

About the Cover

Machine Creation

Gary Singh

Based in Slovenia, Bogdan Soban earned his degree from the faculty of mechanical engineering in Ljubljana in 1974. He prefers to work with generative art instead of computer-aided art because of the former's unique possibility to express the unknown through mathematical formulas. "The 'unknown' has no form, has no color, has nothing, but it becomes something during the generative process," he explained. He said that as a schoolboy he discovered that all physical phenomena and "natural legitimacy" could be proved by mathematics. He then subsequently developed a lifelong interest in the transformation of impersonal mathematical formulas into breathtaking graphical images. But mainly, he developed a desire to orchestrate a situation in which the machine creates the images itself, rather than the artist massaging the machine as he or she sees fit. He explained,

My challenge was how to rouse up the creativity of a machine, or better, of a system programmed machine that has nothing to do with a human

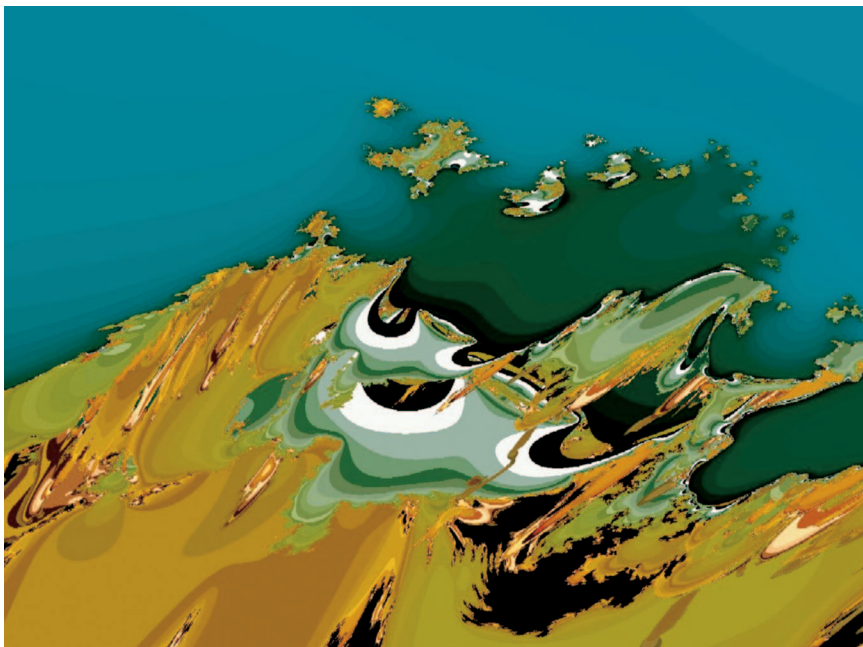
being. The computer has some abilities, which definitely surpass a human's, and why not use them to realize the eternal dreams of humanity: make the machine creative. It is true that the author of the program is a human being, but the creative process based on the same program could be so autonomous and independent of any kind of outside intervention or without predefined results that the authorship of the creation is undefined. Especially, the algorithmic approach with its absolute unpredictability supports the thesis of an artificial creativity.

Creating and deforming

Soban's images are the result of autonomous processes supported by computer programs he developed himself in Visual Basic. "The algorithms are my creative challenge and the emerging images are my artist's emotion," he says on his Web site. "This is my way of doing generative art."

Lady with a Hat, the cover image, a segment of a larger, more immense image, is a result of one of his own programs, Design02. Conceptually, the program contains three basic parts. One, a group of algorithms based on Mandelbrot set calculations; two, a group of algorithms that deform the results of those Mandelbrot sets; and three, a group of coloring algorithms. "The function of deformation algorithms is they have the task to partially eliminate the main fractal property—the self-similarity," Soban said. "Each cycle of the program chooses its own way through the algorithms group and in this way defines the image type. Repeating the same image type generates a different but similar image."

After the image is created, Soban then implements a magnification parameter and dives down deeply into the image to explore its depth. "The operation is not a simple zooming but it opens a new view in the basic image in the chosen position and depth," he said. "The new view is the consequence of the inclusion of the depth parameter into the deforming algorithm.



1 *Early Spring.*

Practically until the program is alive inside the computer memory, I can ‘walk’ around the image up and down, left and right until the deepness exceeds the number greater than 10 to the 14th power. If I continue submersion the program responds in its own way ... Going back I can return to the image and continue exploring.” Figures 1 through 3 represent more examples of this particular approach.

All four images were created using the same program called Design02. But there is a difference between the process used for the cover image and the process for the other three. Soban created the other three images using a decomposition process. Instead of a common color palette, he used an entire image and a decomposition algorithm to extract pixels out of it and to integrate them with a diverse logic. For more information about the concept, a paper Soban presented at The Generative Art Conference is available at <http://www.generativeart.com/papers2005/06.BogdanSoban.htm>.

Art or science

Philip Galanter describes generative art as “[referring] to any art practice where the artist uses a system, such as a set of natural language rules, a computer program, a machine, or other procedural invention, which is then set into motion with some degree of autonomy to or resulting in a complex work of art.” Which makes you immediately want to ask a question that everyone seems to deal with differently: are you an artist, a scientist, or both?

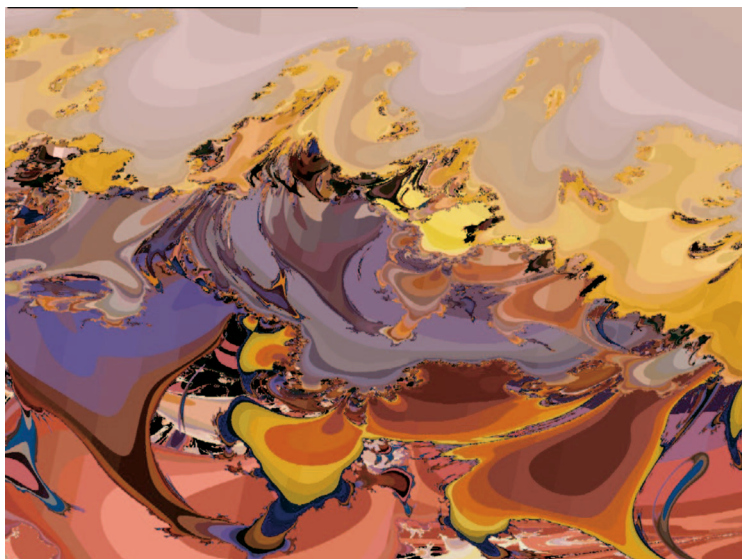
Soban had this to say: “Can a machine creation be an artwork although it was ‘produced’ without author consciousness, without his will and without his emotional engagement during the creative process? ... During the whole of human history, art and science were very close to each other. If we consider mathematics as the queen of all sciences, then we can deduce that mathematics is very close to art. So if we can make mathematics visible then the resulting image could be art.” But in the end, he says he’d rather leave the final judgment to someone else.

“But all the same,” he continued, “my role of artist is reduced to a selection phase when I can demonstrate feeling for composition, aesthetic, beauty, color harmonization; in other words, my feeling or my taste for art. So I consider myself more of a scientist or researcher than an artist although the results of my work are predominantly presented as artworks.”

The future

More recently, Soban has been experimenting with kinematics systems as a background for his generative algorithms—for example, using data from the solar system to disturb the generative process in his programs. He also says he wants to develop a decomposition principle, where the program reads an existing image and decomposes it into elementary particles, which can be pixels or groups of them. Then the program integrates them into a new image using a regrouping method based on a randomly chosen mathematical formula.

In any event, Soban says he will keep plugging away with generative art. “I intend to continue in this way, inventing new ideas for new algorithms and following the basic concept of artificial creativity, introducing the



2 Fire Valley.



3 Organic Structure.

creative ability of mathematics, and using the algorithmic programming approach,” he explained. “Previous results definitely demonstrate what a computer supported with a generative program can create.”

According to Soban, his future research in generative art will carry on in two directions: creating artistically aesthetic abstractions and developing algorithms that can produce more worldly recognizable objects. “Nowadays, images that are reminiscent of the real world are created absolutely by chance and they seldom appear. It is a great challenge to ‘force’ mathematics to more frequently ‘produce’ reality.” ■

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