ART2030 - Computers in Art
Brief Reaction Paper

DIRECTIONS:
While we've spent a fair amount of time this semester learning a variety of software packages, we've spent very little time considering the role of the computer as an instrument of art. The following is an excerpt from a paper, "THE COMPUTER AS AN INSTRUMENT OF COUNTER-ART", written by Valdemar W. Setzer. The entire paper may be found online at http://www.ime.usp.br/~vwsetzer/comp-art.html. You may want to read the paper in its entirety to understand fully Mr. Setzer's perspective on the subject.

After reading the excerpt (I recommend reading the entire paper), compose a brief reaction (your opinion) of the topic and issues at hand. Your reaction should be no more than about 1/2 page in length (typed). You may print a copy of your reaction, OR send your reaction to me via email... wes@forcedesign.com.

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4. The use of computers in art

There are three ways of using computers in art: as storage devices, as passive instruments of artistic creation, and as active instruments in the generation of images, sounds, etc.

In the first category, they are not used in an essentially different manner than other storage devices, such as books and tapes. The only difference to books lies in the fact that the latter are physical means, and not virtual. Thus, through books the reader has a completely different touch and visual contact, than with a text stored in a computer and examined through a screen. There are many anecdotes of people who were attracted by certain volumes in a library or bookstore, which became important in their lives. Or, while browsing through the pages of a book, were unconsciously attracted to reading something that turned to be very important for them. We doubt that computers may cause this intuitive connection in the same degree as the contact with a real, non-virtual object. While producing this paper, we kept printing the various versions, because the printed text permits an overview that we miss when using a text editor. Aside from these disadvantages, it is possible to mention a number of advantages in virtual storage: automatic search, efficiency in storage, copy and transmission, etc.

The second way of employing computers in art is their use as passive instruments. A popular example of this is the use of graphic programs such as CorelDRAW. Here we have to make two fundamental considerations. The first deals with the fact that the use of physical materials - in this case, brushes, colors and the paper or canvas -, provides an unconscious activity. As we saw in the previous chapter, it is not possible to exactly foresee what the result of an artistic creation will be. In painting, it is not possible to calculate the blend of colors, and only through the act of putting them on paper or canvas it is possible to see their effect – and they will change after the paint dries out. Moreover, it is extremely difficult to repeat a blend, unless rigorous industrialized colors are used and the combinations are measured with scientific (and not artistic!) precision. The pressure exercised on the brush, influencing the results, cannot be precisely determined. The paper or canvas and their degree of absorption are also important factors; moreover, a wet paint looks stronger than it will look when dry.

These imponderable factors do not exist to the same extent in some drawing software. Colors (or, better, their optical illusion) are in general (e.g. in CRT screens) determined by a practically punctual projection of three basic colors (red, blue and green which, by the way, do not work as basic colors in blending inks, which Goethe called "chemical colors"). It is possible to determine and reproduce exactly their combination, because the intensity of each is expressed through a numeric scale from 0 through 255 - what an impoverishment! It is obvious that the sensation a color produces in the artist is not formal. But here what matters is the type of activity which he has to exercise: in the case of computer colors, the choice is fairly formal and conscious.

We enjoy painting watercolors, of the type "wet-on-wet." In this activity, one of the most extraordinary feelings is to produce a uniform color transition between two hues, for instance from orange to red, or from yellow to red. It is necessary to spread both on paper, at some distance, and gently pass the brush dozens of times, wetting it on ink from time to time, eventually in a couple of intermediate hues, in order to obtain a reasonably uniform transition. Compare this deep, calm personal experience with the use of a drawing program: here, it suffices to select the regions with the original colors, activate a hypothetical "color transition" icon, and immediately the desired effect is obtained. The artist's whole process, searching for a long time a satisfactory result, for instance eliminating eventual stripes which tend to appear, her interaction

with the material, her joy or suffering through the procedure and, most important of all, her self-development through it have been diminished, if not totally subtracted. Moreover, a "painting" made with a machine lacks all the nuances which are found in hand-made objects, that is, there is an impoverishment of the action and of the representation (recall what we said in section 2).

The second consideration has to do with the fact that computers are mathematical, abstract machines, as we saw in section 2. Every command given by the user of a graphical program is formal, and its execution by the machine may be described through a mathematical function. That is, the user is forced to think in a formal way when using these commands - note that iconic languages are also formal languages. Again, compare with the use of a brush, where the motor activity is unconscious; trying to make body movements in a fully conscious way lead to paralysis. For example, imagine a pianist thinking on each finger, hand, arm and muscle he is supposed to employ for each note - he would not be able to play (similarly to beginners, who have not automated yet their finger movements).

In traditional ways of making art, there is a very strong connection between the artist and the medium. A brush or a musical instrument are extensions of the artist's body, and his hands (and eventually mouth) directly touch the material. In "real" theater (there is recent research on "computer theater," where a computer detects the actors' movements and regulates lighting or sound, a large screen may depict virtual characters which the actor may interact with, etc.) the actor has direct connections with his peers, the scenery and the public. It seems to us that the computer eliminates to a large extent this intimate connection of the artist with the work he is producing. The machine ends up producing a large part of it, if not its entirety, without the artist's intervention.

Thus, the use of computers as passive instruments require formalizing the artistic activity and making it conscious, losing the physical contact with the instrument and the object being created.

The third form of using a computer in art is to make a program to generate images or sound (perhaps in the future even to produce a sculpture or build a house). A known example are the drawings produced by fractal functions; programs that produce drawings with these functions are in the market. In this case, there is not just the replacement of an informal instrument by another, formal; the process of creation is totally formal. The creation has to be strictly expressed in a mathematical way, as it is the case with any program. Thus, the unconscious element is fully eliminated. The individual element is also eliminated, in the sense that everyone may completely understand how the work was produced - it suffices to examine the program in detail. The temporal and spatial elements connected to the creation are also eliminated. In other words, the artistic activity has become a scientific activity. The result, contrary to normal scientific activities, are not concepts, and the final result has to have an esthetic effect, but the activity is certainly not an artistic one, as characterized above, and follows usual scientific methods.

A propos, it is very important to understand what it means to make a program to produce a work of "art" following a certain style. A computer may produce drawings and music similar to those of Mondrian or J.S.Bach, but their styles must be present beforehand. Then these styles may be analyzed, roughly expressed through purely formal elements and programmed in a computer to generate something apparently similar. Without Bach, there would be no programs imitating his music. Moreover, according to what we said before, the creation by a computer does not express any idea besides that contained in the style - as long as this style is mathematically expressed. This process also represents an impoverishment.

It is also necessary to consider that, as we have said, the true artistic creation should be reasonably unpredictable, depending on the interaction between the author and his work during the act of creation. The result produced by the computer is always predictable. The eventual use of pseudo-random number generators does not eliminate predictability, because what the program does with each generated number is always predictable, having been designed by the programmer.