The Proceduralist Manifesto

Judson Rosebush

ABSTRACT

Computer art' has become a meaningless term, because soon virtually all art will be computerized in some way or another. The author introduces the concept of proceduralism as a label to represent a special class of art, one that constructs images using abstract qualitative and quantitative parameters, rather than simulates classical drawing and painting. This approach to making art differs radically from drawing and painting approaches because the picture-making process is detached from the picture. The net result is that an entirely new area of creativity has been unveiled for the artist. As such, proceduralism is a logical successor to conceptual/process art; it is a major art movement and a new medium.

The complexities of defining computer art have confused artists and institutions alike. Many art critics, galleries, museums and educators display attitudes similar to those of their peers 100 years ago who failed to understand that photography is art. On the other hand, when computer art is in vogue, even the most prestigious and computer-illiterate artists are prepared to join the ever-swelling ranks of computer artists. Just what is computer art anyway? And is the computer a new medium or just another tool to aid the artist?

Once upon a time it may have been possible to assert that a person who used a computer in the generation of artwork could claim to be a computer artist. Of course, when 'only scientists' could use computers, many art critics were quick to observe that, since scientists were not artists, obviously they could not be making art. Once computers became friendly enough that artists could interactively paint pictures, many critics asserted that computers were simply an alternative canvas. Luckily we have reached a point where almost all media are computer processed in some way or another if not by an electronic pre-press system then by a time base corrector. Now everybody is a computer artist whether he or she wants to be one or not.

In retrospect, it is not surprising that we have been failed so miserably by the art industry. Galleries have used little imagination in marketing new work and critics have had no concept of the germane aesthetic issues. Part of the problem may result from our own failure as computer artists to state the issues of our artistic agenda clearly. Much as we might like to think that work stands on its own, virtually all the major art movements of this century have been accompanied by a dynamic manifestoism explaining to the art community and to the public what the new work really is all about. This was true for impressionism, pointillism, cubism, expressionism, minimalism, conceptualism and, in the moving arts, for film and television.

In the case of computer art, the aesthetic is integrally related to the computer itself—how it works, how we use it, and how it stimulates our creative processes. But if indeed 'computer art' has become everything to everybody, as a term it lacks the precision required to describe those aspects of this new medium that make it a unique movement in the world of art. A suggested label for this movement is *proceduralism*, a term Isaac Kerlow and I developed 2 years ago to describe art made by employing scripted, notational directions that specify processes and parameters [1]; the picture is produced by executing these directions, rather than by drawing it directly. To borrow a term from Robert Rivlin, proceduralism is 'the algorithmic image' [2]. The procedures used by the artist may be relatively concrete, for example determining the position and color of synthetic spot lights, or they can be abstract concepts, like the constraints imposed in a Harold Cohen drawing. Like a scientific visualization, the resulting drawing is the graphical result of an experiment, the difference being that it is an art experiment dealing with the fabrication of graphic form. Proceduralism does not claim to embrace all computer art; its aesthetic issues are a subset of the aesthetics of computer art as a whole. Nor does proceduralism need to involve a digital computer; its focus is on how an artist approaches and manipulates a medium and not on any particular medium itself.

In terms of art movements, proceduralism represents a natural, historical evolution from conceptual process art, with the advancement that it actually scripts and enacts concepts, producing tangible personal property as the result—typically a drawing or image. In a very real way, proceduralism breaks through barriers inherent in the often-paralyzed, self-contemplative conceptual art process because it extends the definitional process to allow the production of real pictures and not simply conceptual ones. The results of proceduralism include graphical matrices such as Leslie Mezei's *Bever Scaled*; abstractions such as fractals; manipulations such as blockpix; realistic landscapes and still life interiors; portraiture; and surrealistic transformations such as Carl Sims' *Waterfall* that mix realism with novel procedural approaches.

There are several key tenets of the procedural movement, and they have vital implications for the art world. First, proceduralism implies art that is made using a command and control structure. Of course, all art made on a computer, even using an interactive paintbox, uses a command and control structure. The proceduralist initiative lies not simply in using predefined tools to simulate classical painting methods, but in the innovative use of new tools and procedures in order to expand the procedural possibilities of the art. In other words, simulating the cel animation process on a computer is not a proceduralist breakthrough—it is an automation. Programming fractals on a computer and producing fractal images are procedural breakthroughs because they introduce an entirely new class of parameters and an entirely new class of images.

Second, proceduralism almost always involves modeling.

Judson Rosebush (author, artist), Rosebush Visions Corporation, 25 West 45th Street, New York, NY, 10036-4902, U.S.A.

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The subject matter may be abstract (e.g. distributions of random points) or it may be concrete and realistic (e.g.the simulation of cloth). Whichever the case, the construction process used to generate the image is dramatically different from any approach used in the past. The proceduralist approach does not attempt to create the image directly, for example by drawing. Rather, it approaches the creation of the image indirectly, in fact by a most circuitous route—the formulation of commands and procedures that describe the behavior of a conceptual model. The image is determined as a result of these rules. The drawing is manipulated by manipulating the rules and the arguments. This abstraction of the drawing process is a profoundly different way of doing things, and its implications lead us to the third point.

The proceduralist approach affects the very essence of the creative process. The computer is itself an extremely plastic medium and a computer generated image can be composed in a very incisive manner. Problems inherent in overpainting to change detail do not exist. Composition, colors, perspectives, lighting—indeed the very contents of the picture—can be previewed and independently adjusted. The picture is not manipulated tactily, it is manipulated conceptually, procedurally. Fundamentally, the picture is conceived procedurally, and thus the aesthetics of the medium are intimately concerned with the definitions and domain of these procedural variables. Much of our aesthetic is about how these variables are developed. The evolution of algorithms to create images of hair, cloth or haloes are as significant a portion of art history as the evolution of methods to represent hair, cloth, or haloes in sculpture and painting during the last 4000 years.

Once discovered, many of these notationally mediated variables reveal combinations and domains that are simply absent from our normal experience. It is true, of course, that an illustrator could conceptualize a woman with leopard skin or a polyhedra turning itself inside out, but in practice it is the practice of exploring what one can do with texture mapping or transformation geometry that prompts many of these kinds of realizations. In other words, the very process of manipulating the image procedurally invokes a type of creativity that would not be present if the problem were approached in a different way. Invention does not always happen intellectually; it also happens by solving real problems. Our tools shape our thinking.

During the past 100 years, painting has dismembered realistic classical environments. In the early part of this century, impressionism and cubism challenged classical understandings of color, composition and perspective; by the middle of this century, abstract expressionism had abandoned any sense of physical reality in order to imprint the field with the emotive feelings of the artist. Minimalism and conceptualism sought to sterilize the process further, producing not only the all-white painting but also the conceptual painting that has no physical manifestation. Proceduralism simultaneously extends the reductionist, conceptual, process idiom further, except that it may actually produce an image or object.

Given that the art establishment has managed to understand the disintegration of painting and to reduce conceptual art to the Goedel paradox, one suspects that its continued failure to misunderstand 'computer art' may lie more in ignorance than in the complexity of the issues involved. The problem may simply be that the establishment is better equipped to gurgle on about rehashed abstract expressionism, color field theory and the implications of neo-realism. It is regrettable that some critics are still waiting for 'computer art' to mature, because it is clear that its major aesthetic themes already exist. Critics who are blind to the fact that computer art reflects the reality of the information era deserve comparison to the French Academy in the impressionist era—out of touch with the contemporary world and possibly with vested interests in establishment art. In practice, proceduralist computer art is among the most contemporary products of our culture and will increasingly be appreciated as a major art movement by this and future generations.

References and Notes

1. Isaac Victor Kerlow and Judson Rosebush, *Computer Graphics for Designers and Artists* (New York: Van Nostrand, 1986).

2. Robert Rivlin, *The Algorithmic Image* (Bellevue, WA: Microsoft Press, 1986).