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BULLETIN OF THE COMPUTER ARTS SOCIETY APRIL 1972

COMPUTER ART AND REAL ART

Gary William Smith

Having recently become involved in the creation of computer assisted art, I would like to voice some of my initial reactions to the present state of "computer art".

One must bear in mind that what I express is the biased viewpoint of what Frieder Nake terms a "real" artist. A professional artist by training, I have been involved with art nearly all my life. Over a period of years my art has evolved in a direction which points to the assistance of computers as a natural next step. I approach the computer as simply another medium with which to make the intangible expression concrete, as I used to do with cast bronze sculpture and more recently with plastic fabrication.

Upon reviewing a whole file of literature of the computer art movement, my first reaction is dismay at the very small number of those producing computer assisted art who are "real" artists. By that I mean people who are trained as serious artists, or more importantly, those who are obsessed by the drive to create a vital art, regardless of medium. I do not believe in the theory that anyone who smears paint on a canvas is an artist. There is a difference between the creation of objects of aesthetic power and the creation of decorative or "interesting" objects. The difference, though hard to define, is profound.

Even Frieder Nake, somewhat the grand old man of computer assisted art, is the product of a technical/scientific background rather than an aesthetic/creative/artistic background. With this in mind (as well as my particular biases) I would like to relate to Mr. Nake's article in PAGE 18. I must begin by agreeing with his statement that "there should be no computer art". The word "computer" in front of "art" is a crutch. Any work of art must stand alone in the face of all other art. It then must succeed as just plain unqualified "art" or it fails. Does the word "computer" lend some significance to the art which it otherwise lacks? Does the particular work of computer art succeed only in relation to other computer art? If so it does not succeed at all. We must demand the application of the same rigorous standards in evaluating computer assisted art that we use in evaluating any other art form.

Mr. Nake makes reference to a serious discussion now taking place in the art world. The topic: computer art, "is it or is it not art?" I do not find that this topic is being discussed much at all in the art world. Indeed, most comtemporary artists will acknowledge that valid aesthetic statements can be made with almost any material or process. The question which does occur is "What can you (the individual artist) do with the computer to make a strong and enduring aesthetic statement? Show me." Of course this question applies equally to oil paint, cast bronze, or any other medium. What is being questioned then is not the validity of using computers, but the artistic strength and validity of those individuals who are operating the computers.

I agree with Mr. Nake that computers "ought not be used for the creation of another art fashion." But I take exception to laying all blame for this (if it is happening) at the feet of the art dealers. True, many art dealers place profit above any aesthetic values. However, if an artist produces work of sufficient strength and integrity, no art dealer can turn it into a shallow "fashion". Let the artist assume full responsibility for the impact of his works.

"There is no need for the production of more works of art." I disagree. The need lies within the artist, even though he may not consider what he produces to be "art".

Yes, let us forget "art". Let us concentrate instead upon the exploration of possibilities. The "art" does come afterwards, if it is going to come at all. Whether or not it comes depends upon the individual.

I must disagree with anyone (especially someone as influential in the field as Frieder Nake) who attempts to formulate what the use of a given art medium "should be." Would a sculptor attempt to tell other sculptors what their use of bronze "should be?" Of course not. The uses of bronze are many. The potential uses of the computer in art seem to be far greater. Why limit exploration when it has hardly even begun?

Frieder Nake proposes a film which is "interesting because of its content" (the content being social commentary) and "enhanced by an aesthetically satisfying presentation." Most artists would agree that art involves much more than something "interesting" and that an "aesthetically satisfying presentation" is no more than advertising design (commercial art).

I agree that the computer should not be a source of "pictures" for the galleries. Aesthetic statements, perhaps. Pictures, no. Why be so concerned with galleries anyway? They are not that important.

I agree strongly that computers can be "convenient and important tools in the investigation of visual (and other) aesthetic phenomena." This is the heart of the matter.

The four concrete projects proposed, while "interesting" and I believe worthwhile, concern themselves more with art history/art theory/art criticism than with anthing else. Will "art" follow? I also question the assumption in project #1 that technology and computers increase the distance between the artist and his work. This depends upon individual approaches and philosophies.

I hope that my statements regarding Mr. Nake's article do not seem to be in the nature of a personal attack. I merely find his views to be fairly indicative of the better thinking of the computer art "scene" and so I used his article as a convenient vehicle to relate my views to the present state of "computer art". In fact, the only work of his which I have seen are the reproductions in "Cybernetic Serendipity". Of these I find "Klee No. 2" to be the most successful. However, it does not seem to me that computer assistance was a necessary ingredient in the execution of these drawings. Could they not have been done just as well with pen, compass, and ruler? Perhaps even a bit better? I believe so. I have seen very similar drawings, executed by hand, which I believe to be more successful.

This leads to a question which I believe pertinent not only to the drawings mentioned above, but to most of the computer assisted art produced so far, "Of what value, if any, is computer assistance in art?" Of what value is a linear composition produced with computer assistance if an equal or superior rendition could have been done by hand? What value is a computer assisted drawing of a face when far superior drawings are being produced by hand in the art schools every day? What value in H. Peterson's digital copy of a photograph of Norbert Wiener (in Cybernetic Serendipity - scanning and plotting time over 16

hours) when a superior copy could be produced in the darkroom in a matter of seconds? What value in Robert Mallary's computer assisted sculpture in wood (from his Tran 2 paper, Fall Joint Computer Conference, 1970) when direct carving into a log could produce the same result with a good deal less labor. And, I might add, with more freedom of expression—Mallary notes difficulties in forming concavities, etc., which a carver would not even have to think twice about.

The point here is that some "computer artists" are using the computer to imitate "real" art rather than to explore new dimensions. Why waste our time saying, in effect, "Gosh, look, this is almost the same as real art," when the opportunity is here to produce something which *IS* art, an art as vital and profound as any produced to date.

The "Senster" of Edward Ihnatowicz is in my estimation one of the better examples produced to date of a computer assisted effort which succeeds quite strikingly as a work of art. It imitates no other art, but breaks new ground and points the way for new investigations. Here is the challenge. Let us learn to recognize and to demand the genuine article.

INTERNATIONAL WORKSHOP

24-30 September 1972. Sound Synthesis Workshop
Sponsered by the Electronic Music Studio of Stockholm and CAS.
AIM: To allow experienced workers to use the studio facilities for creative projects.
FEES: No fee. Each participant will pay his own travel and accommodation expenses, but help will be given to obtain grants to cover them.
APPLICATION: Each applicant (individual or group) should submit a description of the proposed project in not more than 500 words, giving details of the aims, method and expected outcome, by 31 May 1972:

to Knut Wiggen, Electronic Music Studio, Kungsgaten 8, Stockholm 11143 Sweden

or Alan Sutcliffe, c/o ICL, Lovelace Road, Bracknell, Berkshire UK

A description of facilities of the studio may be obtained from Knut Wiggen

LITERATURE

Art & Technology, By Maurice Tuchman (Viking Press, New York City) $12.50. 387 pages.

This book, although distinctly a coffee-table/Christmas-gift volume, is a quite fascinating account of a mammoth set of collaborations between artists and technologically advanced corporations. Between 1966 and 1971, Maurice Tuchman, senior curator of the Los Angeles County Museum, succeeded in getting 40 companies, ranging from IBM to Walt Disney Enterprises, to contribute time, personnel, facilities and money to some 80 artists. The artists themselves ranged from the fashionably chic Roy Lichtenstein to the madly obscure poet Jackson MacLow. The culmination of this artistry was an exhibit, for which this book forms a substantial catalog, of various works at the Los Angeles County Museum in May.

Tuchman has put together a very readable book of case-histories for each artist, often interspersed with somewhat variable-quality black and white photographs. The case-histories are often hilarious. John Chamberlain, an artist interested in participatory works, spent some time at Rand Corporation in Santa Monica, California. After showing an "underground" film, Chamberlain sent all the Rand employees a memo asking for answers-not questions. The answers seem to range from "drop dead" to "you're fired." Chamberlain found Rand "very 1953-ish."

Other artists came up against corporate conservatism or simply frightened their corporate sponsor by their oversized imaginations. Victor Vasarely, a Hungarian sculptor well-known for his plastic kinetic sculptures, proposed to IBM, a huge color generator ("a lumino-cybernetic screen") that "could send out millions of different color combinations." IBM's interest froze when the company realized that Vasarely's conception would cost $2-million.

Few artists seem to have been involved with the computer during the "Art and Technology" collaborations. One, Jesse Reichek, did succeed in working with Dr. Jack Citron of IBM in Los Angeles. Citron was one of the IBM people who assisted John Whitney in his attempt to use the computer to produce art (see COMPUTER DECISIONS April, 1970). As with the Whitney art forms, the results of the Reichek/IBM collaborations produced some rather disappointing and quite mundane forms.

Another artist, Jack MacLow, used a DEC PDP-9 computer at Information International, Inc. in Los Angeles, to generate reams of (to me) meaningless poetry. MacLow's computer poetry appears to prove that one can use a computer to generate (on the million-monkey theory, I suppose) countless permutations of words and some lines will, almost, have a kind of sense.

It is difficult to conclude from this book that there can be, or should be, a marriage of a kind between artists and the technologists. Undoubtedly a few of the artists did succeed in producing enduring works of art. Perhaps some engineers were moved to artistic creative experiences of their own. We don't really know since the book mostly details only the artists' reactions. It would be interesting to know if the open-endedness of the artist's experiences have led to any comparable open-ended creativity on the part of the technologists and businessmen with whom the artists come in contact. That might have been an even more worthwhile result of "Art and Technology." J.N.B.

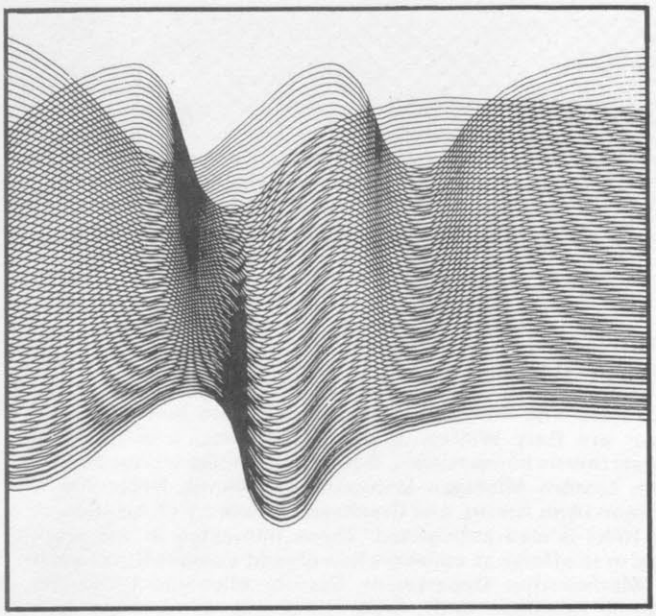
Reprinted from *Computer Decisions,* November, 1971, p. 33, Copyright 1971, Hayden Publishing Co.

The following is a passage from David Antin's article "Art and the Corporations" (Art News magazine, September 1971), an extensive review of the Art and Technology exhibition mentioned above. It is worth looking up, I believe, because it concerns itself not only with the specifics of the exhibiton, but examines with great insight the basic premises and problems of the "art and technology" concept.

—G. Smith

Perhaps one of the most amiable images of technology in the show emerges from Jesse Reichek's computer project. According to the catalogue, Reichek was interested in having the computer make a study of his past work, determine his "style", generate new works in that "style", study the implications that this new work had for consistency of the style, and then generate more new works, etc. In other words, Reichek had in mind to take a computer as an apprentice. After meeting with a number of executives of IBM and a physicist-mathematician who had a strong feeling for music, he learned that there were inherent limitations to the present capacity of computers to do this. On the face of it, one might have suspected this, but there were aspects of Reichek's work that might have suggested it was not in his case entirely out of the question. Reichek is a Hard-Edge painter who tends to use relatively few elements, which can be regarded as sets, and subjected uniformly to simple operations, made still simpler by the heavy reliance on symmetries and a grid-like analysis of his two-dimensional surface. Nevertheless, cheerfully titled articles in computer journals or in Scientific American notwithstanding, pattern analysis, the problem on which the whole program would hang, is not a strong point of computers. Decisions which for human beings are trivially simple, like what is the figure and what is the ground in even simple configurations, are not inherently appropriate for computer "mentality". And there is no reason that they should be. Figure-ground analyses are specific to certain animal sensing and analyzing systems. We haven't the vaguest idea on what they are based in practice in living animals. As a result, to make a computer arrive at correct figure-ground decisions, special kinds of ad hoc strategies have to be employed and then translated into computer terms. How do you tell a "chess playing" computer to make a particular move "to gain tempo"? But a programmer knows what "tempo" is, and a programmer can also tell which is the figure and which is the ground in even complicated drawings. To "analyze" Reichek's style is far beyond the capacity of any computer but not by any means difficult for a human being. What happened at IBM was that Reichek took a physicist as an apprentice. The physicist learned the style and developed a code that enabled him to use a graphic computer as a kind of scratch pad on which to draw Reicheks. Reichek could look at the output and validate whether or not Jack Citron (the physicist) had in fact learned how to make Reicheks. Citron was then successfully apprenticed, and everybody was happy.

Antin's book on art and technology is to be published by Viking.



Untitled I (phenomena systems series) 13 x 14
Gary William Smith

The Technology of Computer Music, by Max V. Mathews with the collaboration of Joan E. Miller, F. R. Moore, J. R. Pierce, and J. C. Risset. The M.I.T. Press, Cambridge, Mass. 1969. $12.

This book is primarily written to show the reader how music synthesis has been accomplished with the well-known MUSIC V computer program. The book is arranged in three main sections: Introductory comments on digital waveform processing, examples and description of the MUSIC V program and interesting results of some psycho-acoustical experiments in relation to music.

The author's presentation of this material is well organized; he first gives the reader an intuitive feeling for the subjects discussed and then includes many explicit examples. Mathematical models of sampling theory and digital waveform processing are included as well as some specific examples which demonstrate important results of the mathematical theory. The book has the format of a textbook and includes exercises to test the reader's understanding of the material, bibliographies at the conclusion of each chapter, and an index of subjects at the end.

MUSIC V is a three-pass computer program consisting of subroutines which allow the user to specify parameters of sound waveforms such as frequency, duration, amplitude, pitch quantizing, attach and decay characteristics and envelope shaping, etc. Those who can read FORTRAN (with its annoying convention of letter "O's" crossed) are able to see exactly how a computer can be programmed to generate various music waveforms. Readers who do not wish to wade through routines of code are given the essential information in graph form, which is easy to follow and understand.

Recently there has been much interest among musicologists in the use of electronic equipment. The approach taken in this text is one extreme, that of synthesizing musical waveforms digitally. This method requires large amounts of storage, powerful computational facilities and a lot of time. For instance, on a third-generation computer as much as one minute to several minutes of computer time is needed to compute a second's worth of musical output. However, this method of music production is very general and facilitates the synthesis of different sounds and many melodic lines capable of complex interplay.

Another approach, on the other extreme, uses electronic music synthesizers such as the Moog to produce music by purely analog means. The Moog consists of various voltage regulators such as potentiometers and variable capacitance circuits which determine the various parameters of sound waveforms. Although some repetitious background rhythms may be programmed in this instrument, the Moog is essentially a monophonic instrument; but it is capable of producing varying sounds in real-time. Composers of musique concrete have also used the switching capability of electronic devices in organizing "electronic music." The notion here is to record sounds in an analog fashion on magnetic storage equipment and then selectively merge portions of the recorded sounds together with the aid of electronic switching circuits. Many musicians are now experimenting with electronic modulation, amplification and distortion of the sounds produced by voice and common musical instruments. Another musical effort is under way at the University of Utah to create a hybrid musical instrument capable of real-time production of music by combining the sound generating capabilities of an electronic organ and the switching power of an electronic computer. This will facilitate the creation of many interacting polyphonic melodies, each of which may be selectively "colored" by analog filters. The continuing merger of technology and music is creating excitement and is opening new doors of interest and exploration.

In conclusion, The Technology of Computer Music is valuable to those who plan to use a computer to synthesize and process digital waveforms, and it is interesting to those who want to see how this has been done with MUSIC V.

—Alan C. Ashton

The Computer in Art, Jasia Reichardt, (Van Nostrand Reinhold, New York City) 96 pages, $2.75.

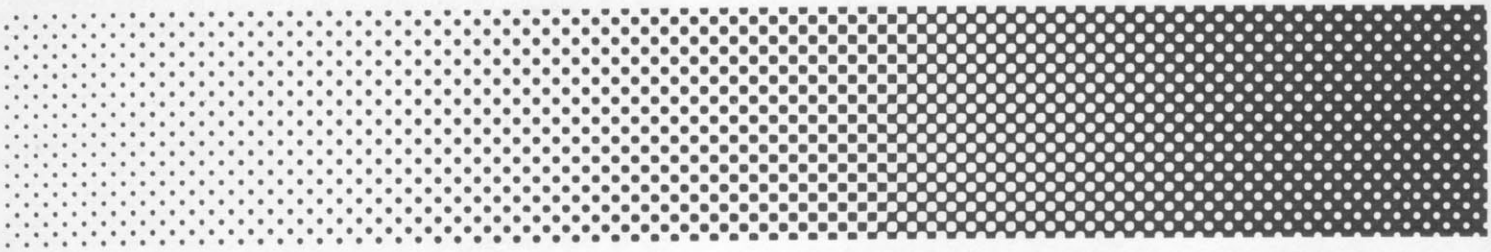
This is a well-produced paperback that takes brief looks at most of the contemporary workers who are using the computer to produce graphic 'art'. Much of the work is mundane and grossly mechanical. However, Miss Reichardt has chosen her examples well and, the text is eminently readable, unlike most 'art' discussions. An index would have been helpful. J.N.B.

THE EXPERIMENTAL MUSIC STUDIO
UNIVERSITY OF ILLINOIS

This is a studio for electronic music production and for research in musical acoustics presently housed at 301 Stiven House. Beginning September, 1972 it will be housed in the fourth floor of the newly constructed Music Building at the corner of Nevada and Goodwin. The studio contains an elaborate 16 input/4 output mixing console, central patching console, several professional tape recorders, several industrial signal generators and filters, custom and Moog voltage-controlled synthesizer units, plus a number of peripheral apparatus. It is essentially a 4 channel sound synthesis system.

There is also an active computer music program in conjunction with the Experimental Music Studio. Some current projects are: 1) Computer generation of sounds with the IBM 360 and the U. of I. Hybrid Facility (Music V); 2) PDP5 hybrid synthesis (a small computer used to control Experimental Music Studio apparatus and special synthesizers); 3) Music and graphics composition by computer; 4) Analysis and synthesis of musical instrument tones by computer.

Many of the studio research projects are carried out in conjunction with groups in various engineering departments such as computer science, electrical engineering, civil engineering, and the Coordinated Science Laboratory. Electrical engineering and



computer science students work with composers on special problems which often lead to theses for advanced degrees. Interdisciplinary degrees between EE and Music are possible by special arrangement.

The School of Music offers a number of courses each semester which compliment the studio activities: Music of the 20th Century (Charles Hamm), Musical Acoustics (James Beauchamp), Seminar in Experimental Music, I & II (Herbert Brun), Composition with Tape (Herbert Brun), Composition with Computer (Herbert Brun), Electronic Music Techniques (James Beauchamp), Computer Music (James Beauchamp), and Microphonics (Salvatore Martirano). These courses are open, as electives, to all students enrolled in the School of Music as well as to students of other departments. There are also related courses offered in electrical engineering entitled "Engineering Acoustics" and "Acoustics and Electronics of Music".

Students wishing to enroll in the School of Music should address their applications and inquiries to Professor Thomas Fredrickson, Director, School of Music, University of Illinois, Urbana, Illinois 61801.

VIDEO TAPES COMPUTER ARTS SYMPOSIUM FLORIDA STATE UNIVERSITY

Due to both the visual as well as the verbal nature of the First National Computer Arts Symposium, we did not attempt to, nor intend to, publish a proceedings of the conference. Instead, we made video tapes of the entire symposium, some 8 1/2 hours worth. These have now been edited and are available from the Computer-Assisted Instruction Center at Florida State University. The cost for the full 8 1/2 hours is $40. You may keep them for one week. If longer time is needed, an additional $40 will be charged.

Magnetic tapes of the event are also available. Again, the time is probably around 8 1/2 hours, and the cost is $12 per week. Upon request, either type of tapes will be sent to you C.O.D. and you will be responsible for damaged tapes. Each damaged tape costs $30.

Due to the many inquiries, we suggest that you answer hurriedly and give us two alternative dates to your preferred date.

Write to: Rusty Luttrell, Artist in Residence, Computer-Assisted Instruction Center, Tully Building, Florida State University, Tallahassee, Florida, 32306 U.S.A.

ABOUT THIS ISSUE

This issue of PAGE was produced by CASUS, the United States branch of the Computer Arts Society. Its co-editors are Kurt Lauckner of the Mathematics Department of Eastern Michigan University and Gary William Smith of Cranbrook Academy of Art. CASUS will administer the U.S. membership of the Society and produce one issue of PAGE each year. In addition to these duties, a series of about six workshop centers throughout the U.S. will be formed with the goal of acquainting artists with the computer as an artistic tool.

Kurt Lauckner also plans to initiate a series of summer workshops at Eastern Michigan University with the goal of eventually establishing a year-round computing center for the visual arts, music, and literature. Collaborating with him in this endeavor are Gary William Smith (visual arts) and David N. Stewart (music composition). Some cooperative interaction between Eastern Michigan University (Ypsilanti), University of Michigan (Ann Arbor), and Cranbrook Academy of Art (Bloomfield Hills) is also anticipated. Those interested in the workshops or in efforts at collaboration should contact Kurt Lauckner, Mathematics Department, Eastern Michigan University, Ypsilanti, Michigan 48197, USA.

SMITH

Gary William Smith, a sculptor, was educated at Wayne State University (Detroit) and Cranbrook Academy of Art. He has been involved primarily with plastic sculpture until recently. In 1971 he began doing computer assisted drawings with the aid of a private firm in Detroit. In January 1972 he received a grant from the University of Michigan for research in computer assisted art. Shortly afterward he met Kurt Lauckner and the present collaboration began.
He has exhibited his work throughout the US. Some recent exhibitions include the Denver Art Museum, the Springfield Museum of Fine Arts, the Jersey City Art Museum, the Grand Rapids Art Museum, the Flint Institute of Art, the Detroit Art Institute, and Cranbrook Academy of Art. He staged "The First Real Light and Music Show" at Wayne State University in 1969. One-man exhibitions include the Fort Wayne (Indiana) Art Institute and Henry Ford College (Dearborn) as well as a two-man exhibition at the University of Michigan. He is also represented in galleries and private collections.

AIMS AND MEMBERSHIP

The Society aims to encourage the creative use of computers in the arts and allow the exchange of information in this area. Membership is open to all at £1 or $3 per year, students half price. Members receive PAGE eight times a year, and reduced prices for the Society's public meetings and events. The Society has the status of a specialist group of the British Computer Society, but membership of the two societies is independent.

Libraries and institutions can subscribe to PAGE for £1 or $3 per year. No other membership rights are conferred and there is no form of membership for organisations or groups. Membership and subscriptions run from January to December. On these matters and for other information write to Alan Sutcliffe or Kurt Lauckner (U.S.A.).

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