For James Alan Smith, coding is an artful activity. In the same way a painter might visualize the final product even before starting, Smith formulates his algorithms in his head. But it wasn’t always that way. When he started out at age seven, working on Commodore and Atari machines and learning Basic, his approach was that of trial and error. Eventually, he developed his programming chops by creating his own software and becoming a natural at coding. As he grew up, programming became a part of him.

“It morphed into a process where I can see the code and formulas I need in my head much like conventional artists can visually see their ideas form in their mind’s eye,” Smith says. “When I tell people about this, I use the example of learning a second language. After a time, it is just a part of you and you don’t even really think about it.”

As Smith grew up, programming thus became a portal into another world. Through code he could create worlds that didn’t exist otherwise. He could write operating systems, troubleshoot errors, and make machines do almost anything he imagined. Visual art had a similar appeal.

Through the medium of visual art, Smith explains that he “can take an idea and control everything, from one color choice out of millions, right down to where the next pixel goes.”

When he graduated high school, computers were just becoming mainstream, so starting a tech support career didn’t seem like a logical choice at first. Nevertheless, he persisted and to this day, 30 years later, he owns a small computer repair company. That doesn’t stop Smith from regularly cranking out elaborate visual works.

Layers of Imagination

The cover image, Imagination, is what a visual artist or composer might refer to as a “study,” the result of testing out an idea or two. Smith created the first layer using Formula to Frac Export, a program he wrote more than 20 years ago and that he occasionally still updates. That first layer was flat, with just the basic underlying shapes. From there, he imported and duplicated the layer three times in JWildfire, a Java-based open source fractal flame generator, adding colors and textures to each new layer to give the background a 3D steel architectural world-building vibe. Smith created the female figure in Poser, a program for modeling humans. He used a few different layers to create the glowing effect. Finally, Smith imported everything into paint.net, a free Windows photo editor, where he made the final tweaks and corrections.

“The idea was a young woman creating a world in her mind,” Smith says.

Soul Colors (see Figure 1) may resemble Imagination, but the two pieces are not related. Smith says Soul Colors primarily suggests that there is a colorful soul shining through all the different layers of fractal layers of creativity and code.
of life, just as the woman's face emerges from all
the different fractal layers of creativity and code.
In the image, the various layers resemble stars,
oceans, animals, vegetables, and minerals. The
effect is extraordinary and mysterious, earthy yet
still digital somehow.

Possibility Matrix and ordo ab chao – order to
chaos are examples of abstract, multilayered frac-
tal work (see Figure 2). In each case, the more you
zoom in on the final image, the more intricate the
layers become. One feels lost inside an imaginary
forest. Degrees of symmetry seem to be present,
but one can dive deep and wander off in any pos-
sible direction. For a more detailed experience,
Smith's website (www.james-alan-smith.com) al-
allows viewers to enlarge each image and see the
complex relationships between the various layers.

Smith says he feels equally comfortable with ab-
stract and representational imagery. A great ben-
etfit of working with digital media is that he can
migrate from style to style, free to explore any idea
that comes his way.

"With pure abstract, I tend to explore with the left
side of my brain and get a bit deeper into the 'code'
of it all," Smith says. "With my more representa-
tional works, I am usually getting in touch with my
feelings and conveying through my art the wonder
with the universe we all share from time to time."

Code Is Art
To Smith, writing code is a form of art all by it-
self, but it never gets recognized as such. One can
apply the same mentality to digital art as to pro-
gramming, if one's aesthetic is to be in control
of everything that happens, of course. If someone
has the will to drill down and develop his or her
programming chops, the possibilities far outnum-er the obstacles. One can write an operating
system, design vast interactive worlds like Second
Life, create a free encyclopedia like Wikipedia, or
as Smith has done, use fractal equations, render-
ing programs, and image editing software to create
multilayered works of digital art. The only limit is
one's imagination.

To Smith, crunching code and creating visual
art are similar in many ways. Both have rules.

"With the visual arts you have color theory, com-
position, gradation, movement, and proportion," he
says. "With coding, you have the syntax of the cho-
sen programming language, as well as other rules
to keep in mind for system architecture, memory
usage, error handling, data storage and retrieval,
and communication. The main difference with vi-
sual arts is that you can create a piece that breaks
all the rules and still get away with it."

Like most artists, Smith needs to constantly cre-
ate. It's what drives him, so he is not going to stop.
He will always involve himself in some sort of cre-
ative process, whether coding or visual art. In re-
gard to the future, he says virtual reality excites
him the most. With VR, people could theoretically
dive into his finished pieces in a more immersive
manner, as opposed to a 2D image trying to look
3D. Viewers could go in deeper as each layer is
created, adding a whole new type of experience.

"That coming trend, combined with advances in
processing power and storage, will enable artists
such as myself to create works that will appear
vast to the viewer and be an even better conduit
to express and share ourselves," Smith says.

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