



Leonardo Electronic Almanac

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INTRODUCTION

< This Issue >

Craig Harris

The Feature Article this month is a compilation of articles designed to explore the past, present and future of publishing as it relates to electronic art, created for presentation at the International Symposium on Electronic Art 1997. This is an unique opportunity to explore the historical background, current challenges, and future plans for several publications that address the needs of the LEA community, including Leonardo Electronic Almanac, Leonardo On-Line, FineArt Forum, the International Directory of Electronic Art (hard copy and electronic versions), and the Leonardo Observatory of Arts and Techno-Sciences. We provide this in celebration of the 30-year anniversary of the creation of the journal Leonardo, another milestone in an evolving set of activities designed to support the work of artists and others working at the intersection of art, science and technology.

Our Feature Profile has been supplied by Joan Truckenbrod, the 1998 SIGGRAPH Gallery Art Show Chair. Joan has a strong vision for what she would like to do in the art realm for SIGGRAPH in 1998, which ties in with her Touchware concept.

Leonardo Digital Reviews explores issues ranging from abstracting craft to intellectual capital to the intersection of architecture and new media. There is a lot of activity in the field this fall, with many opportunities for those seeking employment in a variety of categories, and several festivals and performance opportunities coming up.

Leonardo Electronic Almanac is collaborating to create an event in the Minneapolis/St. Paul region early in November, and more information will be available about Art on the Electronic Edge in LEA 5:11. Also in LEA 5:11 will be a special profile about V2, created by Andreas Broekman and Kit Blake for LEA in conjunction with this festival. In the mean time, however, there is festival content accumulating on the LEA web site already, and people are invited to peruse that material as it evolves to find out more about what we are doing.

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FEATURE ARTICLE

Past, Present, and Future of Publishing in the Electronics Arts

Community Panel Organizers:

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[Editor's Note: This article is a compilation comprised of presentations prepared for a panel created for the 1997 International Symposium on Electronic Art (ISEA 97) in Chicago, on September 24,

1997. A lively discussion took place after the presentations, mainly focusing on issues of access to technology, and addressing Roy Ascott's opening of the discussion of the technoetic perspective. We are grateful to the presenters for providing us with their ideas for publication in Leonardo Electronic Almanac, and invite additional perspectives and further discussion from those who find the issues raised relevant to their work. A reception at the Chicago Cultural Center followed the panel, celebrating the 30th Anniversary of the publication of the journal Leonardo. This was great fun, and also provided opportunities to meet with many LEA participants who have contributed to the content in the last five years, as well as to establish contacts for future content development. Thanks go to the ISEA organizers and to the Chicago Cultural Center for hosting the gathering!]

Abstract:

Is print publishing dead? This panel explores the ways that electronic on line publishing is radically altering the future of publishing aimed at the electronic and technology arts community. It considers several different publishing purposes including publicizing; archiving; providing contexts for commentary and interpretation; supporting communication and collaboration among artists; facilitating access to information about competitions, funding and exhibition opportunities; identification of relevant developments outside the art world including political and technical news; audience development; and providing contexts for actual implementation of work.

Participants include editors of the print journal Leonardo, Fine Arts Forum, IDEA Resource Handbook, and Leonardo Electronic Almanac. Other panel members will provide additional perspectives including analysis of the needs of emerging countries, projections about the future impact of new technologies and research, and analysis of the role of electronic arts publishing within larger cultural trends. Audience members will be invited to make concrete suggestions for how these publishing services can better serve them in the future. The panel commemorates the 30th anniversary of Leonardo, the international journal of art, science and technology published by MIT Press. After the panel, audience members will be invited to join a birthday cake celebration.

Panelists include:

Roger Malina is Chairman of the Board of the International Society for the Arts, Sciences and Technology and Executive Editor of its journal Leonardo. He is an astronomer and Director of the NASA EUVE Observatory at the University of California, Berkeley and of the CNRS-CNES Laboratoire d'Astronomie Spatiale in Marseille, France. Stephen Wilson is an artist who explores the cultural implications of new technologies and head of the Conceptual Design/ Information Arts program at San Francisco State University. He has written numerous articles and several books including World Wide Web Design Guide. He is one of the international editors of Leonardo.

Craig Harris is a composer, new media artist, writer and educator, creating works for concert performance, music theater and performance art, dance, video, multimedia and art installation. Harris is Executive Editor of the Leonardo/MIT Press electronic journal Leonardo Electronic Almanac, and is contributing author for the Leonardo Book Series.

Annick Bureau is art educator, curator and publisher of the IDEA International Directory of the Electronic Arts. She is president of the Art, Science, Technology Network (ASTN) and of CHAOS. She is also a curator, professor, writer, and advisor to the French government.

Paul Brown is editor of FineArt Forum and professor at Griffith University in Australia. He is an artist, curator, and writer on the

cultural implications of art and technology.

Rejane Spitz is the Coordinator for Postgraduate Studies at the Department of Arts at Pontificia Universidade Catolica do Rio de Janeiro, Brazil. She also coordinates the Electronic Art Center, a research, development and production lab which she founded in 1993, at PUC-Rio. As a multimedia artist, she has been recently awarded the Golden and Platinum Records from WEA Music for the creation of the interactive track of the CD "ALBUM" (Barao Vermelho rock band). She has curated several exhibitions on Electronic Art in Brazil, and has written extensively on socio-cultural issues related to the use of computers and the role of electronic artists in developing nations. In 1992 she started the South American branch of ISEA (Inter-Society for the Electronic Arts), which she coordinates since then. She is the ACM SIGGRAPH Education Committee Representative in South America (since 1991), and a member of the Editorial Board of Leonardo (since 1993). Roy Ascott is Director of the Centre for Advanced Inquiry in the Interactive Arts (CAIIA) at the University of Wales College, Newport. He is a pioneer of telematic art and a theoretician who has published extensively. He has served as advisor to numerous international art projects and juries.

Purposes of Publishing in the Electronic Arts Community and Future Technologies that will affect Publishing.

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Goals of the panel:

1. Theoretical consideration of future roles of print and electronic publishing
2. Provide guidance to those directing current publishing efforts

Definition of Publishing:

Presentation of information in print or electronic form for use by a public audience not necessarily present at the creation of the information (Examples of non-published presentation - email, making something public in performance or exhibition, non permanent announcement).

Summary of purposes served by "publishing" in the new tech arts community:

1. Artist communication with each other about technical, aesthetic, critical, political, economic issues related to their work.
2. Artist communication with critics, curators etc (to explore conceptual issues, Jachieve recognition, exhibition opportunities, and support).
3. Artist communication with general public (to achieve recognition, build audiences, gain support).
4. Archival records of work (for future artists, historians, etc.)
5. Presentation for actual works (eg net artworks).
- 6 Access to current information about art events, support opportunities.
7. Communication of non-art world information (eg technical or socio/political developments)
8. Validation, Curation, Editing - determinations of value

Future Technological and Techno-cultural Developments Relevant to Publishing in the Electronic Arts:

1. Electronic micropayment systems
2. Printing on demand

3. Electronic paper
4. Wireless mobile communication
5. Video and audio teleconferencing
6. Groupware support of collaboration
7. Automatic language translation
8. Electronic copyright enforcement
9. AI Agents
10. Continued blurring of publishing, art, media, entertainment, education, commerce boundaries

 Leonardo - the next 30 years and the impact of electronic publishing

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Leonardo will be celebrating its 30th birthday over the coming year. It is a good chance to take stock and look forward to how Leonardo will evolve over the next 30 years in response to the needs of the professional community.

We should thank first all those who have been involved in the Leonardo enterprise. All those who work in the non-profit world know that survival and evolution are no mean tasks. Today over 150 individuals are involved in the producing of the Leonardo publications and projects. These individuals serve on advisory and editorial boards, as reviewers, as sponsors, as editors, as web site managers. Over 30 years we have published the work of over 3000 authors. This is of course what Leonardo is about.

The underlying shared beliefs of this community is that creators and scholars today should use whatever fruits of science and technology are at their disposal. There is no shared name for this diverse art/science/technology community, whose work ranges from the electronic arts, to space art, to art and biology, from visual to sound to performance work. This community is clearly growing as can be seen by the birth of new institutions, educational programs and publications. These artists and scholars are seeking to produce truly contemporary art appropriate to our world and environment.

As we look forward to the next 30 years, we can only expect that electronic media and publishing will provider better tools to allow this community of shared interests to support the institutions they need for their professional work. Already as we go about publishing, we see the way this is changing the way we think. More and more Leonardo organises "Special Projects" which involve a group of people working together through email, and using publishing venues from the print journals, to the web sites to the electronic journal for their purposes, and coming together in physical meetings and workshops. In the case of sound work and web based work we can now provide not only texts about the work, but in some cases the work itself (see the LEA and LOL galleries, the LMJ CD for instance). I have sometimes referred to this as an electronic monastery, although I don't like the word monastery, to indicate that the electronic media provide new ways for artists and scholars with shared interests to work together, to nurture new ideas until they are ready to be shared with a broader community.

Another point that is basic to this community is that artists themselves should be the first presenters and explainers of their own work. One of the frustrations that led my father to found Leonardo, was the impenetrable wall of art critics and galleries and publications who had no interest in innovative art making. A basic principle is that Leonardo is first and foremost a series of venues where creators - artists, scientists and scholars - present themselves their own work. This is not a shared view in all of the art world - many still think that artists should do their artmaking and others

should write and discuss it. The Leonardo community stands resolutely opposed to this notion. Clearly the Internet and the web have provided new ways for creators to make their work available directly to an international audience. Leonardo then provides an "Observatory" function, a sifting and filtering system to bring to the attention work that is judged to be of particular interest and significance. Another way of looking at this is by reflecting on the two basic goals of Leonardo/ISAST. These are: a) First to help make visible the work of artists using contemporary science or technology. b) Second to help foster collaboration between artists, scientists, engineers and scholars.

How do electronic media and publishing affect this? The answer is: totally - from top to bottom, A to Z. I am sure that thirty years from now we will not recognise the kinds of products and services that Leonardo is involved in.

I should say that we are lucky enough to work with a publisher, MIT Press, that has understood that the world has changed, and that their community of authors will require a transformation of the systems of scholarly publishing.

MIT Press has for instance made a long term commitment to maintain and upgrade the Leonardo web sites. They just carried out an expensive and thorough upgrade of their system. This will be required periodically to assure that the material on the web sites now will still be available ten or twenty years from now. This archival commitment is critical to the community, otherwise the discourse will evolve in a rapidly ahistorical vacuum where key sources disappear within months of their initial availability on the web. This is already a problem. The web is almost an oral medium.

We are just completing a collaboration with Xerox PARC to digitise all thirty years of Leonardo - 10,000 pages, 6000 illustrations. This collection will be made available through the web. As we incorporate the web collections into the Leonardo opus, slowly we are inverting the way we view what we do. The digital archive becomes the primary subterranean resource, and over the years different kinds of publishing products will be produced from this warehouse of material. Finding the right combination of electronic and physical media will be a continuing opportunity and challenge. In current jargon we need to both "pull" our audience to the available resources, but also "push" material of specific interest to them for easy access.

As a byproduct of this, we have begun new kinds of services. One example is the posting of bibliographies on hot topics on the web site, These are appreciated as a resource by educators, students and scholars. Another is that we have now started publishing on-line monographs. Clearly electronic publishing is making possible a new way to make monographs available to the small interested communities that are interested in them. Traditional scholarly publishers have abandoned this market; the electronic media will re-open new venues for scholars. We are just starting a new collaboration with Rhizome Internet LLC to provide an organised system so that authors and readers can contact each other, and experts can set up collaborations with each other. Finally, we are now setting up German language and French language web sites. The diversification into other languages will be a growing trend. English is not and will never be a global cultural language. The new electronic tools allow us to find different ways of working without always imposing the dominance of English. As we look to the future, one basic task that is not changing but rather is increasing in prominence is the task of editorial boards and advisors. We are able to work more easily with them, and as a result respond more quickly to the evolving discourse and focus on new work of interest.

I am personally involved in three of Leonardo's special projects - On Art and Biology, Virtual Africa, and the Working Group on Art and Space Exploration. These projects are making use of all the electronic tools and media at our disposal. Thirty years from now, I look forward

to seeing these projects bear fruit at ISEA in Senegambia 2027 with a satellite event on the International Space Station.

Leonardo Electronic Almanac - Past, Present and Future

Craig Harris

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LEA Historical Perspective

Leonardo Electronic Almanac finds its origins in the long-term publication plan of the International Society for the Arts, Sciences and Technology (ISAST). ISAST was celebrating 20 years of publishing its renowned hardcopy journal Leonardo in 1988, as chairman and Leonardo Editor Roger Malina was laying the foundation for an electronic presence in ISAST's direct involvement at the initial stage of FineArt Forum's evolution. Serial text delivery via electronic mail messages was the mode, in a mixture of announcements and dialog among artists working in new media moderated by Ray Lauzzana. In the second stage of development the size and scope was extended under the direction of Judy Malloy and Nancy Nelson.

As FineArt Forum and the internet evolved, the potential was evident for providing in depth content with substantially enhanced resources in a timely manner to a rapidly developing community of artists, scientists and technology developers. The journal Leonardo expanded to 6 issues per year, including the newly launched Leonardo Music Journal, and still there was a need to address the volume and variety of work taking place, and an urgency to respond to the longer publication cycles affecting hard copy journal publishing. There seemed to be both need and a feasible approach towards responding to that need.

The move to MIT Press was a significant step in this process, because of their interest in Leonardo, and also due to their affinity with our longer-term goals of creating a book series and developing electronic publications. Today, in addition to the continuing publication of the journal Leonardo, ISAST has established a fascinating book series, and has a strong and diverse presence on the World Wide Web.

Leonardo Electronic News (LEN) was created late in 1991 as a spin-off publication from FineArt Forum. FAF concentrated on announcements about international activities in the field, and LEN provided a venue for developing organization/artist profiles, publication/exhibition reviews, bibliographies, and other areas that may arise as being relevant with respect to deep content. In 1992 we created a hardcopy book, the Leonardo Almanac: International Resources in Art, Science and Technology, comprised of material collected in serial fashion through LEN, additional solicited information, features about ISAST's society activities like the Speaker's Network and prize winner profiles, and a detailed survey of individuals and organizations, assembled and organized into a group of resource tables. The process undertaken to create the book formed the foundation for creating Leonardo Electronic Almanac, which was established in 1993.

There were few models for creating a subscription-based journal on the Internet, and Leonardo/ISAST and MIT Press agreed to collaborate without knowing how we would sustain the activity. MIT Press provided the file server and handled circulation and promotion; Leonardo/ISAST provided the content and the resources to develop what was at first a lengthy email message and an ftp archive, and what was to become the LEA World Wide Web journal. FineArt Forum was transferred over to the able and adventurous direction of Paul Brown, whose strides you will hear about later in this session.

Since its inception LEA has created a text-only, email-distributed version of the journal. Even as hypermedia resources and higher speed

bandwidths proliferate on the Internet, our communications with artists, researchers and organizations around the world indicate that a large gap remains in access to technology. Whether the technological limitation exists in a creative research community in a developing country, in an artist's studio in downtown Chicago, or in an elementary school in rural Alaska, the availability of information could be crucial. The artist may connect with the very information that is required to complete a new and challenging work, or may in turn provide the creative insights that could fill an urgent need in a research project taking place on the other side of the world. Or the student may intersect with the spark that could ignite years later in an era of artists and scientists who grow up with the Internet as a fundamental resource from birth. We have explored alternatives, as we watched other Internet publications move entirely or mostly into hypermedia web presentation. We considered providing only brief abstracts, for example, with pointers to additional information on our own or other web sites. We run the risk of providing too little information for readers to assess and follow up on areas of interest, and we can potentially block opportunities to include important communities in the dialog. So as our own web resources evolve, we maintain the text component, in a continuing commitment to provide sufficient information for readers to assess the relevance of the work to their interests and needs, and to maintain an open line of communication with those experiencing limited access to the high speed hypermedia resources.

Editorial and Archival Imperatives

LEA had the challenge of establishing itself as a viable publication in its own right, and not simply as an electronic though enhanced appendage of the hardcopy journal. There was a clear need for this latter function, but LEA was mandated to forge its own identity from the outset. There were natural affinities with its parent journal, and the reputation and good will in the community established for what was then 25 years were important factors in setting the stage for the endeavor. At the same time, it was important to view this as an inherently electronic activity, and allow the nature of the medium to play a significant role in defining the publication. The goal was and remains to merge the immediacy and communication resources of the World Wide Web with the depth of content exhibited in the hardcopy journal.

It is both a beauty and a challenge to have access to this remarkable explosion of human presence on the internet, exemplified by an ever increasing number of independent artist and artist collective web sites, art organization-based web activities, and an enormous list of news and interest groups. At times it is even difficult to get a sense of who, either individually or collectively, is creating the constellation of files designed to communicate to known and unknown people both near and far. In the midst of this LEA provides an editorial focus and an archiving function that is intended to reveal current work, to facilitate self assessment of the content, and to act as a catalyst for communication and collaboration.

LEA establishes its identity through its particular orientation towards activities in the international arena. We don't try to duplicate the role that FineArt Forum performs, but rather complement it with in depth coverage and long term archival value. Few people receiving notices about events and exhibitions taking place on the other side of the world are actually able to attend. LEA takes the position that there remains immense value even for those not participating directly, if sufficient information is provided to reveal the essence of the activities.

In the extended descriptions of events, exhibitions and symposia we can explore both history and trends that reflect the collective interests of what has become an enormous international convergence of

human endeavors directed towards understanding ourselves and the world around us.

In the Profiles of Media Arts Facilities we reveal in depth information about the orientation, resources and educational opportunities at institutions around the world, facilitating the exchange of knowledge and experience, and acting as a catalyst for collaborations.

In the Gallery we feature new work, providing a venue for new media artists to present and reflect upon their most recent works and concerns, often using the same media for both art work and description.

The value of the archive as a research resource, in addition to its role as a conduit for information about current activities, is fundamental to the design of LEA. As web sites come and go, as exhibitions launch and fade, and as conferences and festivals bring people together for a vibrant but brief moment, LEA provides a constant in the equation. It is a location and an activity that exemplifies a connection with the past as it reflects the present, and participates in creating the future.

To aid in this process I am fortunate to be working with an experienced group of editors and an active editorial advisory board. We contact artists, researchers, and those who send notices about activities in the field, requesting that they provide abstracts of articles or presentations, artist statements, samples of work being presented, preface material from new publications, detailed profiles of media arts facilities, and extended theoretical perspectives. We peruse the web for related activities and negotiate with prospective content providers to identify material that would be of interest to the LEA community.

The current publication year has seen a remarkable boost in our development. Patrick Maun completely renovated the site, launching Phase I of the reconstruction last July. We needed to create a framework that could encompass the large archive of existing material, showcase the current issue, and allow for growth for the future. There are over 600 files covering articles, profiles, gallery works and publications, and while the archive has been accumulating for several years, the resources for locating information has been admittedly less than facile. This is an area where we expect to see substantial improvements in the upcoming year. Patrick is continuing now with Phase II, and has taken on the role of Gallery Curator. He recently sent out a call for new works, and I encourage people to contact him about their work. Craig Arko is our Coordinating Editor, and he has taken a leading role in preparing each current issue for publication. Roger Malina continues to provide Leonardo Digital Reviews with Kasey Asberry, working with an established group of reviewers.

LEA exists on the basis of a combination of grant funds and subscription income. Interval Research Corporation has been an invaluable supporter in making it possible for LEA to thrive. Establishing a strong paid subscription base has been problematic for a variety of reasons. This is partly a function of a technology still identifying effective ways to reach audiences and convince people of the value of paying for content on the Internet. On the other side of the issue is the desire to serve diverse communities, and we are concerned about limiting our presence to those with both the interest and the money to participate. The economic situation would be very different if more of the people who actually do benefit from the publication were to subscribe, or get their institution to subscribe. In addition to enhancing our budget, which would result in improving the resources, a paid subscriber base helps tremendously to support the case for relevance as we work with MIT Press to develop our resources, and as we approach prospective funders for grants.

The Future

We're committed to improving access to the archives. To this end we are exploring ways to establish a more effective database, and better interactive resources to obtain information.

LEA is becoming more involved in live event production, as real time broadcast becomes more prevalent on the web. This is intended to increase visibility for LEA, to establish strong bonds with supportive organizations and individuals, to provide new content, and to explore ways that live events can be brought into LEA on a more established basis.

Several years ago ISAST designed a project called the Speakers Network, designed to connect Leonardo authors and artists with opportunities to share their work with professionals and students at host organizations. This project was difficult to support when the predominant communications technology was limited to hard copy and telephone, with the only viable means of establishing a connection being to synchronize travel schedules and limited guest speaker budgets. This kind of project requires the immediacy of the Internet, placed in a context of a site that has the necessary information and the credibility to shorten the search for successful matches. Advances in distance education and real time multimedia communications have significantly resolved the problem of creating effective connections. The original Speakers Network concept was founded on a recognized need to establish interdisciplinary connections - to make it easier for host organizations to identify individuals who work in areas that intersect with their areas of interest, and to make it easier for individuals to share their work on a wider scale. The technology exists now to realize those goals, and LEA is an ideal setting to provide this kind of service.

Finally, we hope to create stronger bonds with the science and technology communities, in addition to the media arts community. The Leonardo paradigm is founded on a mutually beneficial intersection among the art, science and technology communities. Much has changed from C.P. Snow's original Two Cultures proposition. The existence of Leonardo, LEA, FineArt Forum, the ISEA society and symposia, and the work of the participants in this festival are evidence of a massive transformation in attitudes and education with respect to artists' relationship with science and technology. At the same time, I'm not as convinced that the science and technology communities have established as strong a connection with the concerns of artists. This is an area that requires attention - one that will find its way into the LEA equation.

FineArt Forum, Past, Present and Future

FineArt Forum, past, present and future

Paul Brown/Amanda Crowley

FineArt Forum url: http://www.msstate.edu/Fineart_Online/

Paul Brown's url: <http://www.msstate.edu/~pgb2/>

[Editor's Note: Paul Brown's article has been published in FineArt Forum and on Paul Brown's web site, and can be found at the URL addresses listed above.]

Although it is always fun to indulge in genderbending it still seems strange for me to speak through the mouth of an avatar. I would like to thank Amanda for assuming this role for me today. Amanda has autonomous intelligence and, in addition to interpreting my words, will also be able to answer your questions and contribute to your debate.

FineArt Forum was launched in April 1987 as an email newsletter and bulletin board service based at the University of Amherst in Massachusetts, USA. Many of the early issues are online and announce major historical events like the establishment of ZKM in Karlsruhe. FineArt Forum is the newsletter of the Art, Science and Technology Network but it exists autonomously and is now produced in Brisbane, Australia in cooperation with the Department of Communication Design

at the Queensland University of Technology. Our internet services are provided by Griffith University in Australia and Mississippi University in the USA.

In 1992, soon after I became editor, we launched an interactive server-client-based Gopher version of the newsletter. In January 1994 this was superseded when our World Wide Web version came online. When the web first became popular we were one of the few arts resources available and we attracted and have maintained a large and influential readership. Upwards of 15,000 people read our Web version each month (based on our hit rate of 70-100,000 per month). In addition over 1500 professional practitioners of art and technology subscribe to the email newsletter.

The web version expands our services for the more general reader and includes:

- * a hyperlinked version of the monthly newsletter;
- * a monthly update of new art web sites;
- * the recently relaunched "Reviews" section;
- * a permanent and substantial listing of other art resources on the internet moderated and maintained by Jeliza Patterson; and
- * a gallery section which has been undeveloped for some time but will soon be relaunched. It includes work by Hellaman Fergusson and Joseph Delappe as well as a portfolio of early work by STELARC and the independently curated Trophies of Honour indigenous art space.

Apart from it's public success as an art & technology net 'zine FineArt Forum is primarily produced on a voluntary basis by members of the art and technology community as a professional resource. It's major content is news and announcements which include: events; opportunities; resources and publications.

FineArt Forum is a clear example of the egalitarian nature of the internet. It enables a global community of interest to maintain contact and keep each other informed and to do so both inexpensively and efficiently. Since the advent of the web it has also enabled them to present their work and concerns to a much larger general audience. Looking to the future I hope and expect that we will see more of the same: practitioners sharing useful resource material with their colleagues worldwide.

What will change is the bandwidth, the interface and, I hope, the paradigm. Right now the web is a metaphor driven phenomenon. We frame our publications in the context of printed "pages" and architectural "sites". Both of these focus on heritage assumptions of established media and, arguably, have little relationship to the plural geography of cyberspace.

As readers of my earlier publication will know I believe that the move from our current heritage-based media preconceptions to a totally new and media-intrinsic mode of expression and communication will be achieved by young emergent talents who have not yet been conditioned by the current and past media paradigms.

I am pleased therefore that our new relationship with the Communication Design Department at QUT offers the opportunity for young people to work on the publication. Our current student interns range in age from 16 to 30 years old and they bring a wealth of lateral skills to the project. They range from computer science undergraduates to mature students with experience in broadcast television production.

The department itself was recently established (within the experimental ethos of QUT's Academy of the Arts) in order to specifically address the paradigm shift that will be generated by the increased assimilation of digital communication technologies within society. The Communication Design field is also refreshingly free of the pretentious avant-gardeism that still epitomises much of the fine arts.

It is an excellent home for FineArt Forum and I remain optimistic that this new relationship will enable us to remain at the leading edge of the communication revolution during our second decade.

I remain concerned about the commercialisation of the internet. It seems likely that a few strong service providers will monopolise the new superhighway. Names like Rupert Murdoch and Times Warner spring easily to mind. I would be surprised if the owning cartels will allow the laissez-faire internet ethic to survive. It's far more likely that they will want to strictly control and licence content and, in particular, limit free access to individuals and non-profit groups who wish to publish their work.

This is a global problem and one which I believe can only be solved by strict national regulation which should insist that superhighway facilitators offer community access. Unfortunately this kind of centralised legislated control runs contrary to the right-wing rational economic policies that are now endemic in the USA, Europe and many other parts of the world. My other hope therefore is that the current internet framework will survive and be tolerated by the superhighway builders as an "off Broadway" talent breeder. We shall see.

I understand that this panel will finish with a party to celebrate the 3rd decade of Leonardo. I was 20 when I saw Leonardo Volume 1 No. 1 and I feel that my career has often been helped by the credibility that this important publication has created for the art & technology fringe. The history of FineArt Forum has been closely linked with Leonardo and it's now a great honour for me to be a member of their editorial board.

Through the mouth of my avatar I wish them, and you all, a successful and enjoyable party. I would like to ask you, in your celebrations, to remember that this is also the tenth birthday of a arts 'zine that may not have been the first on the internet but is one which has survived to become one of the longest established.

In closing I would like to thank all the many contributors, volunteers and organisations who's commitment and generosity has enabled FineArt Forum to survive its first decade. They are far too many to mention and several will be in the audience today. To all of you my sincere thanks and my sorrow that I can't be with you today.

From "Product" Thinking to "Process" Thinking

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OLATS URL: <http://www.cyberworkers.com/Leonardo>

In this communication I would like to try to question the word "publishing" associated to the word "electronic". Are we really doing "publishing" online or are we starting something else in the way we are dealing with the distribution and sharing of thoughts, ideas and knowledge?

In 1990, I published the first edition of IDEA/the International Directory of Electronic Arts on paper. The next and fourth edition is due in March 1998. In 1996, I put it online (<http://nunc.com>). Both have the same content: names, address, telephone, fax, email, URL and a short description of the activities of organizations, individuals and periodicals active world-wide in the field of art, science and technology. However I don't feel that I am doing the same thing and that IDEA online is "publishing".

Publishing: The Book as a Container of Frozen Knowledge

With writing and printing, humanity has externalized its memory, kept therefore outside the brain and outside the original community, in containers of "finished" knowledge, the books. A recent issue of Visible Language (31.2) dedicated to "Interactivity, Interconnectivity and Media", and guest edited by Dietmar Winkler has remarkably addressed this. The covers are white. On the front cover one can read the word "begin" and on the back cover the word "end". The printed

media encapsulates a frozen knowledge within the borders of the covers.

Electronic "Publishing": a Living Process

Most of what is currently written, said and discussed about electronic publishing actually deals with the building of a shared common knowledge that we all need to find, access and "read" online stuff. The questions of web design, intuitive interfaces, copyright, scientific and intellectual validation of thoughts and ideas, not to mention how to make money out of it, are in fact the set up of new conventions we need to cope with in relation to this new media, but these issues do not describe or address the issue of electronic communication.

With electronic communication and storage, humanity is starting to externalize the process of creating thoughts itself. The process of elaboration of thoughts, ideas and knowledge, and the process of publishing or "making public" merge to some extent.

In this respect, IDEA on paper is a snapshot - a still, frozen image of knowledge at a certain time, in other words a "directory". IDEA online is a "database", always changing and always subject to change. The users of IDEA on paper know that, in a way, it is a "dead" matter which cannot be changed within each edition; the users of IDEA online are expecting different, new and evolving information each time they visit the site. In the first case, I am "publishing", releasing the "state of what I know", carefully edited; in the second one, I am sharing my database with others who, then, can "monitor" if I am late in my daily work or not.

With electronic communication, information, ideas and thoughts are released at the same time as they are available. It is a permanent flux, a living process. I guess it relates to what we call "collaborative work" or "collective intelligence".

The Container Becomes a Carrier of a Living Knowledge

In the Rhizome digest of September 9th 1997, Munro Galloway writes about Digital Delirium (edited by Arthur and Marilouise Kroker, New World Perspectives): "Digital Delirium reads a lot like the web -- unorganized and chaotic, a mix of good and bad writing, left largely untouched by the editors. The guise of this compilation in book format is deceiving, except for the cover and pages it's printed on, this is raw web material. My advice to the reader of Digital Delirium is to read it like you might surf the Web -- pick a topic that interests you (and there is a wide range here) and read until you've had enough. Don't feel under any obligation to finish what you've started, as these are not 'finished' texts."

In this comment, Galloway clearly states the difference between "publishing" and online or electronic communication.

OLATS: Observatoire Leonardo des Arts et des Techno-Sciences (Leonardo Observatory of Arts and Techno-Sciences)

URL: <<http://www.cyberworkers.com/Leonardo>>

From my point of view, the key question is how can we provide a context for this new process of living, externalized thinking process with the same demands we have toward printed matter?

Different experiments are being conducted. At Leonardo, along side with the original web site we have started this year the Leonardo Observatory of the Arts and Techno-Sciences (OLATS), mostly in French. OLATS has 3 main parts:

- Books & Studies: presenting Leonardo Books Series and, in the future, in depth articles or studies.
- Reperes (Highlights): this section tries to point to landmarks in the flow (to select those landmarks too), to highlight milestone

artworks, artists and concepts.

- Specific Projects:

- * Virtual Africa, starting and leading the current project;
- * Symposium "Les Treilles", about the aesthetics of technological art. The first one took place in March this year;
- * "April 13th Workshop", about Space and the Arts. The first one took place in April this year and was dedicated to "The Artists as Space Explorers". The next one will focus on the theme "Space Art - Earth Art". This workshop is part of a larger Leonardo project: the Leonardo Space and the Arts Project.

From "Product" Thinking to "Process" Thinking

Normally, we tend to think and organize our work in terms of "products" (books, reviews, articles, conferences, etc.). Then, we start working to achieve, to realize those outputs. With OLATS, we have tried to identify the work to be done (in terms of ideas, concepts to promote, information needed, etc.), to define the "raw material" that Galloway was referring to (and which is already "shaped" information) and to put online, in an as much as possible organized way (in other words, easy to get), those little "bricks" of evolving knowledge, which can be used for different "buildings" within the Observatory or outside, online or offline, in different kind of outputs.

It is a collaborative work.

It is not, strictly speaking, publishing. And, as Roger Malina puts it, it is the beginning of a Food Chain.

Electronic Publishing: Special Needs of the Developing World:
Will The Donkey Take A Bite Out Of The Carrot?

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Internet or the Promised Land?

The mechanistic view of the communications process as a closed circuit of senders, messages and receivers neglects the complex social contexts in which communication occurs, and ignores the notion of meaning as an actively constructed, mediated, produced and circulated element. Although this view has been displaced in communications theory for decades, it seems to be still embraced today by those who consider that the Internet provides democratic access for acquisition and distribution of knowledge, and represents a new public and participatory forum for international and trans-cultural communication.

According to Weston (1997), the Net can be seen as "the technosocial accident that gives large numbers of people the means by which they can speak for themselves in public." He considers the Internet is an ironical reversal of the historical centralizing communication technologies that have molded the social relations of modern society: "Since it was first observed that there just was not enough available bandwidth to let everybody send smoke signals or bang drums, we've been organizing and reorganizing to determine who would, and who would not, get their hands on the blankets and the drums - and the presses, the microphones, and the cameras... Until very recently, there was no reason to imagine that questions would ever have to be asked about societies with abundant access to the means of media production, exhibition, distribution and reproduction of cultural offerings. Suddenly, it is time to start imagining the questions. That is what the Internet is about." (Weston, 1997, p. 195)

An estimated 50 million people are connected to the Internet worldwide

today, comprising about 16 million computers connected to 800 thousand domains in 150 countries [1] .

But in a world of social, cultural and economic disparities, could the Internet come to be the Promised Land - where every human being may have a voice, a space and a will? (Spitz, 1996)

Shallit and Lyons (1997) ask if the Information Highway will become the "town hall" of the next millennium - where citizens could freely debate and resolve issues - or if it will be "an electronic red light zone, where crime and pornography flourish, or an Orwellian nightmare of government regulation and control?" (p. 147).

Undoubtedly, a real world wide web can only exist if woven by hands of different shapes, smells and colors: but there are still too many hands which will never have access to a piece of thread [2] .

Therefore, the major challenge in the information age is to encompass the communities that are today on the fringe of the networking society: "only a fraction of the world's people have a presence in cyberspace: the rest are outsiders" [3] .

In his work "Colonial Ventures in Cyberspace", Hertz (1997) observes that "by a curious reversal of causality, the technotopian vision is portrayed as the motor of technological progress, while the relations of production that construct technological society - relations of class, economic dominance and cultural hegemony - sink below the level of social consciousness." For him, this issue becomes "strikingly clear" in relation to the emerging networking society, "where a stream of commercial propaganda portrays a world where conflicts and differences will vanish. What better reason to build technology could there be? Indeed, it becomes easier to adopt a visionary attitude with respect to technology than to untangle its infrastructure." (p. 250)

Besides all those problems concerning information content and access, we must also analyse the problems concerning the user's attitude towards content and access on the Web. For the purpose of this paper, we will discuss three different types of Internet navigators: the crusader, the tourist and the anthropologist.

The first one - the crusader - has no intention of exchanging knowledge or meaning, but only the desire - and the power - for confiscating and stealing all the goods found along the route. A crusader might interfere, destroy or get hold of proprietary information without fearing the possible consequences of such acts. Navigating as a tourist can be slightly different: in general, there is an interest in learning and exchanging codes and information with other people along the journey, even if this attitude is just superficial or temporary. Tourists buy guide-books about other cultures, taste their food and sometimes try to speak their languages, but his/her interest in exchanging values and experiences is usually over by the end of the trip. Some pictures and gifts will serve as reminders of the difference, but no profound change is verified in the tourist's daily life after getting back home.

The anthropologist - the third type of navigator - has a genuine interest in learning about other cultures. It is vital for him/her to understand the significance of things and concepts according to the other person's point of view. It is also important to record, to analyse, to write extensively about everything, considering all the details of each experience and the broad context in which each activity happens. The anthropologist gets embedded in the web of significances of the other, aiming at augmenting existent knowledge about people and their different views, objects and meanings. According to our view, the navigation itself is just a means, a technique which is used by a person in order to get to different places. What really matters are the goals, the attitude, the approach of the navigator.

In the words of Mehta and Plaza (1997), "not only does the Internet possess the potential to overcome geographical, social, and political barriers and to act as a medium for the exchange of ideas, but it also has the potential to undermine local laws, customs, and mores in its

currently unregulated form. The Internet has outpaced current rules and regulations regarding intellectual property rights, definitions of obscenity, publication bans, and government excise mechanisms." (p. 161).

The idealistic - perhaps romantic - view of the Internet as a participatory forum takes for granted that users will mainly act as anthropologists, or sometimes as tourists. Perhaps most of us have been acting more as crusaders, instead. For many people the term crusade still means a struggle in support of something believed to be good or against something believed to be bad.

Electronic Publishing and the Third World: the Donkey and the Carrot

Among those proponents of the Internet as a democratic provider for information certainly are many electronic publishers. In their impetus for announcing their new web sites, and in their excitement for releasing an endless list of publications and images available on line, they seem to forget the diversity of the other end of the communication process. But who could resist the temptation for augmenting a publication's audience in a world-wide scale, without making a single change to its content or form, as has been the usual practice in this new medium?

In addition to misunderstanding the limitations and inherent complexities of the web, most electronic publishers make a mistake when they consider that their web sites have world-wide access. Their sites do have world-wide distribution, but, on a trans-cultural basis, emphasis must be placed on the process of decoding messages. Could an article be read - and understood - by anyone who could access it? What's the point of publishing on the Internet a paper, an announcement or a book review in a single-language version? Should translation be considered an ethical issue in electronic publishing? At this point, we could draw an analogy between the concept of the carrot and stick method of driving donkeys, and the concept of the Internet as a driving force for the Third World's technological development.

At first glance, the focus of the problem seems to be the length of the stick - which determines the distance between the carrot and the nose of the donkey.

If the carrot is too close to the donkey it just stops and eats it. If, on the opposite, you take the carrot too far away, the donkey will decide that it is too much effort and not bother. Keep the carrot at the right distance and the donkey will follow wherever you lead.

In our view, though, the major and central problem does not reside in the stick, but in the nature of the carrot itself. The core of the Internet today - and of the whole issue of electronic publishing - is literacy. Before trying to desperately eat the "Internet" carrot, or in parallel to that effort, the Third World must attempt to solve a fundamental problem: illiteracy.

Let us consider the case of Brazil, where more than 20 million people are illiterate, and approximately 40 million people are semi-literate (which represents one fourth of the Brazilian population). What is the point of having access to information, if there is no understanding? The problem of illiteracy is increased by the fact that Brazil, as a whole, is a non-reading society. If you take the tube in London everybody will be reading a book, or a newspaper. In Brazil, people talk on the tube, people make friends along their journey. This is a society of story-tellers, of story watchers, not of story-readers. The TV phenomenon in Brazil illustrates this fact. In a non-reading society, a non-reading TV is the major means for information and leisure.

The Internet in Brazil:

So, the logical result one would expect would be that the Internet in

Brazil would be a failure. Wrong! Surprisingly, the Internet in Brazil is experiencing a dramatic growth, which has taken unique pathways compared to other countries. It was the fastest growth of Internet verified in a developed country. In January 1996 the number of hosts in Brazil was 17.429, in June 1996 it rose to 45.684, and in June 1997 - only one year later - it increased to 110.624 - which puts Brazil in the ranking of the 20 largest Internet national services. If in the world as a whole the Internet doubles every 15 months, in Brazil it tripled in 12 months (during 1996), and is keeping an explosive growth rate in 1997. It was the fastest growth of Internet verified in a developed country. Internet in Brazil is bigger than the sum of all Latin America, including Mexico (Lucena, 1997).

Electronic publishing also had a surprising growth in Brazil. Starting with one pioneer newspaper in June 1995, today there are about 200 newspapers and 200 magazines on line in Brazil. According to the Brazilian Internet World Magazine there are today about 16.000 institutional Web pages in Brazil compared to 11 in mid 1995 [4] .

It is estimated that there are over one million users in Brazil today, compared to about 80.000 in August 1995. Of course, a research on the basic profile of a Brazilian Internet user would demonstrate that education and wealth are still the main determinants for Internet access. The gap between those who have and those who do not have might be equal or even bigger than the gap between those who know and those who are on the fringe of the information society.

According to Relatorio Reservado (1996), while Brazil invests US\$10 per capita in research and development, the United States invests US\$507, Germany US\$576, and Japan US\$619. So what exactly do the spectacular figures of the Internet dissemination in Brazil reflect?

Which is the best way?

We should then ask which way are we headed on the Information Highway in Brazil. Will the country maintain its networking pace of growth and provide access for the illiterate and the poor, or will it repeat its historical tendency to exclude the mass of the population from the benefits of accumulation and technical progress?

In the first case, in order to content the illiterate and semi-literate with visuals and sound, will the Internet become a TV-like media? If so, will electronic publishing still have a space in such a combined media, as it has today in the Web? According to Neves, Galindo & Cunha (1997), the Internet must propose a new relationship between the "sayers" and the "listeners": the sayers must find adequate mechanisms for making their words intelligible for their audience. If we consider the second alternative, Internet's electronic free speech will create a space where only the loudest voices can be heard (Shallit And Lyons, 1997). We will have to accept the prospect of a dominant electronic elite, imposing its values, rules and beliefs to all other semi or unplugged communities, for the sake of technological development.

Talero and Gaudette (1995), in their article "Harnessing Information for Development - World Bank Group Vision and Strategy", defend the idea that revolutionary advances in information and telecommunications technologies have two concurrent impacts on developing countries: first, they open up extraordinary opportunities to accelerate social and economic development; second, they create a pressing reform and an investment agenda both to capitalize on the new opportunities and to avoid the deterioration of international competitiveness [5] .

In his analysis on the impact of the Internet technology on Brazilian economy, Lucena (1977) addresses a fundamental issue: "Which are the bonuses for those countries which implement first their information economies? Will they be able, for instance, to overcome underdevelopment?".

Perhaps it is still too early to attempt to answer those questions. With all these pros and cons of a networked society in mind, we must

strive to find an acceptable balance between participation and alienation, between involvement and detachment, until we fully understand the promises and problems of the Internet, and their impact on the Third World.

Notes:

- [1] see <http://www.nw.com>
- [2] see Spitz, R. "Private Domain: please, keep off!"
URL: <<http://venus.rdc.puc-rio.br/rejane/private-domain>>
- [3] Hertz P. "Colonial ventures in cyberspace".
The Leonardo Gallery, LEONARDO, vol.30, n.4,1997, p.249.
- [4] Lucena, J. C. "The impact of the Internet technology on the Brazilian economy", Dept. Informatica / PUC-Rio, 1997, p. 16.
- [5] in Lucena (note 4), p. 19.

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The Future of Publishing in the Technoetic Era

Roy Ascott

These comments are dedicated to the memory of Frank Malina, with whom I had the privilege of engaging in much fruitful discussion in the years in which he founded Leonardo, and whose vision guaranteed clarity and authenticity as much as it inspired originality and insight in the publication of artists' writings.

Just as the age-old dependency on the reflexes of 'fight or flight' in much of our history can be said to have shifted in the 20th century towards a more rational desire for 'sight and flight', I foresee that we are moving towards an era of 'insight', in which a more profound understanding of consciousness, both human and artificial, and a more direct responsibility for reality, both given and constructed, is our objective. I call this the technoetic era.

Technology follows human desire, and amongst our 20th century priorities there are two predominant categories that the rubric 'sight and flight' is intended to encapsulate:

- the desire to make visible all that is invisible in the world: forces, fields, relationships, systems, and processes of emergence and transformation. This involved new perceptual procedures and cognitive strategies, leading to the faculty of 'cyberception'.
- the desire of both body and mind to fly, swiftly from point to point, to be both here and elsewhere at one and the same time. This involves both geographical and mental connectivity and compression: place on place, mind on mind, and in an important sense time on time. In terms of the artist's response to these desires, the technologies of computer and communications - telematics, the Web, VR, augmented reality, multimedia, hypermedia, and visualization at all levels and

on all scales from the atomic to the galactic, as well as robotics and digital systems - have made important contributions to the agenda. Leonardo charts the artist's involvement in these developments - not only in the content but also in the form of its publishing. Now, as we move into a new century, we see another shift of objectives and priorities which will involve us in 'psychic space' as much as in cyberspace, actually taking us into the domain of consciousness and the emergent technologies of mind. We shall have to re-examine many ideas formerly disregarded, telepathy, remote viewing, clairvoyance for example. This may lead us to insight. The search is not restricted to art, or science or technology alone, nor is it simply to be seen as located at the convergence of these disciplines. It is probably best approached as a wholly new field of inquiry and practice. (It is an emergent field to which Leonardo will be devoting a four page section of the journal on a regular basis).

While the formula 'from cyberspace to psychic space' is crude it may help to point us in the right direction. There is no doubt that the technology of mind is of central importance here. Mind on mind communion is an implicit goal, and thus the technology of telepathy may come into focus. Of course, interspecies communication, especially as between human beings and artificial life forms, is central to the inquiry. Bio-telematics will be the technology of choice. At all events, the matter of consciousness necessarily includes emergent forms of artificial mind, the substrate of which will be moist, that is in a space between the silicon state and our own wet biology. The impact of these researches upon our relationship to 'reality' is that increasingly we shall be inclined to construct it rather than 'receive' it. Many political, religious, cultural and scientific orthodoxies which have long provided us with authorized versions of reality will doubtless collapse. The (re) construction of reality will be as much on the material level as within the domain of consciousness and mental life.

Thus the lessons we learn in Alife and nanotechnology, for example, or from generative systems, genetics, neurodynamics and other insights into reality building, not to mention the heritage of both technological and psychic visualization and transformation, lead me to suppose that Leonardo's future will, in some sense, involve moist media and molecular publishing. What precisely this will mean eventually is of course yet to be discovered but we would do well to prepare ourselves now critically and culturally for the technoetic era, just as our mid-century immersion in early cybernetics, relativist philosophy and the new metaphors of science prepared us for the eventual impact of computerization on all aspects of society.

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PROFILES

< SIGGRAPH 98 >
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As cyberspace races towards the future, there is a cry for the "hand" in this virtual ecology. Linking to cyberspace, where is the touch, the tactility, the physicality of experience?
 The "reach out and touch" of telephone mythology has become the banner of the WWW. Email and the internet provide a long distance touch with an immediacy, simultaneity and multiplicity of connection. But the behavior and feel of this linking is flat - a projected world

connected through a flat light screen. In this monodimensionality the visual is dominate over the other perceptual senses. These other sensory experiences like touch are diminished. McLuhan viewed the printing press as an invention that segmented sensory perceptions, preventing kinaesthetic experiences in which there is a synthesis of hearing, seeing, tasting and touching. The internet is an extension of the printing press, except that the internet is rhizomatic rather than linear. When an individual perceptual sense becomes locked in a technology, it becomes separated from the other senses. This portion of one's self closes, as if it were locked in steel. Prior to such separation, there is complete interplay among the senses. According to David Tomas, virtual experience "overthrows the sensorial and organic architecture of the human body by disembodiment and reformatting its sensorium in powerful, computer generated, digitized spaces". Cyberspace, for me disengages from physical reality - sensory experience is reduced to a monomedium of digital coding. My current artwork confronts this digitization of experience. Touch is the intersection with electronic technology. My interactive installations take place in the twilight juncture , mediating between the real and the cyber-mythical to rematerialize digitized experiences. This artwork embodies my construct of Touchware as I engage the viewer using various aspects of physical touch to confront the disembodied touch of cyberspace. As Art Show Chair for SIGGRAPH 98, I am creating an exhibition titled Touchware to address these issues. This exhibition will focus on rematerializations of digital or digitized experiences. The tactility of the image, the touch and feel of an interface, the responsiveness of an artwork through the sense of touch is juxtaposed with the ephemeral sense of touch in VR, the WWW or telecommunications artworks. Artists are challenged to probe the simultaneity of touch as sensory experience, and the ephemeral experience of being in touch electronically. This exhibition will highlight the contemporary aesthetics of the electronic image: as visual image, interactive image, animated image, virtual image, WWW image and telecommunicated image. Innovative strategies for engaging the viewer through ideas of touch are probed. Artists are challenged to explore the tactility of materials in the electronic or printed pages, touch-based responsive processes of the interface, or the extension of our experience of physicality to the ephemeral emotional touch of being linked to someone across the globe via the internet or telecommunications.

This exhibition will include:

- 2D prints, drawings, photographs, mixed media and artists' books
- 3D sculpture and kinetics
- Interactive Installations
- ARTSITE Web Projects
- Live Telecommunication Events
- Performance Events

Art Show Catalog

Artists, curators, critics and art theorists are invited to submit critical essays for the art show catalog.

Deadlines:

Critical Essays: December 3, 1997
Artworks: January 14, 1998
For submission information and forms:
email: siggraph98@siggraph.org
phone: 1-312-321-6830
web: www.siggraph.org/s98/cfp/art/
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< Editor's Note: Intersections with New Media Series >

This issue includes a new feature for Leonardo Digital Reviews, Intersections with New Media, where we invite corresponding editors to contribute from the point of view of their own discipline's interface with emerging disciplines native to digital expression. If you are interested in making such a contribution please contact Kasey Rios Asberry at kasberry@humanorigins.org.

< Intersection of Architecture & New Media: Intimacy, the Spiritual and the Communicative >

By Molly Hankwitz

Intimacy, the Spiritual and the Communicative--How Public is Public Space?
by Molly Hankwitz

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Interiority is the distinctive mark of the private, ever inscribed on the "inside" of architectural and literary consciousness in the form of places which we inhabit and in which we enjoy the most intimate aspects of our consciousness; the unconscious repositories of selfhood and the memories of lived experience.

Interiority is something which modern philosophers such as Wittgenstein, Heidegger and Sartre recognized as the starting point for the revolution of modern philosophy away from organized religion and the universalization of selfhood into a secular pursuit of knowledge in which alienation, and its components could be measured and described. The metaphoric relationship between interior and exterior in the human subject is most noticeably expressed in the culture of architecture, wherein we record human desire and in which we distinguish between permanence and impermanence; the public and the private.

As a rule, the stronger an individual's relationship to privacy aka interiority--the space in which spiritual 'rest' occurs, the stronger becomes the human character and the stronger is that character's relationship to public culture--that place wherein a profound understanding of social life in all its dimensions, emerges. This primordial aspect of human existence--the dynamic between interiority and exteriority--is consciousness itself, differing from culture to culture yet a fundamentally human condition.

In architectural discourse, critique of public space is ever present. In fact, critique of public space is generally viewed as the most uncompromising imperative in any worthy discussion of urbanism.

However, in practice American architecture and urban planning, especially modernist practices rarely seem to satisfy critics and artists working in public space. It rarely seems to go far enough to engage enough issues or to work at solving the discomfort or the diversity of the city. The focus of much criticism of public space is too often relegated to a bleak rundown of the ineffectiveness of unused plazas, empty spaces, deteriorating parks, underscored by a general sense of dispossession and lack. This is all true. Our cities are full of these spaces found often in conjunction with those designed for 'public' use such as transportation systems, streets or parks.

Within this paralytic critique is another disquieting voice: that of nostalgia for some ideal and a neediness for something to be given that is not given. Rarely are suggestions offered and too often is "historic" redressing the outcome, as in the resurgence of typological remakes of "Main Street" promoted by certain post-modern planners as a way to reconnect urban places to collective memory. Inevitably in all the discussion, architects and city planners are left to take the responsibility for lacking solutions and part of this dilemma is that the Sublime as offered by "historic" typologies often winds up a bleak or neo-conservative failure.

Public space over all is not heralded as the space of leisure for the working classes as Frederick Law Olmstead proposed. His philosophy and design of major city parks promoted this ideal in and of itself. It was through his influence and literature that American city planners took hold of this idea but also borrowed heavily from European city models. Nor is public space viewed first as belonging to the people who use it. The concept of public space is itself part of a debilitated rhetoric. Yet when leisure and its public manifestation are constantly transformed, commercialized, and commodified as they are in our culture, we need to keep asking questions. What do we do for pleasure? Are expensive family theme parks the replacement places for leisure in the twenty-first century? How can public space express our public failings and how can it transcend them?

As the Modern Movement took hold in Europe and America at the turn of the century and architecture and city planning responded to the industrial city and to the modern city dweller often alienated from urban space, new categories for public and private emerged in almost every discipline. Institutions of power, the church and the state, viewed as separate from human existence, made way for the interior 'self' to become central. Thus, the modern individual became the focus of knowledge, psychoanalysis and critical consciousness. New freedoms and relationships to space itself developed. After World War II, responses to pain, horror and anxiety proliferated in thought and art. Speedy luxury and optimal domestic models of home and family stabilizing American growth in the 1950's seemed to counteract, superficially at least, on a global scale, the anxiety of world powers thrown into question and the specter of the Cold War. Subsequent wars, and particularly the Vietnam war only exacerbated the sense that the world and its leaders were capable of anything; corruption, human waste, a tenuous future.

The advent of modernity--or the condition of self-reflection, the World Wars, a fascist history and use of the Atomic Bomb at Hiroshima produced widespread fear and a new mobility of displacement. Cities in the modern age tended to be viewed as places of dispersal and insecurity. Nations were now mapped out on a giant game board of power. In the currency of globalism, where privatization is an increasing premium in the mode of exchange and polyethnic multiculturalism is a dominant discourse in the arts, public space, informed by culture, has new parameters. And these parameters must be addressed. Architecture, vis a vis analysis of public and private, must as an art, absorb the multicultural project, the increasing use of telecommunication and Cyberspace. These are movements leading us into the future, ostensibly to spaces thoroughly informed by their

progress. These movements are as visible today as are the lacks in public space: the decay of urban neighborhoods, growing numbers of homeless, unequal access to technology and decaying city centers. Computers, VCR's, video monitors, TV's, and extensive sound systems proliferate in use. Anywhere from 16 to 40% of Americans are on-line. The increasing presence of hugely-scaled projects such as the Sony Entertainment Center, planned for downtown San Francisco, or the much touted and criticized Disney Theme parks both here and in Europe, the mega-entertainment centers being built contentiously in Times Square, not to mentioned the increasing appearance of highly mechanized fast-food restaurants and other corporate enterprises in Third World countries and Asia is part and parcel of this trend towards human interaction bound to universalism, bound to commercialism, bound to entertainment, bound to multinational profit, bound to simulacra where consumerist space--space in which "values" are shared as a vast extension of buying power and corporate culture--is the dominant mode of production. All connected; our signs and symbols, logos and machines look alike and are the same everywhere. As the visual landscape is infused with an array of agreement, an array of colors and signs in which capital, commodity-fetishism, and identity are one and the same, other communities in public space fight for representation. Moreover, public space under this definition is paid for and under this definition is often synonymous with the increasing privatization of money, the languages of credit transactions and abstract investment. The pseudo-experiences of corporate advertising and dissemination of 'new information' into this brand of public space...which is paid for...do not suffice to cover the diversity and complexity of history. Public spaces need richness and complexity. Internet and Web access intensify "information." Information appears egalitarian. Communication within this schema is pro-active; a buzzword of new media, a transference of information. It is ever-present, constant, depending on access and availability to the Web. It is that which keeps us in contact, ensures freedom, and appears omni-temporal unless your server is down. The mechanistic languages of these manufactured (and purchasable) products and conduits increases in the vocabularies of public discourse. We traffic in a noise of 'jpegs' and 'softwares' and 'folders' and 'components'. We live increasingly in a world of screens, electronic picture frames, dialog boxes; increasingly more competitive, more readily interactive, more "capable". Digital imaging is present in the formatting of TV and the production of video, from the coolly glowing "screenies" which we use to cover our work, to impressive Web sites. Commercial art and the Web as fine art are more and more visible if you have access and a semblance of how to surf.

So, what is suggested by this landscape, glowing from space to space, which mechanically speaks to us, or pulsates seductively, or reminds us of the time, or the presence of technology or the presence of the future and the presence of telecommunications? Will the future be limber and respondent to mass culture or will we simply produce more mass culture from which we are alienated, more discrepancy between the public sphere and the private sphere, more anger, more fear--less comfort, less complexity? Imagine cities infused with telecommunication. Imagine them replete with terminals for Web access on every corner in every neighborhood, not unlike ATM banking machines, directing us to our desires, to great places, to parks, to events, which connect us to other countries, give us the time, the bus schedule, give us art; a drink of water, allow us to make a digital painting on the street, to engage in public conversation about our surroundings--terminals in which we view film with strangers, get Spell Check in 50 languages, send a digital postcard to a friend in Malaysia, connect to our e-mail, read a book or the latest video while waiting for a friend? Imagine adding your painting to a sidewalk monitor connected to the World Wide Web. (There would probably be a lot of technical maintenance.)

Conservative architectural critics and moralists complain that the breakdown of social structure is to be blamed upon the fact that solid home life has deteriorated. Within this discourse, public space is perceived as the threatening depository of social ills. The "inner city" is touted as an open wound. Cruel thrusts of moral discipline are generated from governing bodies. We cycle back into a perceived NEED on the part of governing bodies to increase control, to increase the policing of desire, to increase vandal proofing and security systems, to increase state power of surveillance, to justify the Death Penalty. We revert to reactionary culture aka Jeremy Bentham (1) and a series of decades of architectural space profoundly depleted, anti-social, gated, watched, overly secured; a testimony to our lack of social communication; to our lack of compassion, to social barbarism; to the social production of Otherness; to exclusionary practices. In these historic moments we need to seek a critical outside. A political and intellectual and spiritual answer.

One might come from looking. The Yerba Buena Center for the Arts exterior spaces, created to suggest a miniaturization of the unique topography of the city of San Francisco famous for its hilliness is a tour de force work of public architecture mainly because it utilizes the visible structure of the city as a metaphor for the separation of public and private, of the individual from the megaliths of society, of work and organization from free time and the unconscious; of culture from nature. It reinforces and thus valorizes the city as a space upon which we reflect thus a largely differentiated element-- in sharp contrast to-- the space of leisure --which it so eloquently provides. Contained in this dramatic maneuver of miniaturization is open park land, garden, monument, waterfall, fountain, sculpture, and meandering walkways accessible to all via ramps and elevators as well as via a series of celebratory openings along Mission Street. The design picks up on what I have already stated is the potent thread of Olmstead's notion of the park as an American ideal and when viewed from the third floor balcony of the SF Museum of Modern Art appears out from under the California sun as a lushly landscaped interior garden nestled behind and in-between the main buildings of the Center. Thus it invites the public to enjoy the city and their surroundings. For free. And reiterates visually the great notion that public building belongs to the public and represents a synthesis of pleasure and culture. Moreover, its on the Web.

1 See the reference to Anthony Vidler's analysis of Bentham's panopticon. Ellin, Nan. editor. 'Preface' "Architecture of Fear" (NJ: Princeton Architectural Press, 1997) p. 16.

< Book Review: Intellectual Capital, The New Wealth of Organizations >
By Thomas A. Stewart

Reviewed by Richard Kade

Intellectual Capital: The New Wealth of Organizations

by Thomas A. Stewart.

New York, Doubleday/Currency, 1997.

Reviewed by Richard Kade

Email:kade.parc@xerox.com

Since the field of "business" exists between the penumbra of art and science, the topic of intangible assets subsumes greater interest.

Three books have been published this year, all titled "Intellectual Capital." Of them, the best is Thomas Stewart's.

Much of the material will be familiar to readers of Stewart's columns in "Fortune".

The first edition has no index but the writing style makes this work such quick reading that this deficiency nearly goes unnoticed. The material is rich in wisdom, spanning Plato to John-Paul II, and humor from such diverse sources as Sid Caesar, Abraham Lincoln, Robert Frost, Charles Darwin and Thomas Edison.

The book is divided into three major parts. First is the "Information Age: Context" which is followed by "Intellectual Capital: Content,"

"The Net: Connection" and, finally, an appendix which, although replete with formulae, is anything but dry. An exchange between King Louis XIV: "Is it a revolt?" and Rochefoucauld --- "No, Sire, it is a revolution." --- begins the first part, a discourse on the knowledge revolution and its second-order effects. Olds, Ford, the Dodge brothers and their rivals "thought they had improved the horse ... [never] knowing that the automobile would fill the countryside with suburbs --- which, in turn, created thousands of jobs building roads and houses, making lawn mowers, selling tulip bulbs, and delivering pizza." Similarly we can now scarcely begin to see how "informating" alters organizations.

A discussion of Deming's methodologies which developed into "just-in-time delivery," traces the logical economic evolution into such "virtual reality inventory" enterprises as CUC International. Its CEO, Walter Forbes, explains: "We stock nothing, but we sell everything." All this sets the stage for the end of obsolete corporate pyramids of control whose management is superseded by those taking ownership of their destinies.

The second part on intellectual capital is an extended examination of the quest for the "hidden treasure": human capital, structural capital (optimizing knowledge while being aware of the dangers of overinvesting in it) and customer capital, the pursuit of which leads to information wars and alliances. Here the tone is set with an analogy: Plato, likening knowledge, learning and discovery "in the mind of each man" to "an aviary of all sorts of birds --- some flocking together apart from the rest, others solitary, flying anywhere and everywhere ..." in what almost becomes a "pedal-point." We are led through a system of quantifying "passive assets" starting with patents. Dow Chemical Corp. figures that over ten years it will save about \$50 million in tax, filing and other maintenance costs alone and, far better, increase annual revenue from licensing patents from \$25 million in 1994 to \$125 million by the year 2000. Along with this come concrete definitions of "intellectual capital" and its constituent components.

The largest portion of this section on intellectual capital --- structural capital --- rounds out this main body of the book. Both Peter Drucker and Leif Edvinsson concur in the view that structural assets may be more important than the intellectual assets. "The organization, like a blast furnace that converts iron and coke into steel, concentrates, processes and reifies knowledge work. The entrepreneur and inventor are pure human capital whereas the business person is something else. Thus Thomas Edison, when he founded the company that became General Electric, turned human capital into something structural." The experience of Hewlett-Packard shows how a profound understanding of "market-driven knowledge management" and the "physics" of pushing and pulling information are leveraged through an internal charge-back system to make those benefiting from the value of knowledge pay for the costs. For H-P, the most powerful of all bureaucracy busters is the market.

The final part of this section centers on the "intangible value chain" and the dynamics of innovating with customers. Collaborations between Alcoa and Audi and especially between 3M and its customers' customers demonstrate the rewards of knowing the customers' business. A vital passage underscoring this reality concerns internally preoccupied organizations speaking of "internal customers." Stewart points out there "is no substitute for the real thing. Rather than encourage colleagues to treat each other like customers, get them out to mingle with the genuine article."

The final section, "The Net" considers the likely effects of the Internet and Web on commerce, education, communications and everything in between. The earlier "bird pedal-point" of Plato has now transformed into a "leitmotif" --- reminiscent of Escher's "Liberation" (which can be seen at <<http://www.cs.utah.edu/~dmcallis/pic/Escher/escher6.gif>>) --- as

Stewart recalls Victor Hugo's observation that the printing press freed mankind of the burden of inscribing "the great book of humanity" in stone. "In the days of architecture thought became a mountain and boldly possessed itself of an age or a place. Now it becomes a flock of birds that scatter themselves unto the four winds of heaven and occupy at once every point of air and space ... It is possible to demolish a pile; but how can we destroy omnipresence?"

The central chapter of this part starts with the question "What is the management structure of a flock of birds?" The answer, from scientific studies of geese in V formation, is that "the leader has no special authority ceding his place if he tires or the flight changes direction." In response to a stimulus --- a breeze, a gunshot --- "birds in a flock turn within one-seventieth of a second of one another --- faster than their individual reaction time." There is "no leader, no chain of command, no span of control. There is instead a sort of shared brain, a loosely conjoined network of relationships and impulses." Similarly, in companies whose wealth is intellectual capital, networks replace hierarchies. Now webs, nodes, clusters and flocks supplant pyramids, bosses, departments and troops. The happy ending is that the "old boy network" of yesteryear is finally extinct. Copyright 1997, Xerox Corporation. For exact wording on the "Reprinted/Reposted by permission of" contact Dr. Giuliana Lavendel at 650/812-4040.

< Book Review: Abstracting Craft >

By Malcolm McCullough

Reviewed by Kevin Murray

Abstracting Craft: The Practiced Digital Hand

By Malcolm McCullough

Cambridge, Mass.: MIT, 1996

Reviewed by Kevin Murray

Email: kmurray@mira.net

Abstracting Craft promises much-most of which it delivers. Its main promise is to accommodate the venerable concept of 'craft' to the new media of digital technology. With good management, such an act may reduce the manic pace of technological obsolescence and allow human creativity to catch up. Not all will welcome this association. At the recent Chicago ISEA, Roy Ascott proclaimed the irrelevance of craft to electronic art. The bourgeois nostalgia of Morris and Ruskin has no place in the new universal media, so Ascott claimed.

Likewise, Malcolm McCullough questions why anyone should bother with a seemingly nostalgic quest. He deftly sidesteps this sentimentality by using 'craft' as a verb rather than noun. Specifically, McCullough takes the word 'craft' to mean 'intelligent action in a specific setting'. Such action requires more than book learning; it draws on the embodied experience of the maker with a vocational medium. One way of bring this use of 'craft' into focus is to contrast it with the seductions of 'blockbuster' software, filled with promises to 'do the work for you'.

McCullough's challenge is to assess what has been won and lost because of the revolutionary change in working materials from physical substance to information networks. At first, the persistence of craft seems implausible. Craft requires touch-interplay between maker and material. By contrast, the remote operation of mouse and keyboard offers only impoverished control over one's medium.

McCullough here points to recent developments in CAD to show that continuous manipulation is now possible with computer bytes just as it was once with wet clay. The author's analysis of 'notational density' reveals itself here as a seminal move. McCullough tracks a transition, outlined by Nelson Goodman, from an autographic system to a allographic one. The autographic, such as painting, exists only in the original, whereas an allographic medium like music exists primarily in notational form. What CAD offers makers is the opportunity of turning their very concrete medium into a language that can be edited at

leisure before submitting to print. McCullough's argument is like a sucker on glass: its grip proves terrifically strong as long as the pressure maintains the same direction. Likewise, the reasoning in *Abstracting Craft* makes sense as long as our interest remains only with production. Once our concerns move over to audience reception—those who use and interpret these works—then the argument loses its hold.

Take his example of the teapot. As an allographic medium, the teapot can be reduced to 'a few dimensions such as bottom radius, overall height, shell curvature, handle size, handle orientation, and spout length'. While such an understanding might radically reduce the amount of information needed to describe the various species of teapot, it has little to say for the kind of qualities people look for in this intimate object. It is precisely the autographic qualities of a handmade teapot that offer the symbolic capital important for the use of a teapot as a receptacle—not only for tea, but also precious memories.

This asymmetry is reflected partly in the book itself. While it is beautifully constructed with a sturdy cover and generous margins, the illustrations are often tangential and the text contains a surprising number of typographical errors. This may seem nick picking, but you expect a book that embodies the values of craft to be flawlessly assembled. At one point, McCullough bravely asks a question which goes to the heart of a technology that has traded materiality for efficiency: 'Must a true medium entail sufficient risk and irreversibility to demand the rigour and devotion that have always been necessary for great works?' *Abstracting Craft* does not answer this question, but it certainly leads us to the point where we have no choice but to seek answers.

< Book Review: Paul McCarthy >

By Ralph Rugoff, Kristine Stiles, Giacinto Di Pietrantonio
Reviewed by Sonya Rapoport

Paul McCarthy

By Ralph Rugoff, Kristine Stiles, Giacinto Di Pietrantonio.

Phaidon Press Limited, London, 1997

160 pp., illust. ISBN 0-7148-3552-8

Reviewed by Sonya Rapoport

E-mail: rapop@socrates.berkeley.edu

The book, PAUL McCARTHY, beautifully designed, generous color illustrations, and large format presentation, is a scholarly documentation of an enigmatic artist who employs plastic prosthetics, processed foods as body fluids and overt sexual behavior in his own creative process.

McCarthy's extensive output of performance, video and sculptural works are described in intelligently parceled chapters: INTERVIEW, SURVEY, FOCUS, ARTIST'S WRITINGS, CHRONOLOGY and ARTIST'S CHOICE. The latter section is McCarthy's own rendition of Jean-Paul Sartre's NAUSEA from which McCarthy spliced fragments from the original text. These selections, perhaps unwitting, reveal McCarthy's visceral core.

Kristine Stiles, in her INTERVIEW with McCarthy, attempts to probe beyond the props into his mysterious center by focusing on questions of latent violence and beauty. This exchange between interviewer and interviewee, in which the roles occasionally interchange, creates a tension of hide and seek, resolve and dissolve. He wants to control what his audience sees a la Du Champ's ETANTS DONNE. She wants to go beyond. She is not diverted by his use of metonymical devices. Ketchup for blood appears to be a constant.

I suggest they both look at his selected excerpts from Jean-Paul Sartre's NAUSEA.

Ralph Rugoff in this excellent SURVEY of incestuous and absurd couplings places the theme of violence within the context of social conditioning by family and media. His skillful descriptions of the complex work gracefully weave in and out of fine art references that

clarify the illustrations. Rugoff sees Paul McCarthy as "master of the taboo-smash".

I see the work distinctly related to tribal rituals that induce vomiting, nose-penile association, skin stretching, tree-mating and the pig man.

The book, PAUL McCARTHY, is a tour de force about a controversial yet important artist of Beuysian tradition.

< Reviewer's Introduction: Richard Kade >

Richard Kade is and has been, since 1989, Ubiquitous Iconoclast for Xerox Corporation serving as cognitive and syllogistic alembic. Previously he was an orchestrator and arranger performing at White House functions during the Nixon and Ford administrations. Kade can be reached at the Xerox Palo Alto Research Center by e-mail <kade@parc.xerox.com> or by phone at 650-813-7672.

< Digital Review Notes >

Leonardo Digital Reviews is review journal published regularly as a section of the Leonardo Electronic Almanac. Leonardo Digital Reviews covers publications, conferences, events and publicly presented performances and exhibits. The focus is the work of artists, scientists, technologists and scholars dealing with the interaction of the arts, sciences and technology. Topics covered include the work of visual artists, composers and multimedia artists using new media and technologies in their work, artists dealing with issues and concepts from contemporary science, the cultural dimensions of science and technology and the work of scholars and historians in related fields. Specifically, we publish:

- a) Reviews of publications in electronic formats (CD, CDROM, CDI, on-line, diskette, WWW, etc. ...).
- b) Reviews of print publications, events, conferences, and exhibits dealing with art, science and technology.

Accepted reviews will be published in Leonardo Digital Reviews. Reviews of key works will also be considered for publication in the Leonardo Journal and Leonardo Music Journal published in print by MIT Press. Selected reviews will also be republished in the Leonardo Almanac book published by the MIT Press.

Authors, artists and others interested in having their (physical) publications considered for review in Leonardo Digital Reviews should mail a copy of the publication to Leonardo, 236 West Portal Ave, #781, San Francisco, Ca 94127, USA. Event and exhibit organizers, and authors of virtual/electronic publications and events interested in having their event reviewed should send information in advance electronically (only) to: <davinci@uclink.berkeley.edu>

Individuals interested in being added to the Leonardo Digital Reviews review panel should email (only) their curriculum vitae to: <leo@mitpress.mit.edu>

We are particularly seeking reviewers who can review material in other languages than English.

Unsolicited reviews are not accepted by LDR.

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OPPORTUNITIES

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< Digidesign Technical Support >

Digidesign, 3401-A
Hillview Avenue, Palo Alto, CA 94304-1348
Attn: Staffing
Fax: (415)842-7999
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Digidesign is the leading manufacturer of digital audio workstations

for the professional music, recording, film and video markets. Digidesign's software and hardware products are used for the recording, editing, mixing and mastering of sound. These products integrate with industry-standard personal computer and mass storage devices to create cost-effective, random access digital audio workstations.

Current Openings: 9/26/97

Technical Support

Within the Palo Alto office of Digidesign, provide customers with high-quality, accurate, technical support via the phone and e-mail for all Digidesign products in Mac and Windows operating environments. This individual also produces content for the internal technical support knowledge base and supports web page as needed to assist customers in solving problems.

The successful candidate must be experienced with Macintosh operating systems, Windows knowledge a plus. At least one year of technical support or customer service experience is required, as is BS or equivalent. The candidate must possess exceptional problem solving skills, must be self-motivated, able to take initiative, and demonstrate exceptional verbal and written skills in English. Some flexibility with work hours necessary as work demands fluctuate somewhat. Familiarity with digital audio and MIDI equipment, specifically with Digidesign products and third-party sequencing applications are a plus.

Engineering

PC Software Engineer

Responsible for the design, implementation and debug of Digital Audio Workstation (DAW) application software on the WinTel (Windows NT) desktop computer platforms. Emphasis on implementing and debugging high performance graphics and GUI framework software.

Requires a BSEE/CS or equivalent and 2 plus years of Windows software engineering experience. Must be fluent in C++, MFC and Visual C++.

OOA/OOD/OOP skills and experience are required. Also requires strong problem solving abilities and excellent communication skills.

Beneficial skills, although not required, are commercial shrink wrap software product or computer game development experience. We prefer DAW recording/editing experience on either the WinTel or MAC platforms and knowledge of the audio industry.

System Software Engineer

Responsible for developing Real-Time digital audio workstation software for the Windows NT platform including: Digidesign audio engine (DAE), digital signal processing (DSP) algorithms and device drivers. Work content includes defining problems, modeling algorithms, prototyping designs, writing design documentation, coding, debugging and maintaining software programs

Requires BSEE/CS degree or equiv., and 3 years of software engineering exp. Requires fluency in C++, OOP, and real-time programming.

PCWindows NT platform programming experience is critical.

We prefer candidates with a functional understanding of the Motorola 56000 family of DSP's and experience with high speed data acquisition systems. Experience in the audio recording industry and with Digital Audio Workstations preferred.

Marketing

Corporate Marketing Communications Writer

Collaborate cross-functionally to develop promotional and technical collateral, data sheets, ad concepts, and technical bulletins.

Develop creative marketing concepts and work closely with the Marcom Manager and Art Director to bring projects to completion.

Requires a BA in Journalism, English, or equivalent and 4+ yrs. exp. writing for Marketing Communications. Must have a strong background in writing creative, concise and persuasive copy. The ideal candidate shall have exp. in a similar position with a company serving the professional music or video post-production industry. Ability to work on multiple projects with strict deadlines a must. Project management,

prioritization and multitasking skills necessary. Must have Macintosh skills including MS Word. QuarkXpress skills and familiarity with the Internet preferred. Agency exp. and familiarity with Digidesign products also preferred. Portfolio review will be required. Our total compensation package includes comprehensive benefits, 401K, and a profit sharing plan. Please send us your resume, indicating position of interest to: e-mail jobs@digidesign.com, fax: (415)842-7999, or mail: Digidesign, 3401-A Hillview Avenue, Palo Alto, CA 94304-1348, Attn: Staffing. Visit our web site at: <http://www.digidesign.com>. EOE.

< Department of Music - Princeton University >
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POSITION IN COMPOSITION

The Department of Music at Princeton University invites applications for a position in Music Composition. This is a tenure track appointment beginning September 1998 with a three year renewable term as Assistant Professor. Teaching responsibilities will include instruction at the graduate and undergraduate levels in composition and other areas related to the special interests of the instructor. These areas might include, but are not limited to theory, music technology, performance, improvisation, music for film, theater or dance, or music from a particular composer, country or defining set of circumstances. Ph.D. or an equivalent degree is preferred. To apply, or for further information, write to
Please include the following in your application

1. A curriculum vitae, including a list of compositions, performances, publications, activities, or any items which demonstrate your central musical concerns.
2. The names and addresses of three people who know your work and have agreed to write on your behalf. (If you prefer, you may include such letters instead.)
3. A limited representation of your work, in the form of scores, tapes, publications, papers, software, or other examples you feel are relevant to your application. If you want these materials returned, please include a stamped, self-addressed envelope.

Applications should be received by January 1, 1998.
Princeton University is an Equal Opportunity, Affirmative Action Employer.

< CagEnt - Audio DSP Software Engineer >

CagEnt
Phil Burk
Email: <phil@cagent.com>

Fax (408) 557-3425 to Melissa Zick

Job Opening for Audio DSP Software Engineer at CagEnt

The audio group at CagEnt is looking for a software engineer to develop audio software for various entertainment products including DVD players and arcade game systems. This is an opportunity to work on state-of-the-art custom ASICs and DSPs. We are looking for engineers with experience in the following areas:

- * DSP or RISC assembly language programming,
- * operating system or device driver programming in 'C',
- * perceptual coding techniques such as AC-3 and MPEG Audio,
- * digital audio and MIDI,
- * audio synthesis techniques for music and sound effects.

Bonus skills include:

- * Java or Forth programming,
- * electronic hardware design,

- * music composition and sound design,
- * knowledge of various audio APIs.

CagEnt is a startup company located in Santa Clara, California in the heart of Silicon Valley, next to a CalTrain station. If you are interested, please contact Phil Burk at phil@cagent.com. You can also fax your resume to Melissa Zick at (408) 557-3425. Please reference the audio DSP job on the fax.

< Nijmegen Institute of Cognition and Information - Music Cognition >
Personnel Department of the Faculty of Natural Sciences

University of Nijmegen

Toernooiveld 1, 6525 ED Nijmegen (Vacancy 118)

Department of Personnel & Organization

Faculty of Social Sciences

University Nijmegen, P.O.Box 9104, 6500 HE Nijmegen, The Netherlands
(other vacancies)

Job Opportunities in Music Cognition

At the Nijmegen Institute of Cognition and Information of the Nijmegen University a research team is being assembled for the Music, Mind, Machine project. This project aims at improving the understanding of the temporal aspects of musical knowledge and music cognition using computational models. The research is interdisciplinary in nature, with contributions from musicology, psychology and computer science. The following positions are vacant:

Computer Scientist / Lisp Programmer. (vacancy number 21.2.97)

A challenging position is available for a Computer

Scientist/programmer with experience in Common Lisp and CLOS.

Knowledge of the Macintosh system, MCL, MIDI and audio applications is an advantage. He/she will work on the development of computational models of music perception. The design of WWW interfaces and some maintenance of system software will be part of the task. Appointment will be full-time for four years. This researcher will become member of the Music, Mind, Machine project team at the NICI.

Research Assistant (vacancy number 118)

The task of the research assistant (AiO) will be to design adaptive methods for learning rhythm perception. Possible methods that will be considered are neural networks, Hidden Markov models and probabilistic graphical models. The candidate needs an excellent background in physics, mathematics or computer science. This work will lead to a PhD degree in Physics. Additional expertise in either music or psychology is an advantage. Appointment will be full-time for four years or 8/10 for 5 years. Gross salary will be NLG 2135 per month in the first year, increasing to NLG 3812 in the fourth year, based on full-time employment. This researcher will become member of the neural network research group at the Laboratory for Medical and Biophysics and will be employed by KUN. This group consists of 8 researchers and PhD students and conducts theoretical and applied research on neural networks.

Postdoctoral Researcher (vacancy number 21.7.97)

Quantisation is the process of separating the categorical, discrete time components -durations as notated in the musical score-, from the continuous deviations as present in a musical performance. The project has next to the fundamental aspects (connectionist models of categorical rhythm perception and their empirical validation), an important practical focus and aims at developing a robust component for automatic music transcription systems. The postdoc will investigate an existing connectionist model for quatization and will design and evaluate the prototype system and supervise the implementation of the components. Extensions of the model to handle tempo-tracking, polyphony and possibly beat induction are foreseen. Furthermore the theoretical results obtained in the post-graduate project need to be integrated and put to practical use. We look for a cognitive scientist with experience in both experimental methods and in computational modeling, preferably using Lisp. Experience with

quantization and relaxation networks is an advantage. Appointment will be full-time for three years, with a possible extension. Depending on experience, the salary will be between NLG 3882 and NLG 8201 gross per month. This researcher will become member of the Music, Mind, Machine project team at the NICI.

Music Technologist/Programmer (vacancy number 21.8.97)

This technical assistant will be responsible for setting up the hard- and software and conducting the recording of performance data, the construction of user-interfaces, interfaces to existing music notation software, and the implementation of an Internet version of the prototype. We look for an engineer with experience in MIDI and related music technologies, Apple Macintosh, World-Wide Web and Internet, and/or Lisp programming. Appointment will probably be half-time for three years, with a possible extension. The salary, depending on experience, will be between NLG 3694 and NLG 5603 gross per month. This researcher will become member of the Music, Mind, Machine project team at the NICI.

More information

Details about the context of the research can be found at:

<<http://www.nici.kun.nl/mmm> and <http://www.mbfys.kun.nl/SNN>>

Employment will begin in early 1998. Nijmegen University intends to employ a proportionate number of women and men in all positions in the faculty. Women are therefore urgently invited to apply. Applications (three copies) should include a curriculum vitae and a statement of the candidate's professional interests and goals, and one copy of recent work (e.g., thesis, computer program, article). Please mark envelope and letter with the vacancy number. Applications for the OIO position (Vacancy 118) should be sent before October 25, 1997 to the Personnel Department of the Faculty of Natural Sciences, University of Nijmegen, Toernooiveld 1, 6525 ED Nijmegen (Vacancy 118). Applications for the other positions (21.2.97, 21.7.97 or 21.8.97) should be sent before November 15, 1997 to the Department of Personnel & Organization, Faculty of Social Sciences, University Nijmegen, P.O.Box 9104, 6500 HE Nijmegen, The Netherlands.

< Ohio University College of Fine Arts - Instructional Technology Specialist >

Mail to:

Dr. James Stewart, Interim Dean
College of Fine Arts Ohio University
Jennings House
54 East Union Street
Athens, OH 45701

Position: Instructional Technology Specialist

Where: Ohio University College of Fine Arts

Available: Immediately Following Search

Salary: Full-time 12 month appointment; minimum salary \$31,000 with excellent benefits

A copy of this information is available in the internet.

<http://ouvaxa.cats.ohiou.edu/~phillipsm>

select "Job Opportunity" link or go straight to it at ...

<http://ouvaxa.cats.ohiou.edu/~phillipsm/TecJob.html>

Responsibilities:

Assist College of Fine Arts in utilizing computer technologies to enhance instruction and create new learning experiences for students in the fine arts.

Assist the College, faculty, and individual programs in long-range computer software and hardware planning.

Qualifications:

Bachelor's degree is required; Master's degree or its equivalency in professional experience in Instructional Technologies, or related fields, or in the Fine Arts is preferred. The individual must have significant computer experience and enjoy working with a broad spectrum of people involved in the arts. Other desirable

qualifications include the following: a background in instructional training and technology; experience in the visual and/or performing arts which is based on technological resources; experience working in a college or university setting. In addition to strong computer skills, experience and/or training in other areas of technology related to the arts is also a plus.

Institution and Setting:

Ohio University is a state-assisted residential Research II university. Chartered in 1804, it is the oldest university in the Northwest Territory. Enrollment on the Athens Campus is currently 19,700 students with another 8,200 students on five regional campuses.

The College of Fine Arts consists of six schools: Art, Comparative Arts, Dance, Film, Music, and Theater. Further information on Ohio University is available at its web site: <<http://www.ohiou.edu>>.

Application:

Ohio University is an Equal Opportunity/Affirmative Action Employer, committed to an aggressive program of affirmative action. Interested individuals should send a letter of application and a resume along with names, addresses, and phone numbers of four references. Supporting materials, if included, should be limited to those which most closely apply to the responsibilities of this job.

Application Deadline: December 15, 1997

< UC Berkeley, Department of Art Practice - Assistant Professor in New Genres >
Margaret Thalhuber

New Genres Search

Department of Art Practice, UC Berkeley

Berkeley, CA 94720-3750

Tel: (510)642-4190

Fax: (510)643-0884

Email: <mmt@uclink4.berkeley.edu>

UC BERKELEY, DEPARTMENT OF ART PRACTICE will appoint a tenure track Assistant Professor in New Genres effective July 1, 1998. We encourage applications from those working in the disciplines of electronic/computer art, performance or installation. Please apply to New Genres Search, Department of Art Practice, UC Berkeley, Berkeley, CA 94720-3750, sending a professional resume, a sheet of 20 slides or video or CD ROM of recent work with SASE, a list of references and a statement of your approach to teaching. Closing date: December 1, 1997. The University of California is an EOE.

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ANNOUNCEMENTS

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< Seventh Annual Florida Electroacoustic Music Festival >

Dr. James Paul Sain, Director of Electroacoustic Music

University of Florida

Department of Music

P.O. Box 117900/130 Music Bldg.

Gainesville, FL 32611-7900

Tel: (904) 392-0223 ext. 240

Fax: (904) 392-0461

Email: <fems@nervm.nerdc.ufl.edu>

Seventh Annual Florida Electroacoustic Music Festival

April 9-11, 1998

University of Florida

Composer-in-Residence, Joel Chadabe

Now in its seventh year, the Florida Electroacoustic Music Festival has featured an international variety of contemporary electroacoustic art music. Past composers-in-residence have included internationally renowned composers such as Hubert S.Howe, Jr., Cort Lippe, Gary

Nelson, and Jon Appleton.

Call for Works

A call for electroacoustic art music works that fit into the following categories:

- works for tape alone
- works for tape and instrumental solo
 - special interest in works including flute, saxophone, horn, trombone, string bass, piano, and percussion
- works for tape and soprano and/or baritone voice
- works utilizing interactive applications
 - Opcode's Max
 - IRCAM MAX/FTS (SGI O2 platform)

Deadline for the receipt of submitted work(s) is: OCTOBER 30, 1997
All works that include live performance need to be accompanied by a tape of a performance or high quality realization. All submissions must include a performance tape on DAT or CD, performance parts and/or score, brief biography, and program notes (biography and program notes should be promptly available on 3.5" floppy or via electronic transmission upon selection). Incomplete submissions will not be reviewed. Please note if a performer can be provided by the composer. Contact information should include a phone number, address, and if available a fax number and email address (important for prompt notification of selection). A self addressed stamped envelope is required for the return of all materials. Tapes of works selected for performance and those without SASE will become the property of the Florida Electroacoustic Music Studio. Composers selected for performance are required to attend the festival; this is to provide a sense of community to the festival.

Call for Papers/Presentations

A call for papers and lecture/demonstrations dealing with all aspects of electroacoustic music, computer music, acoustics, psychoacoustics, and related topics are sought for presentation during the Seventh Annual Florida Electroacoustic Music Festival. Submissions in all current areas of electroacoustic music research and historic perspectives are encouraged.

Deadline for the receipt of submitted material(s) is: OCTOBER 30, 1997
Three copies of the completed paper or lecture/demonstration abstract should be accompanied by a brief biography (paper abstract and biography should be promptly available on 3.5" floppy or via electronic transmission upon selection). All papers submitted will become part of the Florida Electroacoustic Music Studio Library. For more information on the electroacoustic music program at the University of Florida point your browser to the Florida Electroacoustic Music Studio home page <<http://emu.music.ufl.edu/>>. The University of Florida is located in North Central Florida in the city of Gainesville, Florida. Gainesville is served by Delta Airlines, America Southeast Airlines, USAir Express, and Continental. The city is an approximate 2.5 hour drive by car from Jacksonville, Tallahassee, Orlando, and Tampa, Florida. Airport shuttle service will be provided by the festival hotel for transportation from/to the Gainesville Regional Airport but not to other area airports. This year's festival occurs a week before the SEAMUS conference at Dartmouth College and the Society of Composers, Inc. meeting at Indiana University. It is hoped that this will encourage international submissions. Anticipated notification of selection will be made no later than November 15, 1997.

< Leonardo Music Journal, Vol. 8 (1998) - Theme: "Ghosts and Monsters" >
LEONARDO MUSIC JOURNAL

Nicolas Collins, Editor-in-Chief
Email: <TallmanCollins@compuserve.com>
Cathryn Hrudicka, Coordinating Editor
425 Market Street, 2nd Floor
San Francisco, CA 94105
U.S.A.

CALL FOR PAPERS
Leonardo Music Journal, Vol. 8 (1998)
Theme: "Ghosts and Monsters"

In his infamous 1972 essay, "John Cage -- Ghost or Monster", Cornelius Cardew took Cage to task on issues of political correctness. Inspired by Mao Tse-tung's "Talks at the Yunan Forum on Literature and Art" (1942), Cardew surveys the state of new music, and Cage's work in particular, for signs of what Mao called "ghosts" ("myth, madness, magic and mysticism," which Cardew associates with political anarchy) and "monsters" ("anti-people ideas" having to do with technological futurism and political fascism). The avant-garde does not fare well under Cardew's hand, but if his histrionics seem quaintly dated in 1997/98, those twin pillars--slightly adjusted--still have relevance. In the realm of both technology and aesthetics, ghosts and monsters play critical--if often covert--roles in the creation of an individual composition, in the evolution of the body of a composer's work, and in the development of musical "schools" and scenes.

Leonardo Music Journal invites composers of many nations, styles, temperaments and technologies to address the influence of ghosts and monsters in their own work and (where appropriate) that of their peers. In the realm of technology, the questions might seem obvious: Are you a Luddite or a Utopian (or other)?

Do you crave tubes or Crays?

How does music rooted in technology adapt to technological change?

In the aesthetic realm the issues are perhaps murkier:

Did Cage ruin your life or open up fruitful vistas?

What did Stockhausen or Boulez mean for a composer coming of age in Europe in the 1970s?

What happens after Minimalism?

< IEEE CG&A Computer Animation for Virtual Humans Conference >

Prof Rae A. Earnshaw,
Head, School of Electronics and Digital Media
University of Bradford, Bradford
BD7 1DP, UK
Tel: +44-1274-384001,
Fax: +44-1274-383727
Email: <R.A.Earnshaw@bradford.ac.uk>

CALL FOR PAPERS

September/October 1998 Special Issue of IEEE CG&A
"Computer Animation for Virtual Humans"

Co-Editors

Prof Rae Earnshaw, University of Bradford, UK
Prof Nadia Magnenat Thalmann, University of Geneva, Switzerland
Prof Demetri Terzopoulos, University of Toronto, Canada
Prof Daniel Thalmann, EPFL, Switzerland

Deadline for receipt of papers: November 15, 1997

Summary

Developments in computer animation techniques are producing levels of realism and movement that are coming close to physical reality. Artificial intelligence techniques and autonomous agents are enabling computer generated characters to be given a life of their own and able to interact with other characters in virtual worlds. Developments in networking and virtual reality enable multiple participants to share virtual worlds and interact with applications or each other. This special issue is devoted to the research themes of animation techniques related to virtual humans, and includes:

Storytelling/authoring environments
Generating lifelike behaviors
Virtual humans and agents
Representation of emotion
Multiuser environments
Modeling of humans
Games and entertainment
Video animation
Special effects
Motion control
Facial animation
Modeling techniques and simulation
Adaptive animation techniques
Virtual humans vs. motion capture
3D animation techniques
Internet applications
Shape deformation
Autonomous objects
Synthetic actors
Smart staging
AI techniques
Networked environments

Submit six copies of full papers by November 15, 1997 to Prof Rae A. Earnshaw, Head, School of Electronics and Digital Media, University of Bradford, Bradford BD7 1DP, UK, phone +44-1274-384001, fax +44-1274-383727, e-mail R.A.Earnshaw@bradford.ac.uk.

Manuscripts undergo a referee process consistent with other archival publications. Notification of acceptance or requests for revision will be made by April 15, 1998. Final versions of accepted manuscripts are due by June 1, 1998. Author kits are available from editorial secretary Alkenia Winston, e-mail awinston@computer.org or at <<http://computer.org/cga/edguide.htm>>.

< The 2nd Annual Santa Fe International Electro-Acoustic Music Festival >

Steven M. Miller, Director
Contemporary Music Program
The College of Santa Fe
1600 St. Michael's Drive
Santa Fe NM 87505, USA
Email: <cmp@unix.nets.com>

The Contemporary Music Program of The College of Santa Fe announces a Call for Works.

Background Information:

The 2nd Annual Santa Fe International Electro-Acoustic Music Festival will be held April 3 & 4, 1998 in Santa Fe New Mexico, USA. This year's festival will comprise several events: Outdoor ambient sound/music installation in the CMP (Contemporary Music Program) courtyard Performance by the CSF Electro-Acoustic Music Ensemble lead by David Dunn and Steven M. Miller Afternoon concert of electro-acoustic tape music Two evenings of live electro-acoustic performances (performers TBA)

The Call for Works:

Tape Music:

We are soliciting tape music works intended for stereo playback in an indoor location conducive to active and attentive listening in a comfortable environment (not a typical concert hall). Preference is for recent works, no longer than 15-18 minutes in length (to facilitate a larger number of pieces presented), composed specifically for the electro-acoustic tape music medium. All submissions must be submitted on audio CD or DAT (44.1 ONLY), and include short program notes and bio on composer/performers involved. Technical info may also

be included.

All submissions for tape music must be postmarked no later than 15 February 1998.

Live Performance:

Proposals for live performance of electro-acoustic music will also be considered. Please be aware that at this time only a modest honorarium for performers can be offered. Regrettably, we can not provide or assist with transportation, lodging or other expenses.

All submissions must include a high quality recording of the piece(s) to be performed or other relevant examples, a complete description of technical needs (indicating which will be provided by the performers, and which will be need to be provided by us), and program notes and bio on composer(s)/performer(s).

All submissions for live performances must be postmarked no later than 15 January 1998.

< SCAN Symposium on Small Computers in the Arts >

SCAN: Small Computers in the Arts Network

Philadelphia, PA

Misako Scott

Email: <scan@netaxs.com> -- conference info and registration

Ranjit Bhatnagar

Email: <ranjit@best.com> -- web site and mailing list help

URL: <<http://www.scanarts.com/scan/>>

SCAN Symposium on Small Computers in the Arts: Nov. 7-9, 1997,

Philadelphia, PA

(Note: this mailing list will be used for *infrequent* announcements about the Small Computers in the Arts Network. If you wish to be removed from the list, see instructions at bottom.)

The 17th ANNUAL SYMPOSIUM on

SMALL COMPUTERS IN THE ARTS

November 7-9, 1997

The Franklin Institute Science Museum

Philadelphia, Pennsylvania

Come join us for 3 days and 3 nights of presentations, performances and an art exhibition all centered around the applications of computer technology in the arts. This intimate artistic gathering offers unusually abundant opportunities to speak personally with the presenting artists and performers, and to network with other attending artists.

For full details, see the web site at <<http://www.scanarts.com/scan/>>

or write or call for a copy of the brochure.

Preliminary SCHEDULE:

Thursday, November 6th	7pm	Reception
Friday, November 7th	8:30am	Registration
	9am-4pm	Presentations, demos, workshops
	4pm-7pm	Art exhibit opens
	8pm	Jaron Lanier's VR Lecture/Performance
Saturday, November 8th	9am-6pm	Presentations, demos, workshops
	8pm	Concert and dance performances
Sunday, November 9th	9am-4pm	Presentations, demos, workshops

REGISTRATION information:

Full symposium (3 days): \$125; \$40 for student with ID

One day: \$55, \$20 for student with ID

Jaron Lanier performance: \$12.50 or \$10 (represents a 50% discount for SCAN attendees), available from UPSTAGES at (215) 569-9700.

Please make check payable to SCAN

SCAN, 209 Upland Road, Merion Station, PA 19066-1821

For more info, call Misako Scott at (610) 664-3417

or email scan@netaxs.com

PRESENTATIONS will include (subject to change):

Minute Variations

--Lawrence Fritts, Director, Electronic Music Studios

SUPER Computers in the Arts

--Laura Giannitrapani, Manager of Graphics Consulting,
Scientific Computing and Visualization, Boston University
GRAMMATRON: Hypertext Fiction On The Web
MARK AMERIKA, author of The Kafka Chronicles and Sexual
--Blood, founder and publisher of Alt-X online magazine
Artistic Collaborative and Educational Possibilities Using
Interactive Multimedia-Dance
--A. William Smith, Ph.D., Ohio State University
Sculptural Form & Space And Boolean Algebra
--Timothy Duffield, Sculptor and Landscape Architect
--Robert Michael Smith, Sculptor
BYTES of Bryant Park: From Cyberspace to Performance Space
--Steve Koplowitz, director, choreographer
The First Wave: Art that is defining the pallet of the Web
--George Thompson, publisher Electronic Alchemy, Director of
the isual Arts and Music Program at Johnson County Community
College, KC, MO
Computer Aided Design for Handmade Sculpture
--Rod McCormick, Sculptor, Metalsmith, Chair Crafts Dept.,
University of the Arts, Phila, PA
Lisa: Using Motion Sensing And Realtime Sound Sampling
Systems In Performance
--Richard Povall, Chair Timara Dept., Oberlin College
Conservatory of Music, Oberlin, Ohio
Creating Digital Sculpture
--Bruce Wands, Chair of the Computer Art Department and
Director Computer Education, School of isual Arts, NYC, and
Peter Terezakis, Instructor Electrical Engineering for
Artists, Digital Sculpture, and Advanced Computer Systems,
School of Visual Arts, NYC
...and a performance by Jaron Lanier, Virtual Reality Pioneer.

< Organised Sound - Issue Thematic Title: Microstructure and
Macrostructure >

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ORGANISED SOUND
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An International Journal of Music and Technology
The Editors,
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URL: <<http://www.cup.cam.ac.uk/Journals/JNLSCAT/oso/osoIFC.html>>

Volume 3, Number 1. Issue thematic title: MICROSTRUCTURE AND
MACROSTRUCTURE.

Date of Publication: April 1998.
Publishers: Cambridge University Press.

Articles to be considered for publication in the named issue are now
invited.

Microstructure and Macrostructure

It may be argued that two issues are essential for the achievement of
meaning in a work of music. On the one hand, the overall coherence of
a piece depends on the articulation of its structure. On the other,
this structure is realised through its discourse, which is dependent
on the articulation of the actual sounds; inflections, accents, local
changes in tempo, etc. may alter the meaning of a passage
significantly. While this is true of most music, it acquires
additional significance for the composer in the electroacoustic domain
since s/he becomes responsible for the inner attributes of timbre. It
is therefore not surprising that the structure of a significant number

of electroacoustic works is, in one way or another, abstracted from the characteristics of its materials. The important relationship between small temporal units - such as motives and phrases - and overall form of a piece is extended to encompass the inner mechanisms of the constituents of those units: the sounds themselves. Furthermore, changes in the conception of the world, such as the idea of self-similarity, with its projection of structure from the microscopic to the macroscopic, has also had an effect on the way musicians think.

However, the questions remaining unanswered are numerous. Can there be structure which unifies a work at different temporal levels? Can this unification include timbre so that the inner characteristics of its sounds affect the structure of a piece? Will time be completely absorbed by timbre to an extent which includes the overall temporal span of a work - emulating the integration of space and time in the theory relativity? Is it possible to pre-program this type of cross-dimensional unity? If so, how? Articles which attempt to answer or re-formulate these and related questions are invited. For example, they may consist of the following:

- * direct discussion of the aesthetic issues raised above.
- * compositional techniques specially devised for the integration of structure at different levels.
- * analytical methodology with a particular emphasis on the relationship between structure and sonic material.
- * hardware/software tools designed to integrate micro-structure and macro-structure.

Contributors are encouraged to propose sound examples which may be included in the annual CD to be released with Volume 3, Number 3. The editors will particularly welcome submissions from student contributors.

TIMETABLE for SUBMISSIONS

Articles and other material for the editors' consideration should be submitted by December 31st, 1997. If submitted in hard copy, four copies should be posted to:

The Editors,
Organised Sound
Department of Music, University of York,
Heslington York YO1 5DD
UK

Email submissions are encouraged and should be mailed to:

<os@cage.york.ac.uk>

Full details of submission requirements can be found at:

<<http://www.cup.cam.ac.uk/Journals/JNLSCAT/oso/osoIFC.html>>

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