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         |   CONTENTS   |
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                |   INTRODUCTION  |
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< This Issue >

Craig Harris

This month LEA presents two feature articles and a media arts facility
profile. Josephine Ansteyĺs article Electric Body examines some of the
technical and aesthetic strategies used in creating the electric body,
and focuses on the work of Stelarc (ParaSite) and Stahl Stenslie and
Knut Mork (solve et coagula). In an appropriate companion piece,
Arlindo Machado writes about Eduardo Kacĺs A Microchip Inside the
Body, presented in November of 1997 in Sao Paulo, Brazil, touching on
some of the same issues.

Greg Garvey presents a view into a new program Digital Image/Sound and
the Fine Arts: a Double Major with Computer Science and Fine Arts at
Concordia University in Montreal, Canada. This is a fine example of
the kind of integrated educational perspective that bridges the
sciences with the arts, as described in The Leonardo Equation:
Interdisciplinary Education in Art, Science and Technology (LEA 5:11
and LEA 5:12). Leonardo Digital Reviews takes a sabbatical this month,
but will return in LEA 6:5.

We are continuing with our plan to present extended abstracts in the
text version of LEA, with the full articles appear on the web site. We
expect to begin with the implementation of the subscription system
soon, and we hope that those who have yet to subscribe will join us in
the next phase of evolution for Leonardo Electronic Almanac. We
appreciate the wave of new subscriptions coming into MIT Press, and
look forward to more years of serving the community in the spirit of
the journal Leonardo, and the International Society for the Arts,
Sciences and Technology.

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             |   FEATURE ARTICLE  |
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< Electric Body (excerpts) >

Josephine Anstey

Josephine Anstey
Electronic Visualization Laboratory
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Email: <anstey@evl.uic.edu>
URL: <http://www.evl.uic.edu/anstey>

We Sing the Body Electric:
Imagining the Body in Electronic Art

Introduction

In "Neuromancer" William Gibson created the fantasy of cyberspace and
of the body in cyberspace.

Cyberspace in this novel is an amalgam of elements; simstim - the remote experience of the entire sensory input of another person; an internet - a dynamic, graphical representation of information movement, ownership, protection and theft; and artificial intelligences who have gotten loose in the world wide electronic system.

The body that jacks into cyberspace is a sensory input/output device: the senses take in information from both the real world and simulated worlds, output from the senses control both real and virtual machinery. It is a techno-human hybrid, capable of linking directly into cyberspace and communicating with virtual beings it finds there. It is a farm for spare bio-parts.

Contemporary electronic art practitioners are following this fantasy as they create cyber bodies. This paper will examine some of the technical and aesthetic strategies used in creating the electric body. It will check the work produced against the claims the artists are making in their attempt to realize the fantasy. Finally it will analyze the fantasy itself.

Technology - are we there yet?

Stelarc is getting ready for a performance of "ParaSite" at the Ars Electronica Center, September 1997. He is naked except for a thong. Wires trail from his arms and one leg. He has a VR head set pushed up on top of his head. He has a prosthetic arm attached to his right arm. He checks the equipment to his right, a series of body monitoring devices that send information to a VRML representation of his body. Behind him is a video screen - already there are images popping up on it. To the left is a line of computers, audio and video mixing equipment, each with a young man sitting behind it. In front of him are cameras. The audience is tucked around the sides, most of it outside the glass walled area the performance is in. Stelarc walks towards the camera people. He talks to a woman with a hand held camera, asking her to shoot from the ground up and to move the camera back and forward dynamically.

The performance officially begins. Two or three computers are running the specially designed search engine that pulls medical images and images of the body off the web. Information from the images is translated into electronic impulses which are fed to the wires stimulating Stelarc's muscles, and provoke involuntary movement. These images from the web, the VRML representation of the stimulated body, and live footage are mixed, layered and projected onto the screen behind Stelarc. The music throbs.

Stelarc's leg and arm move up in an arc and fall. The prosthetic arm clicks, whirs and turns slightly. Stelarc's leg and arms move again, the motion is roughly the same. Stelarc starts to sweat.

This continues for about forty minutes.

... [Content omitted: Ed.] ...

Stelarc's performance is very powerful and I will return to the question of what imbues it with power later. However, the technology he currently has access to means that his performance is more a paean to technology and the electric body rather than the body itself - we get the shadow not the substance. Even if he created a more substantive cyber body, it would be his body which the audience could

only experience vicariously. I asked Stelarc if he would therefore encourage others to follow in his footsteps. Although agreeing that this would be necessary for a more complete experience, he suggested that much of his practice is too extreme and even dangerous for others to get into lightly.

In contrast, Norwegian artists, Stahl Stenslie and Knut Mork, do create a cyber body experience for the user. At the AEC 97 festival, their "solve et coagula" installation is in a concrete basement with high walls and low lighting. Curved prongs create a cage-like structure around a woman wearing a wired body-suit, and a VR head mounted display. Video is projected on the wall in front of her. Nebulous, star-shaped, moving images slide by. The woman looks up and down. The images shift. She paces in her cage and cries out. The sound effects screech and grumble.

This looks like a lot of fun, I wonder what she can see and feel, I wonder what is going on. Then I find out it's interactive and I can have a go.

... [Content omitted: Ed.] ...

Conclusion

The fantasy of a cyber body and realizations of cyber bodies seem to pull in directions that both enrich and extend, and impoverish and limit the body.

The possibility of electrical augmentation of the body and of having virtual bodies attached to our real bodies suggests the freedom to transgress the normal limits of the body; limits of time and space, of appearance and fixed gender, of a unitary self, of self and other. What limits the cyber body - and the less we acknowledge it the more it limits - is a blindness to the existing structures that exert control, and control definition, of the body; what it is, how it can be used, what gender is, what sexuality is, what acceptable sexuality is. In the words of Judith Butler, no realm of fantasy or representation is, "a domain of psychic free play."

It seems to me that opportunities for radical visions of the body are lost when for example, artists deny questions of sexuality, power and powerlessness (ParaSite) or try to ignore the problematics of gender (solve et coagula).

In his Neveryon series, Samuel Delany, manages to explicate a vision of a sado-masochistic sexuality that is radical and limit-breaking, and simultaneously to explore slavery with all its brutish limitations. He juxtaposes two poles and the structures that grow up around them - one is psychological with a sexual, role-playing practice, the other is political with a social submission and domination practice. He recognizes the play between these poles, but nevertheless convinces us that they exist at different levels and are in such different domains that an action that may appear the same - for example the wearing of a slave collar - can have a different or opposite meaning in each.

As artists continue to realize the cyber body I would be very pleased to see these realizations deal with issues of multiplicity, gender, power, flesh with some of the awareness and complexity Delany brings to S/M and power dynamics - acknowledging and layering all of the psychological, sexual, social and political implications.

< A Microchip Inside the Body (excerpts) >
Arlindo Machado

Arlindo Machado
Email: <arlimach@folha.com.br>

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After generalizing happenings, performances, and installations, after questioning the white cube of the museum and jumping to the public space, after borrowing from industry and employing all kinds of machines and technological apparatuses to make images, texts, and sounds, after discussing the tragedy of the human condition and laying bare the embarrassment, the segregation, the unspoken differences of race, sex, geographic origin, and socioeconomic contingency after all of this, art seems to orient itself now toward a discussion of the very biological condition of the species.

For the past few years, artists like Orlan and Stelarc have brought forward a cultural discussion of the possibility of surpassing the human through radical surgical intervention, through the interface between flesh and electronics, or with robotic prostheses to complement and expand the potentiality of the biological body. More than anticipate profound changes in perception, in our conception of the world, and in the reorganization of our sociopolitical systems, these pioneers foresee fundamental transformations in our species. These transformations could conceivably alter our genetic code and reorient the Darwinian evolutionary process.

An important landmark of this current took place on November 11, 1997, at the cultural center Casa das Rosas, Sao Paulo, Brazil. On this day, the artist Eduardo Kac implanted in his ankle an identification microchip with nine digits and registered himself with a databank in the United States via the Internet. Replacing the traditional branding with hot iron, the microchip -a transponder tag- is used to identify and recover lost or stolen animals. The microchip is connected to a coil and a capacitor, all hermetically sealed in biocompatible glass to prevent the organism from rejecting it. The number stored on the chip can be retrieved with a tracker, a portable scanner that generates a radio signal and energizes a microchip, making it transmit back its inalterable number. The microchip implant in the ankle has a precise symbolic meaning: it is an area of the body that has

traditionally been chained or branded.

... [Content omitted: Ed.] ...

Arlindo Machado is a critic, curator, and professor at the University
of Sao Paulo, Brazil. He has researched and published extensively on
visual arts and new technologies. His books include The Specular
Illusion: an Essay on Photography, The Art of Video, Machine and
Imaginary: the Poetics of Technology, and Pre-cinemas and Post-cinemas
(in Portuguese). A. Machado received the National Photo Award from the
Brazilian Foundation for the Arts (FUNARTE) in 1995.

"A Microchip Inside the Body" (Um microchip dentro do corpo), by
Arlindo Machado, was originally presented in Portuguese at the
symposium "New Directions in Art," Paco das Artes, Sao Paulo, Brazil,
on November 18, 1997.

[Ed. note: the complete content of this article is available at the
LEA website: <http://mitpress.mit.edu/e-journals/LEA/>.]
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             |   PROFILE          |
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< Digital Image/Sound and the Fine Arts: a Double Major with
   Computer Science and Fine Arts (excerpts) >
                         Gregory P. Garvey

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Overview

This paper describes the new double major/minor in Digital Image/Sound
and the Fine Arts in conjunction with the Option in Computer Science:
Computer Applications. Central to the program is a two course
sequence, each six credits and two semesters in duration. DFAR 350
Multimedia Authoring was introduced in the 1997-98 academic year and
DFAR 450 Advanced Workshop: Theory and Practice in Digital Image/Sound
will be offered in the 1998-99 academic year. Results of teaching DFAR
350 will be presented, including a demonstration of the course web
site used to support in class teaching and examples of student work
using HTML, Macromedia Director with Shockwave, VRML and javascript.
Of particular interest will be those projects created with the support
of original source material from the Montreal Museum of Fine Arts, the
Claridge Collection of the Charles R. Bronfman Foundation and the
Bombardier Museum/Foundation.

The emergence of the "digital arts" calls for a re-alignment and
exploration of intersections across a number of disciplines previously
separated by department and faculties at universities, colleges, and
specialized schools. The World Wide Web is perhaps the most recent

example of how a new technology 'retools' pre-existing skills and aesthetic practice from previously separated domains. Successful web page development may involve the traditional skills of a story teller, writer, poet, copy editor, art director, graphic designer, typographer, illustrator, painter, photographer, and composer, in combination with the newer expertise of the 2D & 3D animator, digital non-linear video editor, software programmer, sound effects designer, cognitive psychologist and a human factors engineer.

... [Content omitted: Ed.] ...

[Ed. note: the complete content of this profile is available at the LEA website: <http://mitpress.mit.edu/e-journals/LEA/>.]

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        |        April 1998          |
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LEONARDO DIGITAL REVIEWS is on sabattical this month. Please look for LDR in May's issue of the Electronic Almanac and online at <http://mitpress.mit.edu/Leonardo/ldr.html>.

Contact LDR at <ldr@msp.sfsu.edu>.
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< Digital Review Notes >

Read the full versions of these and other reviews of digital media, arts, sciences and technology writing at the LDR web site:

<mitpress.mit.edu/e-journals/Leonardo/ldr.html>

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,
425 Market Street
San Francisco, CA, 94107, 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:

<ldr@msp.sfsu.edu>

Unsolicited reviews are not accepted by LDR.

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              |   OPPORTUNITIES  |
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< Technical Director - Brown University Dept. of Music >

Professor Todd Winkler, Director
MacColl Studio for Electronic Music
Department of Music
Brown University
Box 1924
Providence, RI 02912
Email: <Todd_Winkler@Brown.edu>

The Department of Music at Brown University is seeking applications
for a full-time technical director. The responsibilities for the
position include managing the technical concerns for the MacColl
Studios for Electronic Music, which services the department's programs
in computer music and multimedia composition. In this capacity, the
technical director will assist with faculty research projects, work
with students, and maintain equipment in five computer music studios.
The technical director will have the opportunity to teach in the
department and to use the facilities for his/her own creative work.
The candidate will also be responsible for the maintenance of the
music department's computers, web site, and audio systems.

Applicants must have extensive experience maintaining Apple Computer
networks and MIDI systems. We are also looking for candidates with
backgrounds in computer music composition, audio engineering,
electrical engineering, computer science, or multimedia production.

Applicants must have completed a Bachelor's degree and demonstrate
advanced technical expertise. Deadline for receipt of applications and
all supporting materials is May 15, 1998. The job will begin July 1,
1997. Applicants should send a letter describing their experience and
interests together with a resume, samples of creative work (if any),
and three letters of recommendation to Professor Winkler at the above
address.

Interested candidates may contact us about interviewing at the 1997
SEAMUS Conference, April 16 - 19 at Dartmouth College.

Brown offers the B.A. in music (with a concentration in computer music
composition), the M.A. in music (with a concentration in computer
music and electronic media), and the Ph.D. in music (with a
concentration in ethnomusicology). The Department of Music, with a
faculty of eleven supported by professional library and technical
staff as well as some twenty instructors in applied music, enrolls
about a dozen graduate students, thirty undergraduate majors, and more
than a thousand general students annually. It supports an Appalachian
string band, Balinese gamelan angklung, chamber music groups, chorus,
Ghanaian drumming group, jazz bands, orchestra, Trinidadian steel
band, wind symphony, and a resident string quartet. Its technical
resources include the MacColl Studio for Electronic Music and the
University Multimedia Lab. The Orwig Music Library houses the Koetting
Ethnomusicology Archive and the Neiman Archive of Sound Recordings.

Brown University is an Affirmative Action/Equal Employment Opportunity employer.

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             |  ANNOUNCEMENTS   |
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< Digital Soundscapes Summer Workshops >

Announcing:

Digital Soundscapes Computer Music Workshops in Crested Butte. The Center for Experimental Music and Intermedia (CEMI) at the University of North Texas is offering four computer music workshops in scenic Crested Butte, Colorado. Enjoy intensive workshops in Csound, KYMA, MAX, and Algorithmic Composition amidst the beauty of the Rocky Mountains. The workshops offered include:

Software Synthesis With Csound---July 13-17
     Jon Christopher Nelson, Instructor

Real-Time Synthesis With KYMA---July 18-21
     Phil Winsor, Instructor

Interactive MIDI Programming With MAX---July 23-26,
     Jon Christopher Nelson, Instructor

Algorithmic Composition Workshop---July 27-31
     Phil Winsor, Instructor

Each workshop will be limited to 15 participants to ensure adequate access to the computer music workstations. The workshop fees are $750 for one workshop, $1400 for two workshops, $1900 for three workshops, and $2250 for all four workshops. Reduced rate housing and partial scholarships may be available for students. For additional workshop information please point your browser to our web site at:

          <http://www.music.unt.edu/CEMI/cb>

To apply, either fill out the form in our web site or send a letter of intent including your name, address, phone, fax, email, and a brief biographical statement including educational background and computer experience to:

Jon Christopher Nelson, Director
Center for Experimental Music and Intermedia
UNT College of Music
Denton, TX 76203
Tel: (940) 369-7531
Email: <jnelson@sndart.cemi.unt.edu>
URL: <http://www.music.unt.edu/CEMI>

Preference will be given to those applicants who submit this initial registration information by March 1, 1998.
****

< Sonic Circuits VI >

Sonic Circuits VI - Electronic Music Festival

Send applications to:
Philip Blackburn, ACF-SC
332 Minnesota Street, E-145
Saint Paul, MN
55101-1300, USA.
Tel: (800) 263-2259
Fax: (612) 291-7978
Email: <pblackburn@composersforum.org>
URL: <http://www.composersforum.org>

American Composers Forum
332 Minnesota Street, #E-145
St. Paul, MN 55101, USA
Tel: (612) 228-1407
Toll Free: (800) 223-8619
Fax: (612) 291-7978
After June, 1998 we will be changing our area code from 612 to 651. Please
update whatever is necessary.
URL: <http://www.composersforum.org>
Our e-mail has been known to be imperfect; If you get a message bounced
back please try me at: <PhilipBla@aol.com>

Connect with the circuit:
  * Be on a CD of tape-works, broadcast around the world;
  * Be on a roster and receive invitations to perform live;
  * Have your video art seen across the US and abroad;
  * Have your score realized by new performers;
  * Produce your own festival event our DIY kit will facilitate your
    programming.

Just send in your electronic musical work (if you plugged something in
to make it, it qualifies style no object). Over 135 composers and
artists have been programmed since 1993.

Sonic Circuits, now in its sixth year, is a festival with a
difference; it comprises a caravan of curated works which travels the
world to form the basis for many events throughout the season. Any
musical works or acts which involve electronic technology (e.g., works
for electro-acoustic tape, live performance with electronics, video
art, new media art, sound art...) may be submitted for program
consideration. The selected works are offered to more than 20 venues
across the globe and may be featured on the highlights CD which is
sent to numerous radio stations.

The CD, video-compilation, scores, and lists of live acts are sent in
a kit to each venue as a program framework, which may then be
supplemented by locally-produced material.

The Sonic Circuits season begins in October, 1998 and continues
throughout the year. It is easy for you to host a leg of this
international festival: simply contact ACF for complete details.
Schools, theaters, lofts, galleries, bars, construction sites, and
courtyards have all been home to presentations.

Minimum requirements: PA system, playback equipment (video projector
and lighting are desireable). Pre-recorded program material will be
sent to you in October: mix it up with student work or live performers
and you have a show.

Submissions

Please submit one work for:

* Audio or video tape (NTSC format only);
  * Works with a visual and/or live component (musical performers,
    computer, film, slides, dance, actors, etc.).
  * Works appropriate for ISDN or phone line hook-ups, the Internet,
    sound-sculptures or installations.

Entries will be reviewed by a panel of artists, technically
knowledgeable and familiar with a range of new-media issues and
musical styles.

Eligibility

Open to all artists worldwide. American Composers Forum membership is
not required at the time of application but you are welcome to join,
and selected artists are expected to become members.

Selection Criteria

Artistic quality of the work. Sonic Circuits seeks to encourage
experimental and innovative uses of the particular medium;

Technical quality of the work. Skillful use of the technology will be
favored;

Appropriateness of duration and format. Programming considerations
often favor works less than 15 minutes duration, but longer works will be
considered.

Postmark Deadline July 1, 1998

 Sonic Circuits VI Application
 Name
 ACF member Y/N
 Address
 City State Zip Country
 Telephone   e-mail   Performing Rights Affiliation (if any)
 NAME OF WORK (submit one only)
 DURATION   TAPE FORMAT: DAT * Cassette * VHS * Other

Call for information regarding other format needs. Please send a high
quality dub suitable for CD mastering. Label the tape clearly with
composer's name, title of work, and duration.

LIVE PERFORMERS INVOLVED (if any):
We regret that we are currently unable to offer any travel or
performance honorarium for live performers. If you are the performer,
we will send your demo tape to the venues, which may then contact you
to make arrangements. If your work is playable by another person, we
will send your score to each venue as requested for them to identify a
local player.

BRIEF PROGRAM NOTES/COMPOSER BIO (no more than 150 words total, suitable
for radio announcements or program notes): Please use a separate sheet.

IF YOU WANT YOUR MATERIALS RETURNED: Enclose a check (to American
Composers Forum) sufficient to cover return postage.

By making application to Sonic Circuits VI, you agree to release ACF
from the responsibility for any loss or damage to your submitted
materials. You certify that any performers on this tape have approved

this recording for radio broadcast. You agree to allow ACF to consider
this work for inclusion on a run of 1,000 CDs.

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