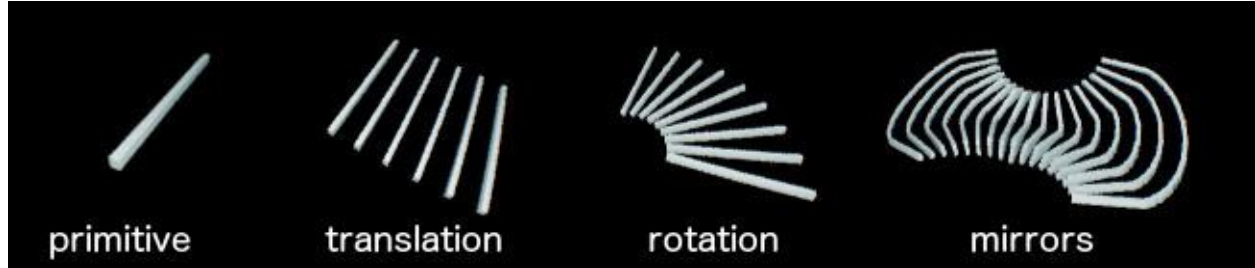
6  
2017

sheltron.co

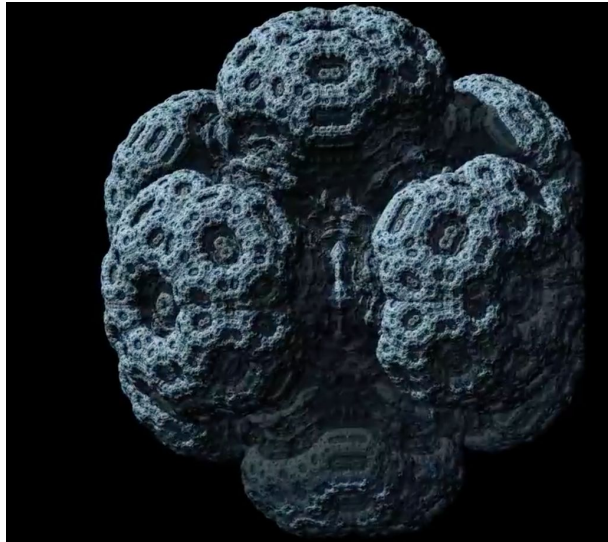
FORM 0.0 8 June

## Kaleidoscopic IFS(<sub>FractalType</sub> = 1.0)

I like using long skinnies for primitives instead spheres:



Sphere based:



[Knighty // Fractal Forums](#)

[iq // Shadertoy](#)



long skinnies from [Levels](#)





7  
2017

sheltron.co

FORM 0.0 8 June

## Rendering

**Coloring** - The renderer colors based on iteration count only, indexing into a color map. Some of my favorites (with more info) can be found here: <https://bids.github.io/colormap/>



[Source](#)