David Works thinks that fractals appeal to an innate sense of aesthetic sensibility and he revels in Apophysis, a freeware fractal flame editor for Windows written by Mark Townsend. “[Discussions on] the mailing list for Apophysis reflect an intense enthusiasm and even joy at discovering and ‘making’ string fractals,” he explained. “I think this is something that is often overlooked in discussions about digital art—instead of people viewing fractal art, they are now interacting with and ‘creating’ fractals. In this sense, I think some programs like Apophysis are digital art—they facilitate the aesthetic experience.”

In generating his images, he says there is somewhat of a conversation going on between him and the machine and that he engages in a feedback loop with the imagery. “Ideas come to mind during the process, these are applied, and then new possibilities emerge to be considered. There is a real dialogue with the imagery—the computer functions as the translator.”

Works received his BA in studio art from Sonoma State University in 1978. “Although I was trained in the traditional techniques, I’ve always been interested in computer graphics, starting with an Apple II computer many years ago.” Throw in extensive perusing of Scientific American’s Mathematical Recreations column, and Works was off to the races. He often implemented the published pseudocode, and this was his first introduction to fractals and cellular automata, the latter of which he recently used to create a new library of images for his Web site.

Building the library

The original version of Unfractal 1 (the cover image) was Works’ first attempt to work with larger sizes with string fractals. The original image was 200 Mbytes and was one in a series of several images that derive from a perception Works had while experimenting with string fractals using Apophysis. “I noticed that you can often get expressive shapes that resembled brush strokes, something very different from what is typically considered fractal shapes,” he explained. “So the general idea was to use these types of string fractals as compositional elements rather than as the main subject of the work. I assembled my own library of string ‘brush strokes’ and began experimenting. The first series of work was done at relatively small resolutions (30 Mbytes), and a whole array of filters was employed to create compositions composed of fractals, but not ‘looking like’ fractals.”

Using Apophysis, he started the process by generating a library of potentially useful string fractals and then used Stephen Ferguson’s Sterlingware, the ubiquitous freeware program Fractal Explorer, and Frederik Slijkerman’s classic Ultra Fractal to build a library of traditional fractals. After several overlays and Adobe Photoshop filters, the final image was born. This was one of many in a series he titled Unfractal.

Combination 6 (see Figure 1) and Combination 10 (see Figure 2) are two images in another series derived from the same library of fractals Works used in the Unfractal series. “In building this library, I acted more like a photographer, roaming the fractal landscape and taking images that I found interesting, that may or may not be used,” he said. “Several
hundred fractals were accumulated. The basic idea here was to put three (or more) fractals in the same space and see how they interacted. Varying the blending modes (for example, hard light, soft light, normal, and so on) and adjusting colors for layers/channels produced a large range of potential final states (a combining of the fractals). The decision on what compositional/color alternatives to select is subjective, but I tend to look for compositions that suggest processes rather than things—a sense of movement and/or subtlety that implies a transitional state, something that is on the verge of change.”

**The technique**

As an artist, Works says he works in a number of parallel tracks and that his abstract images—for example, *Gothic* (see Figure 3)—are the same as his fractal works in terms of process and execution. “There may be an abstract idea that frames the environment … and an overall preference for dynamic, process-implied composition, but everything else is wide open,” he explained.

He also admits that the failure rate in this approach is quite high and he has a gargantuan library of images that didn’t quite make it. “When I go back and look at these failures from a different internal perspective, I often find something that can now be developed. So in a sense, the art itself often becomes source material for new art. Ironically, it is my amateur programming efforts that most resemble the traditional belief that art should be an expression of an intellectual idea/concept. But my efforts here are on producing code that will ‘jump the image state’ in random, unpredictable ways that fit with my experimental approach.”

Because this approach is primarily exploratory and experimental, he believes the process is the art, rather than forming a concept in advance and then carrying out that concept. And he deliberately sets up a condition where anything can happen. Accidents can be equally as productive as desired results. “The digital mediums are perfect for this process,” he said. “At the beginning of this process, the imagery exists in a virtual ‘resting’ or ‘default’ state (a matrix of numbers), it can be jumped to any number of other states programmatically (filters and so on). My process generally starts off with big jumps until I find something interesting, then [transitions to] progressively smaller jumps to refine the image.”

**The future**

Works is currently writing a Photoshop plug-in that applies cellular automata transformations on images. According to his eyejam-works Web site (http://www.eyejam.com/), the rules for transformation are derived from the image. They can be taken from one or more of the color channels (R, G, B) and applied to one or more of the output (final processed image) color channels. Depending on the options selected, you can get traditional cellular effects (Sierpinski triangles, sliders), or smoother, more abstract results. Some of the things he’s considering adding are additional methods of mapping rules to cell states, an option of smoothing, and overall improvements to the interface.

Other than that, he has no definite projects lined up for the future. “I want to do more work with multiple fractals,” he said. “I’m interested to see what offspring can be produced by ‘marrying’ some of my failed abstracts and fractals. I’ve realized that a variety of different image characteristics come to light with the cellular transforms, so I want to see if there are additional ways of exploiting this. I’m curious if I can implement a random composition generator as a Photoshop plug-in.”

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