

The Computer Arts: Origins and Contexts

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Although artists were using analogue mechanical and electronic systems earlier in the 20th century it was during the 1960's that they first began to get involved in the world of digital computing. By 1968 it was possible for Jasia Reichardt to curate a survey of work in the area in the influential Cybernetic Serendipity exhibition held at London's Institute of Contemporary Art - the ICA.

Many young artists were inspired to get involved with computers after seeing this show which went on to tour the United States and Japan. In the United Kingdom this was enabled by the amalgamation of the Colleges of Art with Colleges of Engineering; Furniture; Printing, etc... to form the Polytechnics in the late '60's. For the first time it was possible for students to learn computer programming as a part of their courses in the fine and applied arts. By the early 1970's many such interdisciplinary programs had emerged at the Polytechnics at Coventry; Middlesex; Leicester; Liverpool and elsewhere. The Royal College of Art's postgraduate Design Research Dept. had begun working in the area. Then in 1972 the Slade School of Fine Art at University College London used a bequest from alumni Eileen Gray to purchase a Data General Nova 2 minicomputer system for their new Experimental and Computing Dept.

The concept of user-friendly applications was still way in the future and using a computer meant for most artists learning how to program. It wasn't easy and only appealed to certain minds. The resulting work owed much to the traditions of Constructivism and the then popular Systems Art that was the dominant aesthetic in many European postgraduate programs like the one at the Slade. This, of course directly informed their decision to spend what was a considerable amount of money on an in-house dedicated computer system in preference to experimenting with the central time-share and multi-user systems provided by University College and the University of London Computer Centre.

Similar initiatives were happening in elsewhere in the developed world and a new generation of artists emerged who took the computational and generative systems as their primary working methodology. However times were changing. Late modernism was replaced by what has become known as post-modernism which relatively quickly became the dominant critical and curatorial aesthetic. The computer-based work was problematic - it challenged the understanding of the humanities-trained theorists (who wouldn't at that point in time have had any exposure whatsoever to computer systems). In consequence the computational work was identified with technological absolutism and the modernistic emphasis on intrinsic

media qualities. If it had occurred later it might have been more correctly identified with more postmodern concerns like non-linearity and emergence. But, at the time, these concepts were almost unknown outside a small scientific community.

Another problematic aspect for the mainstream was the participation of many scientists, programmers and technologists who had little if any knowledge of the arts and their history. This aspect had been acknowledged and encouraged by Jasia Reichardt in Cybernetic Serendipity who included the work of scientists and engineers alongside that by artists (who were in fact in the minority). This egalitarian nature of the art/science/technology interaction is one of its attractions for many participants. However it remains a major problem for the artworld.

The historian and archivist Patric Prince curated the 1986 SIGGRAPH Art Show (which included a retrospective section) and she discussed this problem in her catalogue essay [Prince 1986]. These practitioners are in fact "naives" in the art sense of the word. However, the artworld expects work by naives - like Arthur Wallis or Grandma Moses - to be crudely constructed and unsophisticated. In contrast the computer-based works by people from a technical background are often exquisitely crafted and finished. This was another quandary for the mainstream and they responded once again by simplistically rejecting the work and condemning the field.

The theorist Rosalind Krauss expressed another important critical position when she dismissed the conceptual artist Sol Lewitt's work as obsessive - the "babble" of serial expansion which fails to summarise by using "the single example that would imply the whole". For me this glib dismissal illustrates both Krauss' unwillingness or inability to engage with the work on its own level and also her failure to consider the context from which it emerged. She simply projects her own limited opinion of what constitutes art and then, when she fails to comprehend Lewitt's intellectual pursuit, decides to exclude him from her pantheon.

Nevertheless Krauss was influential and in her words we see if not the origin then the essence of the mainstream viewpoint that has led to so much neglect of this period of art history.

In consequence the many young artists emerging from the new interdisciplinary programs were not able to participate in the mainstream artworld. Their work wasn't exhibited in the prestigious and influential state and private galleries and wasn't featured or discussed in the art media.

Their prospect wasn't completely bleak. In 1968, after meetings at IFIP in Edinburgh, the Computer Arts Society - CAS - was formed at Event One at the Royal College of Art. In addition to publishing over 50 issues of their bulletin - PAGE - CAS also curated several exhibitions - often held in

the unsold shell spaces at major computer trade shows and conferences like the annual Computer Graphics UK series held in London's Wembley Exhibition Centre.

This tradition was "formalised" over a decade later when in 1981 the ACM's Special Interest Group in Graphics - SIGGRAPH - augmented their annual conference with an art show co-curated by Darcy Gerbarg and Ray Lauzzana. It was accompanied by an artist's Birds-of-a-Feather meeting where over 50 of us gathered and exchanged addresses. I can remember my own surprise and delight to discover so many like-minded colleagues! The annual SIGGRAPH Art Show became a major international venue throughout the 1980's and continues to this day.

Lauzzana went on to found fineArt forum - fAf - in 1987 as an online bulletin board dedicated to the electronic arts [9]. It's currently out of operation after losing its funding from the Australia Council for the Arts but there are plans to resurrect it soon. A complete 15-year archive is available on CD, check the link on the fAf site if you want a copy.

Another essential resource was founded back in 1968 by the American artist/engineer Frank Malina. For over 30 years the journal Leonardo has been the principal scholarly publication addressing the convergence of arts, science and technology. With a move to MIT Press in the early 1990's it was able to launch its own book imprint and online publication - Leonardo Electronic Almanac or LEA [11].

In 1979 in Austria the Linz-based Ars Electronica annual festival began [12] and then in 1988 the Inter-Society for the Electronic Arts - ISEA was formed in the Netherlands [10].

These and other resources and opportunities enabled the digital arts and their makers to survive and flourish albeit in a marginalised and often maligned form. We became an international "salon des refuses"!

Now a new millennium has dawned, postmodernism itself is on the wane and many of the pioneering artists who were involved in the digital and electronic arts and other aspects of what has been tagged "Late Modernism" have sadly died. There's a growing awareness that if this period isn't documented and archived soon it runs the risk of being permanently forgotten. A huge chunk of art history will have been lost forever. A number of international initiatives have sprung up to ensure that this doesn't happen.

I am associated with CACHe - Computer Arts, Contexts, Histories, etc... [1]. Generously funded with almost US\$700,000 from the British Arts and Humanities Board (AHRB) the CACHe project is based in the Dept. of History of Art, Film and Visual Media at Birkbeck College, University of London. It's a three-year program that aims to archive, document and create both historical and critical contexts for the computer arts in the UK from their origins to around 1980 when the "user-friendly" systems began to appear. The word arts is used in its plural sense and we intend to include the visual and performing arts, literature, etc...

Stephen Jones project is called: "Synthetics: Towards a History of Computer Art in Australia" [2]. It covers the development and use of the electronically generated image in Australia from its first appearance in computing to its subsequent use in video, film and media art. Jones

intention is to uncover the interactions and streams of influence between people working in hardware and software technological developments and artists working in the many areas of image production that were enabled by these technologies.

"Although Australian media arts and artists have an extensive involvement in international movements in contemporary art and video/media production," says Jones "the history of this work has never been laid out for the Australian situation and thus is almost unknown within the world-wide context. Given the very high level current involvement of the Australian computer graphics industry in film and television production, there is almost no knowledge of how we got to this position or who was involved. Likewise in the arts, there is very little knowledge base for teaching the background to our current strong position in media arts production and our reputation for producing a number of important artists working in the field. This project seeks to address these lacks."

The Paris-based Leonardo/Olats : Pionniers & Précurseurs (Pioneers & Pathbreakers) project is managed by Annick Bureaud [3]. It aims to establish reliable, selected, on line documentation about the artists of the 20th Century whose works and thoughts have been seminal for techno-science related art. The project is being carried out through a collaborative working group of art historians, scholars and researchers.

Pioneers & Pathbreakers includes artists dealing with art, science and technology directly (the pioneers) and also artists who, sometimes even before the technology was available, opened new conceptual directions (the pathbreakers). It is organized around two axes: "Monographies" : in-depth sites about an artist or a group of artists and; "Notices" : encyclopedia-like information (introductory texts, biography, bibliography, list of works, etc.) about an artist or a group of artists.

So far, the project has been mainly done in French although translations into English are under consideration.

Sue Gollifer of the University of Brighton is undertaking a project to create a Digital Archive of ISEA [4]. It's another project being supported by the UK's Arts and Humanities Research Board. The aim of the project is to catalogue and preserve an educational electronic archive of the International Symposium of Electronic Art - Conference and Exhibition 1988 - 2002. These will include the conference proceedings, catalogues and CD-ROM's and work from the accompanying exhibitions and performances. The preservation of the archives on a secure website is key to the project. This will be done through the Visual Arts Data Service, (VADS) and The JISC Distributed National Electronic Resource (DNER), UK.

In Germany the computer arts pioneer Frieder Nake is creating "compArt - a structured space for computer art" [5]. He describes it as a ... "a hypermedium on the history of computer art." They are currently focussing on the early history from 1965 to 1980 but plan to include later periods. The hypermedium uses a space metaphor and composes four subspaces. The space of pure data is a relational database. The space of works are virtual galleries that are reconstructions of historical sites. The space of art is a fantastic navigable space of many objects in a field of forces

of attraction and repulsion. Finally there's the space of learning - virtual laboratories inviting experiments between aesthetics and algorithmics. At present it's in German but translations are planned.

Also in Germany the historian and theorist Oliver Grau, author of "VIRTUAL ART - From Illusion to Immersion" has put a critical database online on his website [6].

The Daniel Langlois Foundation for Art, Science and Technology operates a Centre for Research and Documentation (CR+D). It aims to document history, artworks and practices associated with electronic, digital media arts and make this information available to researchers in an innovative manner [7].

The Digital Art Museum - DAM - is another project that has received funding from the UK's Arts and Humanities Research Board [8]. As the name implies it's a virtual museum of pioneers and practitioners. It's also an interesting collaboration between an academic institution, Metropolitan University and the gallerist Wolfgang Lieser. Lieser who has two galleries in Germany and plans another in London comments that all this academic and philanthropic research will establish a new legitimacy for the computer-based arts. In response the work will become collectable, there will be an increase in demand and improved sales. Now that's something most practitioners will be pleased to hear about!

In 2004 the Computer Arts Society (CAS) reformed [13] (see above). CAS was originally founded by Alan Sutcliffe, George Mallen and the late John Lansdown and ran from 1968 to 1985 producing 55 issues of its bulletin PAGE. The new society intends to become a venue for current practice as well as an archive for preserving historical work. Here again the word "arts" is plural emphasising the society's interest in the broader cultural applications of computing.

And finally... SIGGRAPH are themselves compiling a history of computer graphics and art [14]. The organisation has played a major role in sustaining practice in the field over the past two and a half decades and so it is excellent news that they are now also playing an active role in preserving this important and long-overlooked history. The aim is to... "assemble a database that documents the evolution of computer graphics, art and thought about art in relation to the progress of technology".

Further sources of information

Readers who have information they wish to share about the history of the computer-based and electronic arts are encouraged to contact the relevant projects directly:

- [1] CACHe - Computer Arts, Contexts, Histories, etc...
<http://www.bbk.ac.uk/hafvm/cache/>
Contact: Nick Lambert info@cache.bbk.ac.uk
- [2] Synthetics: Towards a History of Computer Art in Australia
Jones, Stephen, "Synthetics: The Electronically Generated Image in Australia" Leonardo, vol.36, no.2 (April 2003).
Jones, Stephen, "The Evolution of Computer Art in Australia"
Computer Art Journal, vol.1, 2003, Europia Editions, France.
Contact: Stephen Jones sjones@culture.com.au

- [3] The Leonardo/Olats: Pionniers & Précurseurs (Pioneers & Pathbreakers)
<http://www.olats.org/setF4.html>
Contact: Annick Bureaud annickb@altern.org
- [4] ISEA Digital Archive Project
<http://www.isea-web.org/eng/projects.html>
Contact: Sue Gollifer s.c.gollifer@bton.ac.uk
See also: <http://www.vads.ac.uk>
- [5] compArt - a structured space for computer art
<http://www.agis.informatik.uni-bremen.de>
Contact: Frieder Nake nake@informatik.uni-bremen.de
- [6] VIRTUAL ART - From Illusion to Immersion
Oliver Grau, The M.I.T. Press, January 2003, ISBN 0-262-07241-6, 7 x 9,
<http://www.arthist.hu-berlin.de/arthistd/mitarbli/og/og.htm>
- go to DATABASE - English version
Contact: Oliver Grau Oliver.Grau@culture.hu-berlin.de
- [7] The Daniel Langlois Foundation for Art, Science and Technology Centre for Research and Documentation (CR+D)
<http://www.fondation-langlois.org/e/CRD/index.html>
Contact: info@fondation-langlois.org
- [8] The Digital Art Museum - DAM
<http://www.dam.org/>
Contact: Wolfgang Lieser Digitalartmuseum@aol.com
- [9] fineArt forum - the art and technology netnews
<http://www.fineartforum.org>
Contact: editor@finartforum.org
- [10] ISEA - the Inter-Society for the Electronic Arts
<http://www.isea-web.org>
Contact: info@isea-web.org
- [11] Leonardo Electronic Almanac
<http://mitpress2.mit.edu/e-journals/LEA/>
Contact: Nisar Keshvani lea@mitpress.mit.edu
- [12] Ars Electronica
<http://www.aec.at/>
Contact: info@aec.at
- [13] Computer Arts Society
<http://computer-arts-society.org>
Contact: Christos Logothetis christos@logothetis.co.uk
- [14] SIGGRAPH History of Computer Graphics and Art
<http://www.siggraph.org/education/cgHistory/history.html>
Contact: Anna Ursyn ursyn@arts.unco.edu

Reference

PRINCE, P. 1986: *SIGGRAPH '86 Art Show Catalog*, ACM SIGGRAPH 86, Dallas, Texas, 1986