RECURSIA

An exploration of computer-generated fractal geometry,
as visual representation of the soul.

Zoe

Recursia

Introduction

Recursia is the second edition of my digital art series – an exploration of digitally created fractal geometry, used as a visual metaphor of the soul.

In my first digital 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/movement 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* (a composition in the Metalheart series), I used a fractal as the base layer of the design. As I continued incorporating fractals into designs for *Metalheart*, I began to feel an affinity for the raw images of the fractals. I became curious. I felt the need to focus on this single layer of the art I was making – to embrace fractals as their own style.
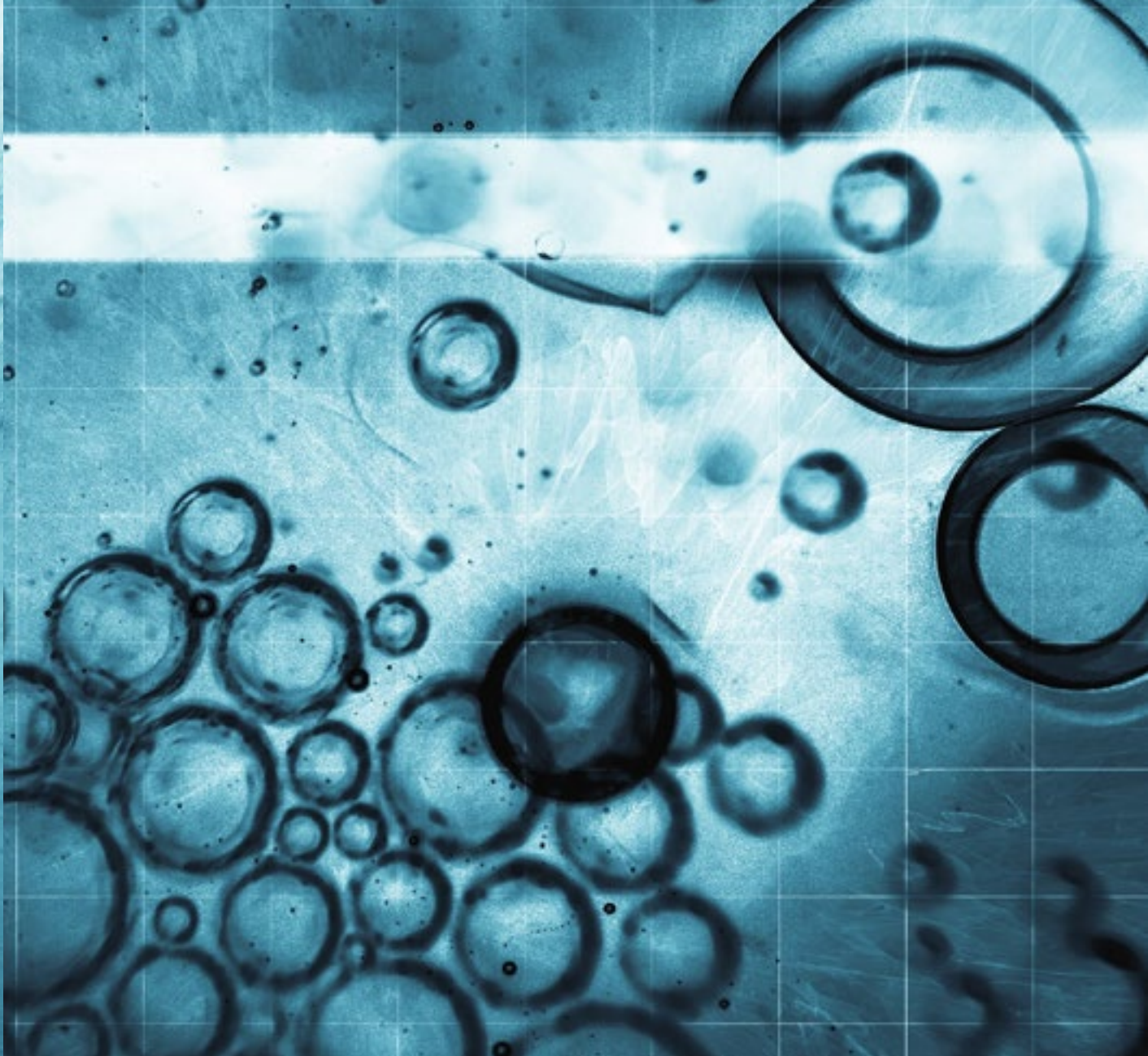
My goal is to explore visuals that are complex and unique. Graphics with meaning. I'm not interested in the usefulness of my graphics, my art has no motive; simply raw expression. I hope you enjoy reading this as much as I have enjoyed creating it. Thank you!
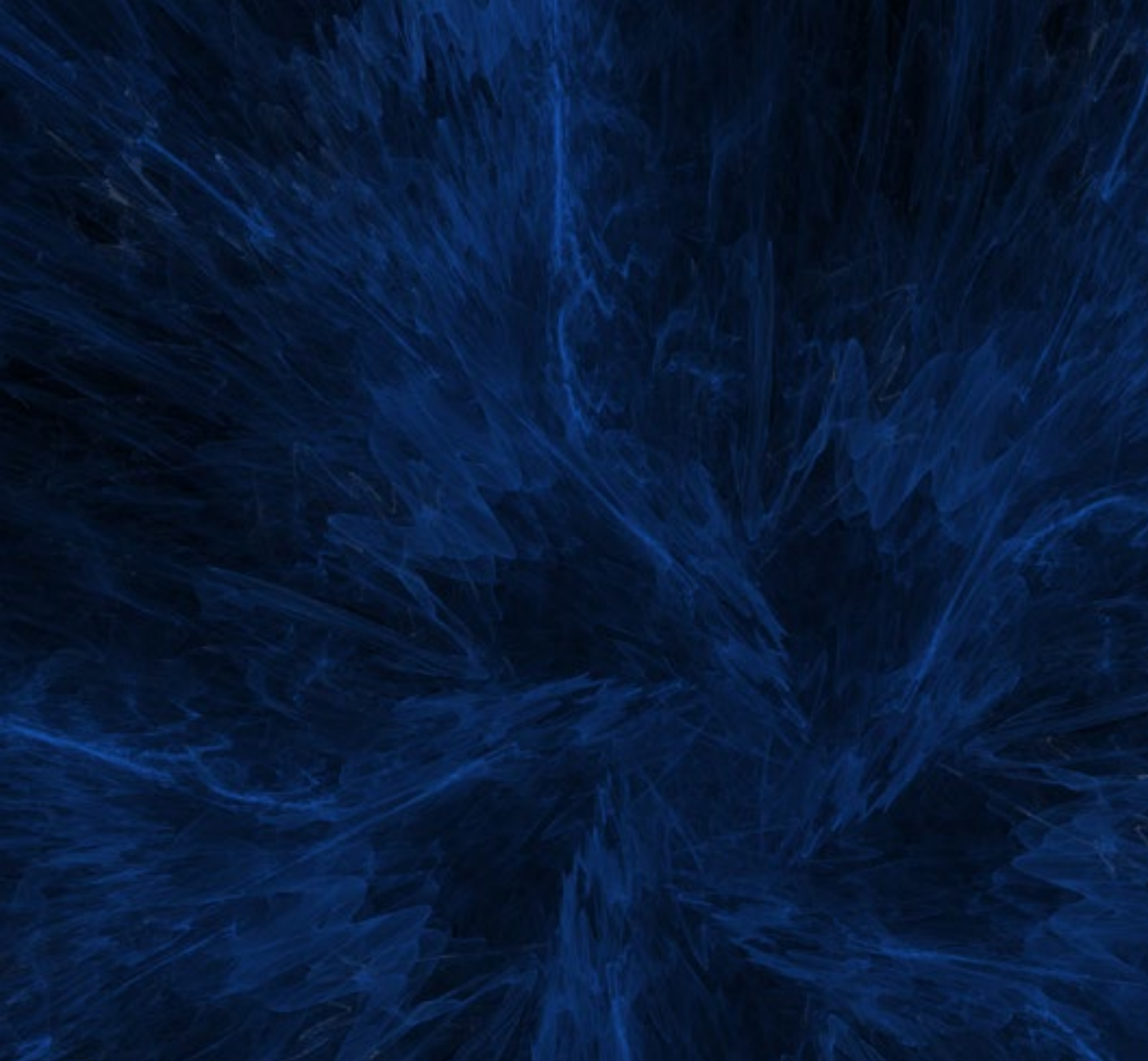
Original fractal

Edited fractal

Final *Metalheart* graphic – *Liquid Geometry*

What's a Fractal?

"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

A fractal is a visualization of math – the same math that structures life. Iterations of iterations. Simply put, fractals are shapes made of smaller versions of itself. 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 gained access to the first IBM computers in 1980, it allowed him to create and display fractal geometry for the very first time. We never had the computational power to visualize the structure of life, until then. He pioneered this geometrical discovery and this led to the *Mandelbrot set,* a two-dimensional visualization of a fractal. 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.
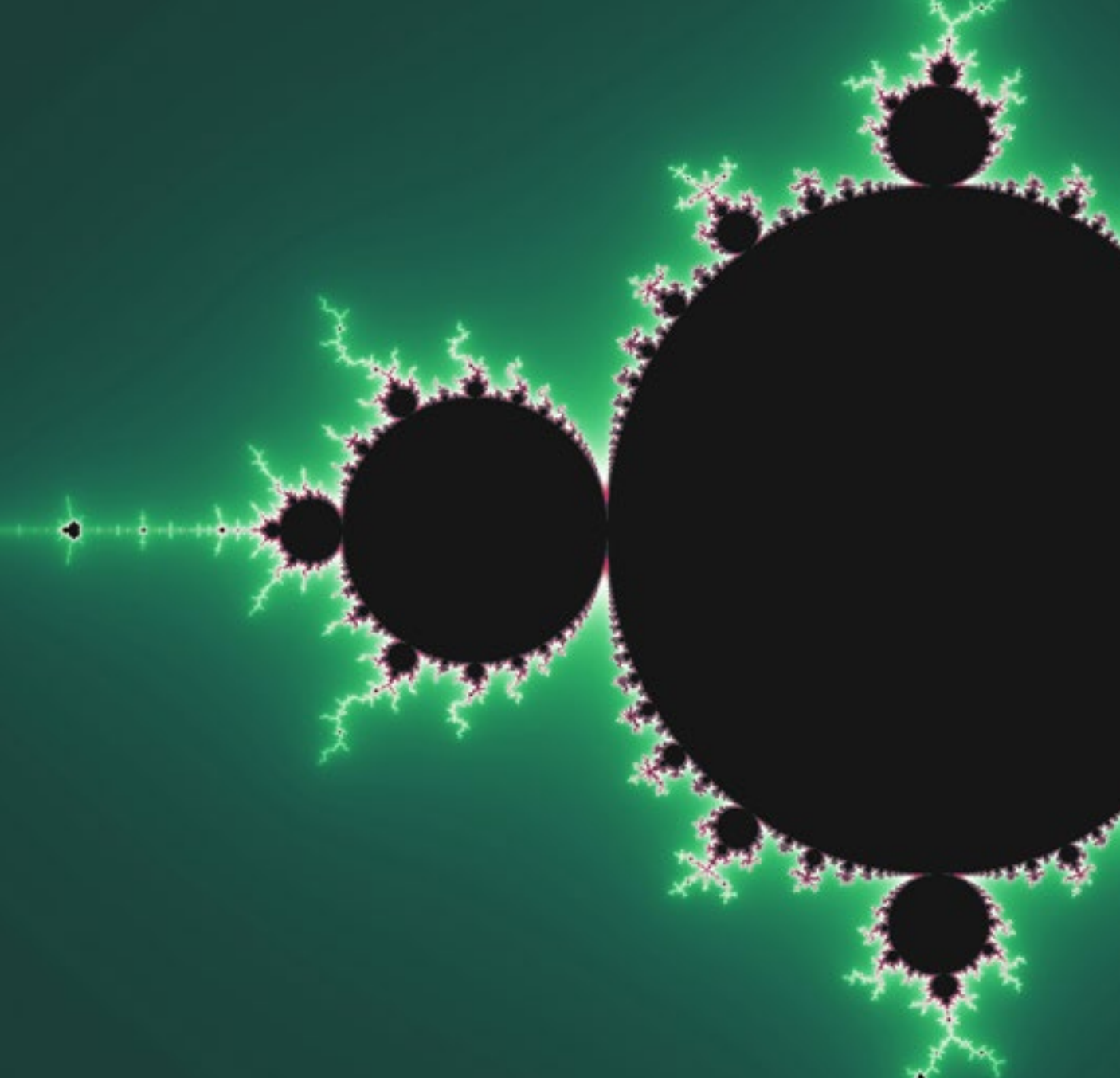
The Mandelbrot Set, a popular fractal
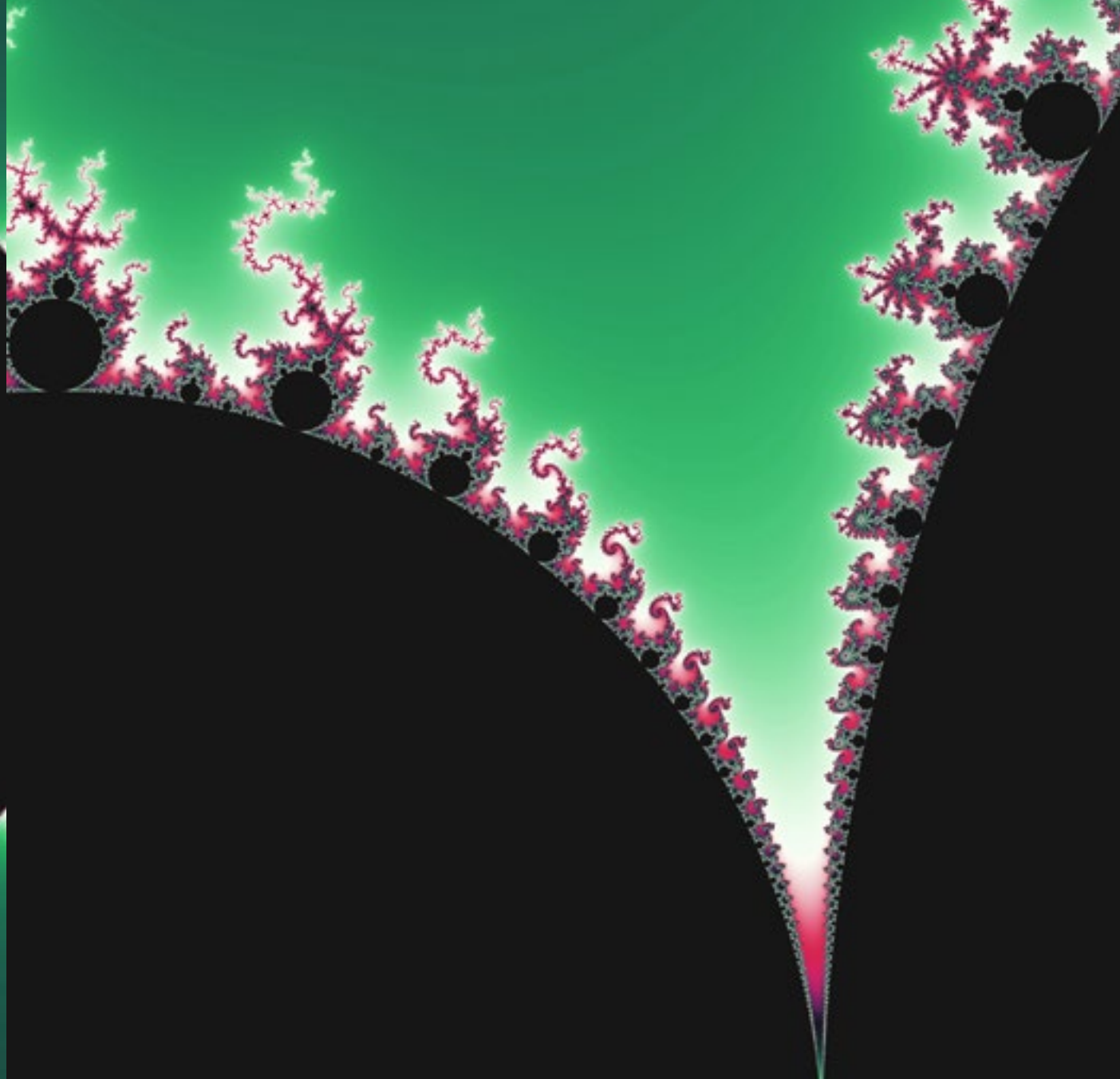


"Valley of Seahorses"
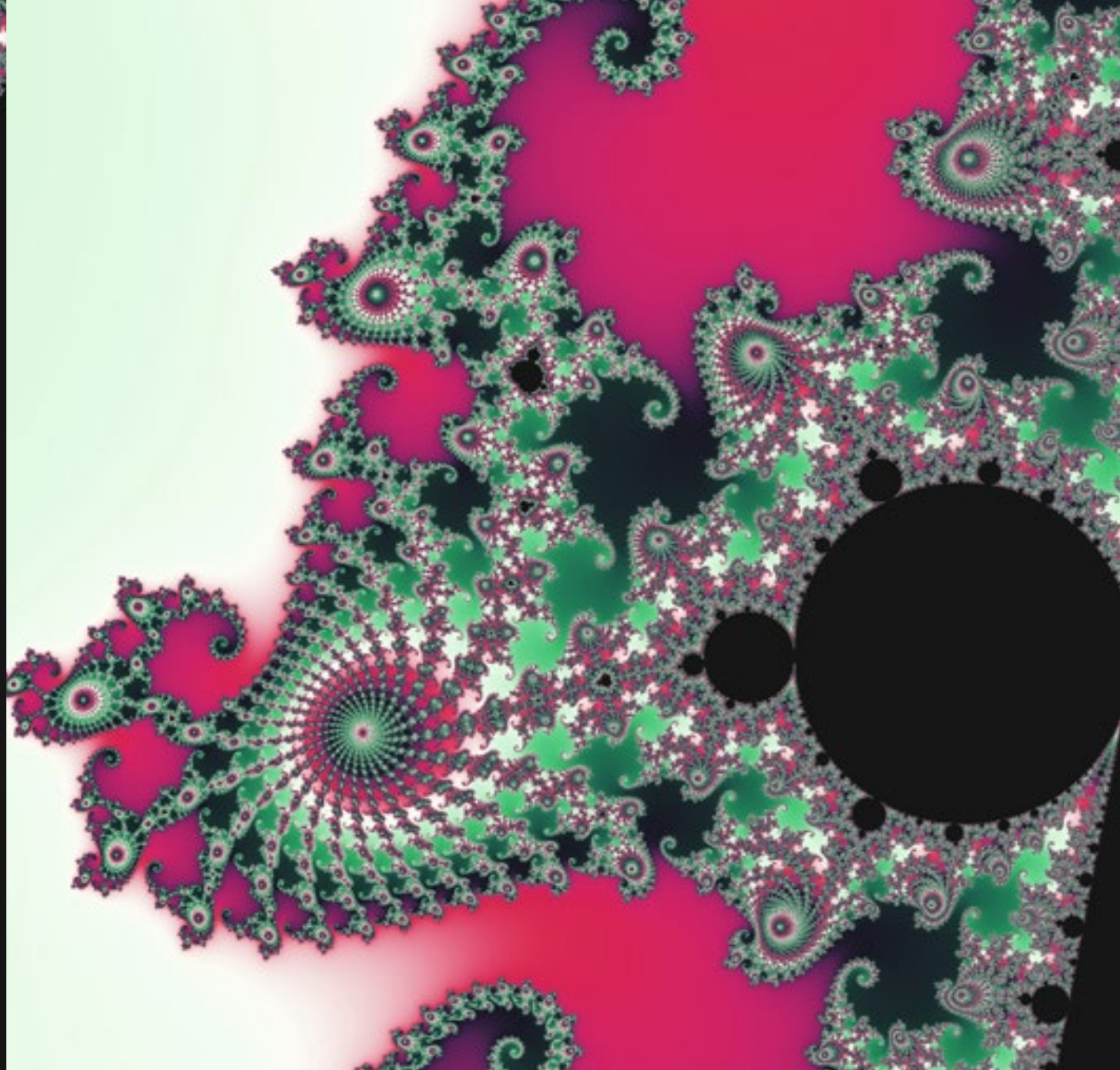
"Seahorse"

The Creative Process

Fractals are generated using specific math formulas, so specialized software is required to visualize a fractal. There are a few options scattered through the web, but only one – JWildfire – suits my personal style.

Using JWildfire, I set parameters for the mathematical style of fractal, adjust the position in 3D space, and continue to make edits until it looks aesthetically pleasing. The files are then saved as ".flames" – a file type that stores the algebraic data of the fractal. Once I'm content with it, the fractal gets rendered as an image or a video file.

If the fractal is saved as a still 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.
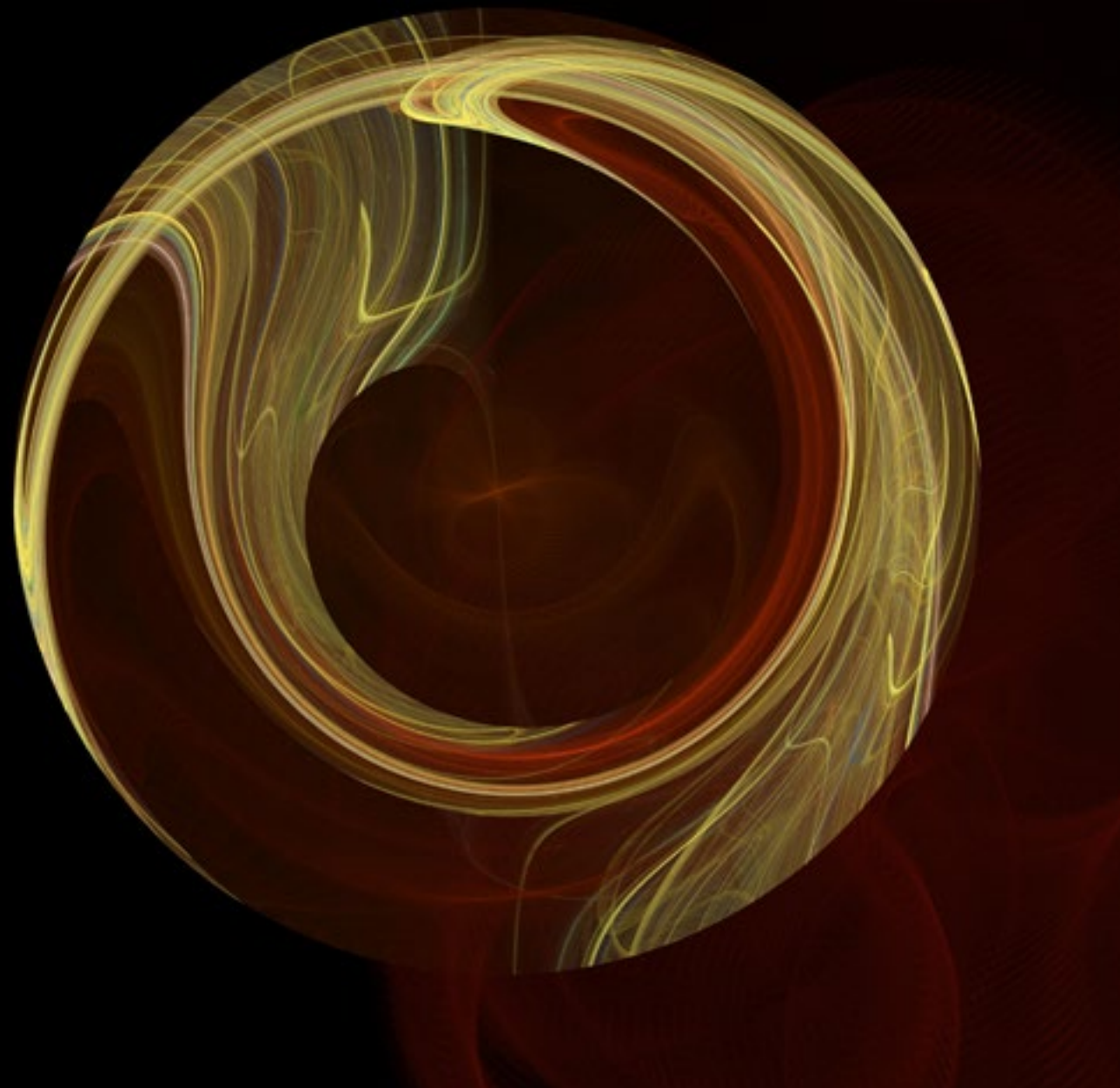
Original Fractal

Editing In Progress

Final Graphic – Algorithmica

Author's Note

At the time of writing I am 24 years old. Despite this – I strongly feel that I have lived many lives, both physically and spiritually. I have lived religiously (in more than one religion) as well as been an atheist. I have been capitalist and communist. I've sought a multitude of careers and interests. I have been a man, a woman and neither. I have dedicated entire periods of my life to spite and to love.

The common denominator throughout my lives has been this – I strive to live as an Artist. I exist to create. I firmly believe that the label of "Artist" isn't just a job title – it's a way of being that allows me to embody, discover and share the beauty I witness in every facet of being. I ache to understand the inherit design residing within existence. Further, I have an insatiable need to create and share this viewpoint, via art with those around me.

As I've made this goal integral to my life, I've studied and meditated on the intersections of art and math, beauty and science. In doing so I've experienced 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 the whole of life and its diverse forms. Without labeling anatomy, what's the difference between the sea and the sky? A woodpecker and the tree it carves into? You and I? Are we all not helplessly intertwined with one another?

Recursia is inspired by art 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 Artist.

I became infatuated by fractals because of what they represent, not just the way they look. Fractals are everywhere, and they perfectly visualize the spiritual state which I align myself with. They are found in biology, math, science and more. They compose the branches of trees, the flow of galaxies, and our DNA. Look closely, and you'll notice fractals everywhere. Fractals are reflections of reality, stripped down to the most fundamental patterns.

Images of God.

The math that makes these graphics possible is built into 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. This, is *Recursia*.

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.

A Seraphim is 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 aflame, burning in celestial omnipotence. "You and I are one. From dust you came and to dust you shall return; and from your dead flesh, flowers will bloom. This is eternity." The Seraphim represents the same message that Fractals convey. A message, spoken in the language of the Universe – mathematics.

In recursive systems, change is inevitable. The largest and smallest iterations differ from one another, yet they are built from one another. All things are recursive, therefore all things change. I align myself with the chaos and blackness from which Nature itself spills forth. I am but a vessel for novelty and abstraction.

In this day and age, the algorithms rule us. The digital ether that has freed our minds has also ensnared us. An algorithm is merely a sociological reflection. A recursive 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.

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

Fractals are visual accompaniments to the math that makes our reality. Within this reality there is lightness and darkness within all. One cannot exist without the other. Venefica 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.

Sympoiesis is a simple word; it means "making-with." Nothing makes itself; nothing is really autopoietic or self-organizing. In the words of the Inupiat computer "world game," earthlings are never alone. That is the radical implication of sympoiesis. Sympoiesis is a word proper to complex, dynamic, responsive, situated, historical systems. It is a word for worlding-with, in company. Sympoiesis enfolds autopoiesis and generatively unfurls and extends it.

– Donna Haraway

Gynandromorph
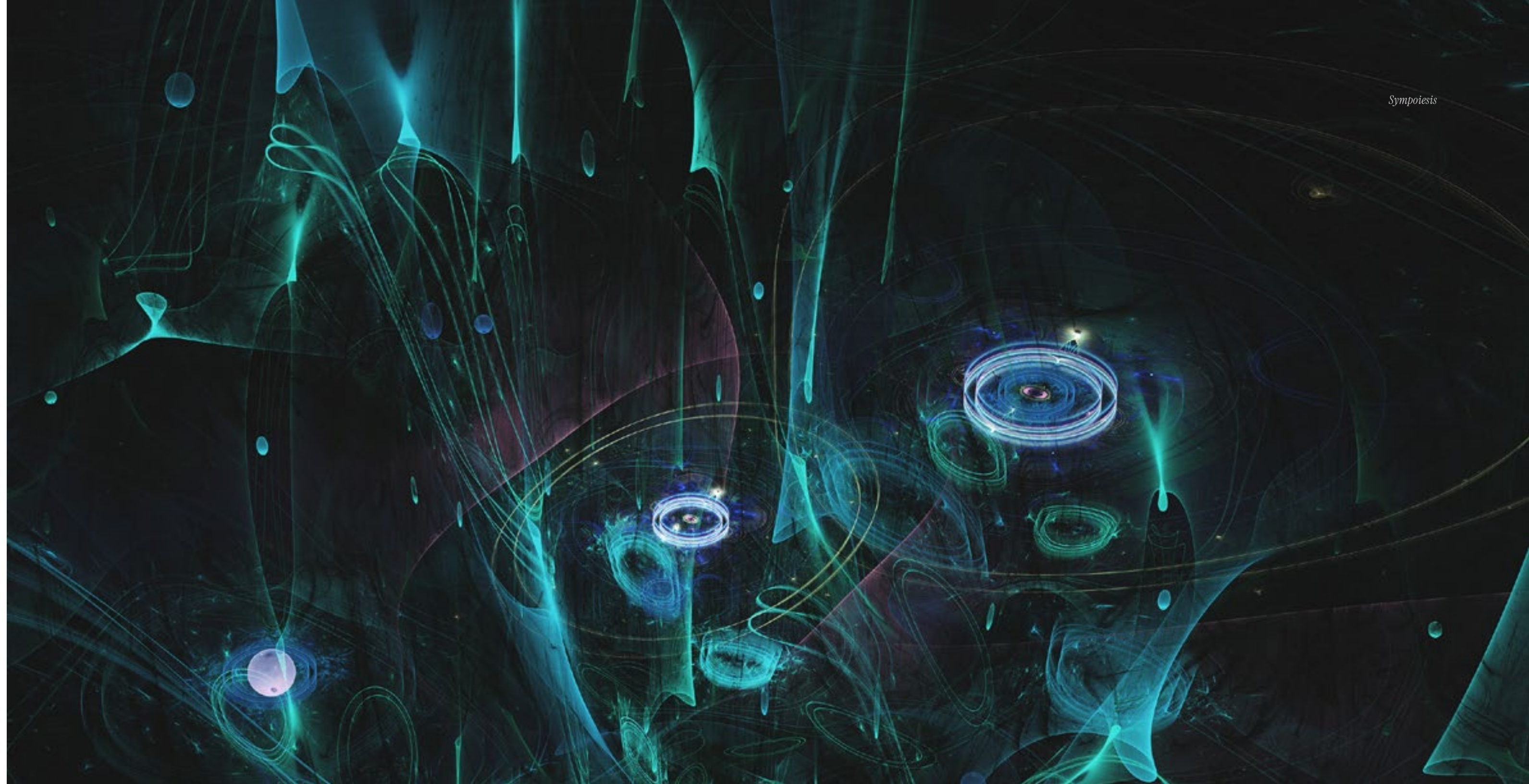
They told you you are a freak of Nature, someone who destroys. They don't see your hard-working hands, they don't see who you are. You are an artist, and your greatest creation is yourself. Stop letting your potential go to waste because you don't feel ready enough. Creation is mutilation to the unenlightened. No one tells you the bravery will feel like fear.

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 wil 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.
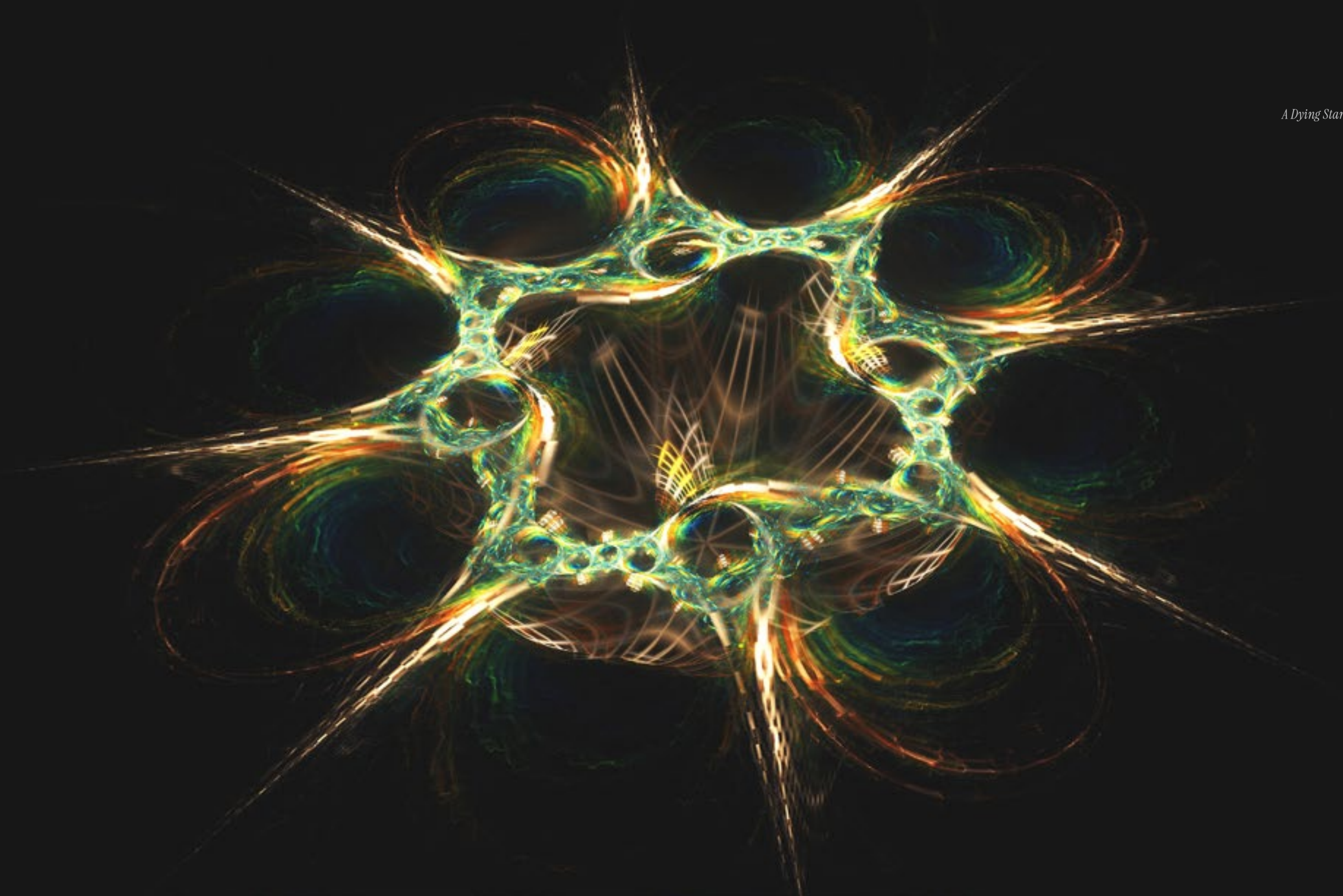
Listen to it.

About the Author

Zoe Allgaier is a digital artist from Utah. She is inspired by the early age of digital art; Her abstract work explores the intersectionality of digital and physical life. Using overlays, textures and recursive geometry, Zoe creates graphics that explore visual nuance, as well as reject the minimalist design trends that have become the standard in the postmodern era. She has a lifetime of experience as an artist, and 7 years of professional experience in digital media and design roles.

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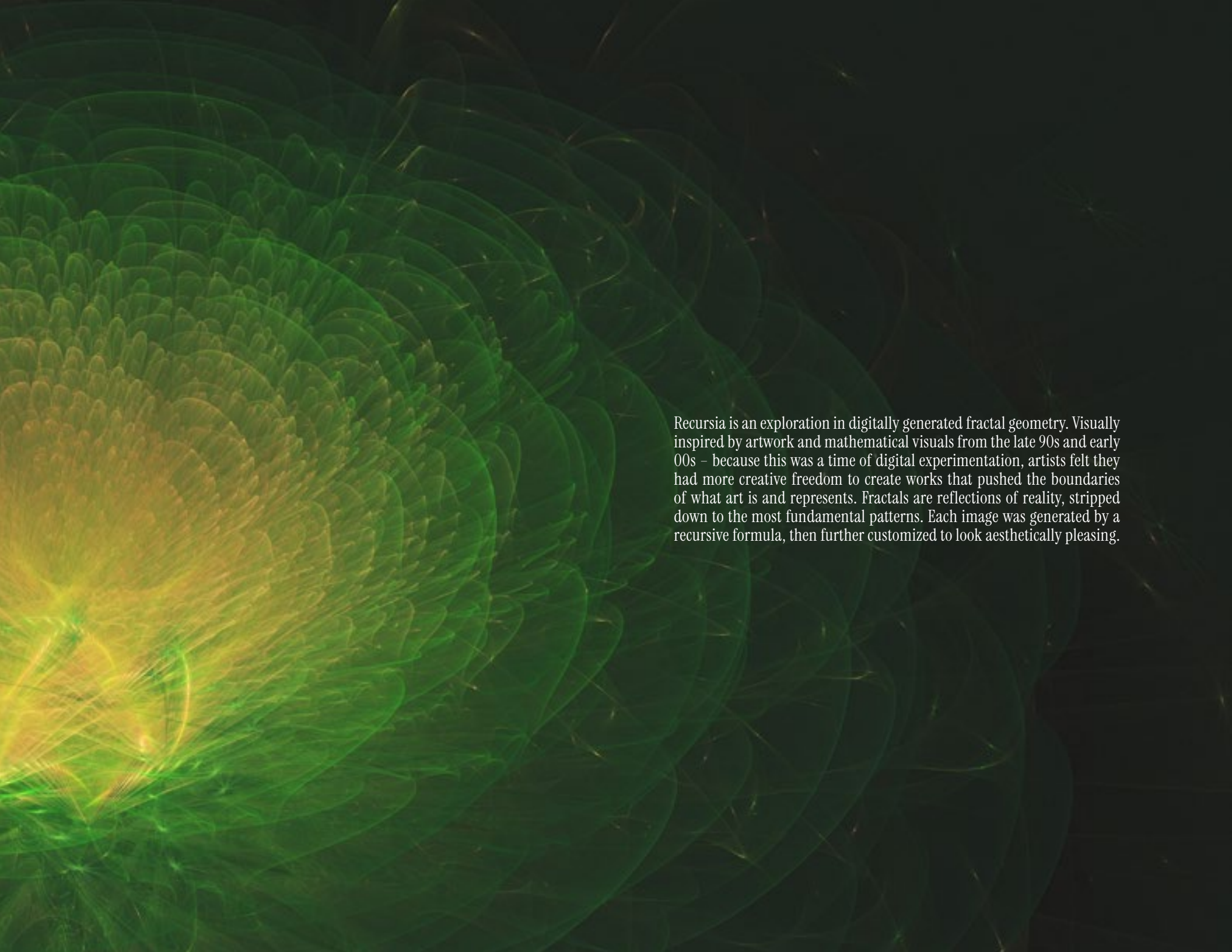
Recursia is an exploration in digitally generated fractal geometry. Visually inspired by artwork and mathematical visuals from the late 90s and early 00s – because this was a time of digital experimentation, artists felt they had more creative freedom to create works that pushed the boundaries of what art is and represents. Fractals are reflections of reality, stripped down to the most fundamental patterns. Each image was generated by a recursive formula, then further customized to look aesthetically pleasing.