Artists and computers

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ABSTRACT

This paper deals with the use of computers by artists as a means of aesthetic expression, considers several theories of the validity of art created through the assistance of computers, and discusses the author's personal reasons for beginning to use the computer as an artistic tool.

Sometimes, in the eyes of the uninitiated public, there is a vast dichotomy between artists and persons who use machinery, particularly electronic machinery such as the computer. Artists, according to public opinion, are intuitive, somewhat irrational, almost always illogical, often slightly eccentric, and create by some internal inspirational force, some muse, which takes the artist by the hand and leads him or her to the ecstasy of the act of creation.

Scientists, and especially those scientists who work with computers, are often considered to be highly rational, totally logical, definitely non-eccentric. Computer scientists create through a completely intellectual comprehension of the tools with which they work, with inspiration a folly to be tossed at the artist.

Contrary to popular opinion, and quite fortunately, none of this is true. At least, none of it is entirely true. Sometimes artists create with a high degree of logic and intellectual rationality. Often the work done by computer scientists, even in the writing of new programming languages, borders on conceptual art.

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In reality, there are few differences between artists who use computers and computer scientists who use computers, except in the intent of the user, and in the knowledge of the software and hardware being used. Computer scientists use the computer to solve previously insoluble problems, to do mathematical modeling, to illustrate phenomena which could not be illustrated in any other way—for a multitude of scientifically necessary reasons.

But why do artists use computers?

Throughout the history of art, the artist has sought new means for expressing ideas. Many of the ideas expressed through art, and the tools used in the expression of these ideas, have been direct reflections of the existing ideas and tools in the society in which the artist lived. Take Michelangelo for example. If he were living in this country today, he would probably have painted "The Creation" on the walls of the White House instead of on the ceiling of the Sistine Chapel. Only it wouldn't have been "The Creation." It would have had a Bi-Centennial theme.

Paint itself, long taken for granted as a tool for artistic expression, was at one time many centuries ago, a new technology.

So the artist adapts.

Today we live in a highly technological society. We have quietly gone out of the Age of Machinery and discovered ourselves plugged into the Age of Electronics. Everywhere we look, we are surrounded by the ramifications of the two most pervasive electronic devices ever created: television and the computer. The influence of television is more apparent to persons in the general public; approximately ninety-seven percent of the homes in the United States have at least one television set. In fact, our country boasts of more television sets than toilets. It has become, for the masses, an accepted medium, and a very visible one. For this reason, it is non-threatening to a person in the general public, although, for the intellectual elite, it is often a very real problematic threat. The entrance of the computer into the lives of Americans has been more subtle. To the uninitiated, the computer is a techno-monster which messes up bank statements, puts erroneous amounts of money onto paychecks, and generally terrifies the mass public, who see it as a machine which could ultimately overthrow humanity.

It is, of course, none of these. The computer, programmed by persons who know how to do so without error, is one of the most important tools of learning that has ever been invented. It can, essentially do anything the intelligent programmer wants it to do.

An artist living in this highly technological, electronic world has basically two choices as to how he or she will handle aesthetic expression. The artist can either choose to ignore these new electronic tools, and deal only with traditional tools of art, thus making the statement that electronic means of artistic expression are invalid and anti-art. Or the artist can choose to use these tools in an attempt to create thus-far
totally new imagery, or in an effort to prove that electronic technology can indeed be humanized.

It is my feeling that the artists who are currently tackling the new technologies to create art are making the most significant contribution to the world of art, despite the fact that most art critics disagree with this theory.

Poet T. S. Eliot, in an essay entitled "Tradition and Individual Talent," offered a definition of art which stated that a work could be considered art if it first of all, fits into some prior tradition of art, and secondly, if it adds something new to this tradition which significantly changes the tradition of art.

Artists who ignore the computer and television are fitting into the established tradition of art; through ignoring the technologies with which we live, however, they are adding precious little to this tradition.

Artists who are using the computer to create aesthetic statements are obviously adding something new to the tradition of art, not only through the types of imagery they are able to achieve, but also through the use of a totally new tool. And contrary to the arguments of many artistic traditionalists, computer artists do fit into the general tradition of art. Static computer graphics have a parent in painting; still graphics can be judged aesthetically by the same standards that static art has been evaluated through the centuries. Animated computer art also has a place in the general tradition of art. First of all, good computer animated art, whether it is implemented in film or video, also fits into the tradition of painting, since each single image in a computer animated piece is carefully composed, utilizing juxtapositions of color, form, perspective and planar relationships. Computer-animated art also fits into the tradition of film, and, through its often mathematically choreographed imagery, into the tradition of the fluid movement of music, albeit visualized music.

The field of computer art is still too new for a solid aesthetic to have been formed, stipulating which computer-assisted art is truly art and which is merely interesting experimentation. Some basic ground rules can, however, be stated. First of all, the intent in the creation of the work can be considered. If a person manipulating computer imagery intends to create art, his or her work must at least be considered for artistic judgment. If, in addition to this, the finished computer-assisted art presents to the viewer imagery which is new, unconventional and visually interesting, it deserves further consideration as art.

Also, in the art world, it is common knowledge that if other artists accept a piece of art as aesthetically valid, it takes still another leap toward being seriously considered art. If, therefore, artists relate to a piece of computer-assisted art, it has gone one more step toward qualifying as art.

Problems do arise, however, in evaluating computer-assisted art. Although some artists using the computer have a strong understanding of the internal operation of computer hardware and software, there are many more who do not and who are, therefore, compelled to create their art in collaboration with a computer scientist or programmer. This in no way invalidates the value of the art, although, in the communication process between artist and computer scientist, many difficulties in language must be overcome. For example, an artist might say to a computer scientist, "I'd like a piece of film which bursts forth from an epicenter, then moves around in circles for a few minutes, then swirls across the screen in something that looks like a tornado." How does the computer scientist translate this into a viable programming assignment? With difficulty. But it can be done, and often the results are far more striking than if the artist had manipulated the imagery alone, since the scientist can add his or her own knowledge of what can be done with the computer, thus adding dimensions that the artist might never have conceived alone.

Another parameter to consider in discussing computer art is the fact that some of the most aesthetically beautiful computer-generated imagery has been produced by scientists as an offshoot of their scientific inquiry. Since the intent in the creation of this imagery was not to create art, it probably cannot be considered art. But increasingly, as computer scientists see the beauty, as well as the scientific validity, of the output they produce, these scientists are making choices that certain of their images are indeed artistically valid, and therein enters the intent to show art.

What seems to be happening is that artists using computers are becoming more knowledgeable in the field of computer science, and computer scientists are becoming more aesthetically aware. Soon there may be a point at which computer scientists are computer artists, and computer artists become competent programmers.

My personal involvement in computer-assisted art arose as an offshoot of my work in video. I discovered that, using video alone, I was unable to obtain the types of imagery I visualized. The computer gave me a new means of creating visual input for my video tapes. I personally have chosen not to use straight computer-animated input for my video tapes; in order to produce the imagery I envision, I utilize computer input on film, then do video-graphic manipulations on this imagery. Some of my finished pieces retain the quality of the original computer-animated input; others have been so manipulated through video techniques that they no longer retain the look of computer graphic animation.

Whatever techniques artists choose to use in their manipulations of computer graphic art, it seems that the computer has become one of the most useful tools available today to the artist who is in tune with his or her times.
Illustration I—From SCOPE I, videotape by Patsy Scala. In this piece, fewer videographic manipulations were introduced in converting the analog computer imagery to video. The work retains much of the original quality of the original computer animation.

Illustration II—From SCOPE II, videotape by Patsy Scala. In this piece, composed of analog computer generated imagery, the videographic manipulations do not obliterate the “computer look” of the piece.

Illustration III—From WIPEPOEM, videotape by Patsy Scala. In this piece, red, green and blue refracted laser light was distorted by analog computer voltage and videographic manipulations. The piece retains little of the look of computer animation; yet it can be judged compositionally by the same standards that traditional paintings are judged.

Illustration IV—From WIPEPOEM, videotape by Patsy Scala. Again, the analog distortion of laser light, and three levels of videographic manipulations leave the finished piece with little of its original computerized quality.
Illustration V—AZTEC I, by Joseph Scala. This piece, generated through Kenneth Knowlton's EXPLOR system, was hand colored by the artist to give it the look of Aztec tapestry.

Illustration VI—EXPLORING III, by Joseph Scala. This large painting, done on computer printout paper, was based on Kenneth Knowlton's EXPLOR program, yet the addition of paint gives it a very different character from typical computer art.

Illustration VII—From WIPEPOEM, videotape by Patsy Scala.