

Recursia

An Exploration in Computer-Generated Fractal Geometry

By Zoe Allgaier

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I align myself with the chaos and blackness
from which Nature itself spills forth.
I am but a vessel for Novelty and abstraction.

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Recursia

Recursia is an exploration in digitally created fractal geometry, used as a visual representation of the soul.

In my first art series – Metalheart – I learned how to create complicated digital graphics using metallic shapes, grids, and textures. The look and feel of Metalheart was inspired by the art style of the same name, originally created in 1998. While doing research to improve the series stylistically, I discovered fractal art and learned how to create fractals as image files, using specific software. In Liquid Geometry, and Depthcore (designs in the Metalheart Series), I used a fractal as the base layer of each design. As I continued incorporating fractals into designs for Metalheart, I began to feel an affinity for the raw images of the fractals. I felt the need to focus on this single aspect of the art I was doing, to embrace fractal images as its own style. Not only was I intrigued by how fractals look, but also what they have come to represent after learning about the math that makes them possible to visualize. So, I've created this art series, dubbed Recursia.

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“A fractal is a never-ending pattern. Fractals are infinitely complex patterns that are self-similar across different scales. Driven by recursion, fractals are images of dynamic systems – the pictures of Chaos.”

– *The Fractal Foundation*

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History

Historically unprecedented developments in digital computing and graphics have allowed for scientists, mathematicians, and artists to create and understand fractals in new ways. When mathematician Benoit Mandelbrot first gained access to IBM computers in 1980, it allowed him to create and display fractal geometry for the first time. He pioneered this new geometrical discovery and this led to the discovery of the Mandelbrot set, arguably the most influential and popular visual in fractal geometry. But fractals aren't just pretty pictures – the discovery and implementation of fractals has led to incredible developments in physics, engineering computing, and art (to name a few).

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Where does the air end and your breath begin?
Let your breath become wind.
Your body, earth
Your mind, sky
Your soul, the sun's warmth.

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The Creative Process

How I discovered fractals (specifics)

Fractals are generated by a specific type of math, so specialized software is required to create a fractal. There are a few options scattered through the web, but only one I've found suits my personal style. Using the software I set parameters for the mathematical style of fractal, adjust the position and rotation (because they are generated in 3D space), and continue to make edits until it looks aesthetically pleasing. Once I'm happy with it, it gets rendered as an image or a video file.

If the fractal is saved as a graphic, I import it into Photoshop where I edit colors and contrast, add layers, and crop. If the fractal is saved as a video file, I use the same process, but in Adobe Premiere Pro. I do this because, on their own, the original fractal exports aren't as visually cohesive as they could be. Also, I'm a perfectionist.

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Author's Note

I've lived many lives, personally. I have lived as male and female, artist and muse, religious and atheist. The common denominator throughout my lives has been this – I strive to live as an artist. I firmly believe that the label of “Designer” isn't just a job title – it's a way of being that allows me to embody, discover and share art and beauty in every facet of being. I ache to understand the inherent design residing within existence. Further, I have an insatiable drive to create and share this with those around me, through my personal lens. As I've made this goal integral to my life, I've studied and meditated on the intersections of art and math, beauty and life. In doing so I've seen brief moments in which the language we use to describe and symbolize the world around us evaporates. All that is left is connection, love, understanding. Empathy for life itself in its diverse forms. Without labeling anatomy, what's the difference between the moon, the ocean, a colony of ants, and I? Are we all not helplessly intertwined with one another?

Recursia is visually inspired by artwork and mathematical visuals from the late 90s and early 00s. Because this was a time of digital experimentation, artists felt they had more creative freedom to create works that might not have been necessarily “good,” but pushed the boundaries of what art is and represents. This phase of digital media has led to some of the most interesting visual styles that redefined what digital art is and what it could be. As a graphic designer, I'm interested in picking apart these trends and reforming them in my own personal style – the foundation of which is the lens of the Designer.

I became infatuated by fractal geometry because of what it represents, not just the way it looks. Fractals are everywhere, and they perfectly visualize the spiritual state in which I try to live. They are found in biology, math, science and more. They compose the branches of trees, the flow of galaxies, and our DNA. Fractals are reflections of reality, stripped down to the most fundamental patterns. Images of God. The math that makes these innovations possible is built-in to the fabric of life itself in its many forms. There is an inherent beauty within fractals because they are inextricably tied to the very structure of the universe herself.

– Zoe

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Amia Mea

October 17, 2024 at 6:24 PM

Anima Mea translated from Latin means “my soul.” Within this piece, I see my Self. I see the petals of a flower – reminding me how much I've blossomed as a person. The face of a snake – the

Chinese zodiac of the year in which I was born. Inherit symmetry – akin to my own anatomical symmetry. This was the first fractal I generated that stood out to me as something more than just a digital graphic.

Seraphim

October 23, 2024 at 10:26 PM

Historically, a Seraphim is described as an angel that guards the throne of God. A multitude of eyes, great and terrible wings – her form is incomprehensible to men. “Be not afraid,” she says. Her body, a flame, burning in celestial omnipotence. The Seraphim represents the very message that Fractals convey. A message, written in the language of the Universe – mathematics – that reads, “You and I are one. From dust you came and to dust you shall return. From your dead flesh, flowers will bloom. This is eternity.”

Venfica

October 16, 2024 at 10:16 PM

Fractals are visual accompaniments to the math that makes our reality. Within this reality there is lightness and darkness within all. Venfica translates to “a woman who poisons.” This piece represents the darkness that resides in all of us. The capability to do damage to those we love, despite never wanting to. The contradictory standard of life that is love and pain simultaneously existing within us all.

Algorithmica

October 24, 2024 at 5:14 PM

In this day and age, the algorithms rule us. The digital ether that has freed my mind has also ensnared me. An algorithm is merely a sociological reflection. A fractal-esque framework in which we view ourselves and one another, guised within the language of “technology” and “innovation.” Will we allow it to connect us all? Or will it transform us into something unrecognizable? Perhaps, both at the same time.

Similitude

November 14, 2024 at 9:40 PM

“I who have dwelt in a form unmatched with my desire, I whose flesh has become an assemblage of incongruous anatomical parts, I who achieve the similitude of a natural body only through an unnatural process, I offer you this warning: the Nature you bedevil me with is a lie. Do not trust it to protect you from what I represent, for it is a fabrication that cloaks the groundlessness of the privilege you seek to maintain for yourself at my expense. You are as constructed as me; the same anarchic Womb has birthed us both. I call upon you to investigate your nature as I have been compelled to confront mine. I challenge you to risk abjection and flourish as well as have I. Heed my words, and you may well discover the seams and sutures in yourself.”

– Susan Stryker

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I am a star
a dying star
a dead star.

The final collapse before the sun sputters into nothing.
I am nothing and you are nothing and the great devourer will make a real feast of us.

It's all meat.
It's all bone.
It's all blood.

I am a star
A dying star
A hungry star.

I have teeth.
I must eat.

You can see my light begin to implode.
I'm hungry.

I'm hungry.
I'm starving.

Blood.
Mouth.
Rot.
Teeth.

You will die.
And so will the sun.
And so will the moon.
So it's all for nothing.

It's all for nothing and your corpses will be stirred into time and paint splatter, bizarre and intricate and I love you the way everything loves everything and the mushrooms will decay you and it's all for something and the sun will watch you and I will watch you and it's all for —

I am a star.
A dying star.
I am you.