Leif Brush

Leif Brush
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Leif Brush is an emeritus art professor at the Department of Art & Design, University of Minnesota, Duluth, Minnesota, born 28 March 1932, Bridgeport, Illinois, U.S.A. He received an MFA from the School of the Art Institute of Chicago:

Selected 2-way-satellite soundworks, teleperformances, installations, publications, presentations, articles and DVDs/CDs include:

2006
In association with World New Music Festival (http://www.mdjstuttgart.de/n%5byou%5d) the Child and Youth Congress, Stuttgart, Germany, 24-28 July 2006, "[you]: Music in a Globalized World," Brush will present public lectures, workshops and seminars 24-29 July (theme: GRENZENLOS ["WITHOUT BORDERS"]) in cooperation with the Institute for New Music and Music Education Darmstade (ISCM).

Brush will supply a citation chapter, soundworks, CD and images for Beyond 440 Cycles per Second by Volker Staub; publisher: GmbH (in German only); publication date: March 2006; http://www.wolke-verlag.de/neuerscheinungen/staub.htm.

2002--2005
Initial development and work with computers, hardware and software, and determining the organization structure for his archiving of his work to double-sided DD, PDF and URLs, to include all audio, video, writing and published works.

Leif Brush has, for decades, acquired a matching vocabulary whose pace evolved together with his soundworks. Both epicentripally re-radiate those sought after and then found highly amplified signals from an array of audible constructions: sensor-laden terrain instruments. These are conceptually identified as unique catalysts and conduits for recontextualizing Earth's wave and vibration "sound tracks." Particular focus is on analog artifacts from terrestrial and extraterrestrial resources which he hopes can outflow
seperately but along side traditional out bound aural streams currently available via Internet, cable and digital broadcast. His Internet-2 quest seeks, in realtime, an on call 2way availability of the overwhelming and perpetual data-laden analog science artifacts which could be Y-connected onto a public Internet "pipe". The flux status he's advocating would continue his ground work for making sounds available "on through invisible boundaries, from specific Latitude and Longitude nodes which would be UTC synced." He's advocating ("using multiple cell phones") that we all could use for audibly sharing through net-constructing a most obvious and missing aural aspect of our being earth guests. It's a special activation of a long term memory niche for "our" vibrations we have in common while riding on "spaceship earth."

http://www.d.umn.edu/~lbrush/asensors.html
http://www.d.umn.edu/~lbrush/windinstances.mov
http://www.d.umn.edu/~lbrush/terraininstruments.html
http://www.acowo.org/archives/artists_l/leif_brush/

Updated 13 February 2008.

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http://leonardo.info
send comments to isast@leonardo.info
soundscapes
result from sought-vibration monitorings in which sensors are attached to and/or for the purpose of overhearing specific trees, objects, Terrain Instruments or physical phenomena.

Some input examples... each of the following are preamplified before mixdown.

In 2005 I discovered the [Microflown](http://www.d.umn.edu/~lbrush/asensors.html)?

<table>
<thead>
<tr>
<th>terrestrial Whistlers, 1976</th>
<th>Whistler detail (2 sensors showing: top &amp; lower)</th>
<th>detail of single raindrop monitor, 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>these FM-selfbroadcasting aluminum Whistlers were suspended between trees at a height 20 feet above ground and included inch &amp; 3/4 inch diameters (<a href="#">QT.mov</a>)</td>
<td>the sensors (Barcus-Berry guitar pickups) are beeswaxed onto the aluminum and 22 gauge pigtail surfaces</td>
<td>thirty feet above ground and attached to the trunk of a cottonwood tree the components include: brass screen epoxied to plastic cup held the filtered rain; a spigot on the bottom right controlled the drop rate and struck a coiled stainless steel pigtail; the sensor (Shadow) is near the center</td>
</tr>
</tbody>
</table>
running parallel 200 feet between birches and 25 feet above ground beeswax-held sensors can be attached to any node with/beeswax; this Windribbon (below) had a triaxial sensor (Columbia accelerometer) and three sounds could be monitored (in the x,y,z axes) or via FM transmitter

in this 1873 bridge example sensors could be placed anywhere for multiple vibrational monitoring; however, 1/4 magnetic tape was applied to cleaned and degreased surfaces, covered with a clear adhesive tape and was left in place for 3 weeks. The playback contained pink, brown and white noises.

the most sensitive sensors (Radio Shack, surplus electronic stores) are the crystal pickups and each having a volume control; the fan provided the breeze and, these were used on surfaces where suspected sounds would be heard when a surface was slightly moved by the wind.

input from nature

A input session used: solar panel, traxial and accelerometer sensor(s), mixer, preamp and/or a line out or selfbroadcasting FM transmissions.

output to studio mixer

Output from FM receivers, carrying these selfbroadcasting sessions used balanced cables into a mixer/recorder to an inside studio described below.

playback configurations

Descibed as contextual soundscapes, the results achieve 4 channels into 8 amplifiers and are heard distributed among 200 speakers. This results in a transferred spatial context being listened to from behind and beneath all planes of my project room (a false floor allowed for soundings from below).

Macs, Sound Designer, Deck II, ProTools and an AMIII sound card allow for the mixdown of output (2a-2d) to the amped...
My current 03-04, 05- projects anticipate useing the sensor.

example definitions of *soundscape* *soundscape* *soundwalk*

leif BRUSH use back at top left in this browser
What is a Microflown?

For more than a century the acoustical world has only been working with pressure microphones that can be regarded as "acoustic voltage meters". The equivalent of "an acoustical ampere" meter was not available.

Acoustical engineers found practical ways to overcome this missing dimension, using not reliable and
laboursome methods. This is no longer necessary.

The Microflown is an acoustic sensor measuring particle velocity instead of sound pressure, which is usually measured by conventional microphones.

It is a thermal sensor that operates with two very thin and closely spaced heated wires. Particle velocity will cause a thermal imbalance that can be sensed.

The Microflown is a very small sensor that is made by micromaching: it is a silicon based sort of microphone. The Microflown itself is so small that it is difficult to see without a microscope.

In a measurement point of view, a Microflown is an acoustic current meter whereas the regular microphones are more like voltage meters.

In a audio point of view, the Microflown is a directional microphone (figure of eight) that operates down to the lowest frequencies (in fact down to 0Hz). The signal to noise ratio is very high at these lower frequencies.

back to your previous place

USP : Ultimative sound sample
Microflown of high-speed microphones

Conventional microphones measure the pressure change caused by an acoustic wave. Microflown of high-speed microphones measure however directly the particle movement in air. In addition two tiny small platinum wires on approx. 200°C are
heated up. The acoustic wave in air lets the air molecules by-flow differently fast at this Draehtchen, which cools these down again differently. This differential cooling changes the resistance of the Draehtchen, which by appropriate transformation as electrical signal becomes available.

Microflown Ultimate sound sample (USP): Loudness probe in a completely new technology - the direct measurement of the particle speed is in air the crucial novelty. Measurement at an individual point, of:

3D particle speed

Sound pressure

3D loudness

3D sound energy

3D acoustic impedance

The sensor is in a housing from stainless steel, amounts to 12.7 mm in the diameter and 9 cm in the length.

back to your previous place
I. BIOGRAPHICAL

Name: Leif BRUSH

b 1932, Bridgeport Illinois, USA

Previous Rank: University of Iowa, Iowa City, Department of Art: Assistant Professor Date of Rank Sept. 1, 1972-1975

Present Rank, University of Minnesota Duluth, Department of Art and Design: Emeritus Professor (Sept 19 1975- retired May 2002 ARCHIVE)

II. EDUCATION

Year Institution Field Degree

M.F.A.1972 School of the Art Institute of Chicago, Audible Sculpture

Diploma 1970 School of the Art Institute of Chicago* Undergraduate, Drawing, painting, printmaking, audible sculpture

* - non-art academic credits earned through The University of Chicago & Midway Studios

III. PROFESSIONAL EXPERIENCE

Employing Title of Primary Institution Position Responsibilities Dates

University of Professor Art in Technologies, 3-Dimensional 9/87-present

Minnesota Duluth Studies, Art Today, Creating Across Disciplines, 3D Digital Design
Sabbatical, 1998-99

Single Quarter Leave, Fall 1995

University of Associate Three-dimensional 9/79 - 8/87
Minnesota-Duluth Professor studies/Art Today
(liberal education)

University of Assistant Three-dimensional 9/76 - 8/79
Minnesota-Duluth Professor studies

University of Assistant Head, Art Forms 9/72 - 8/76
Iowa (Iowa City) Professor foundation program

School of the Art Institute of Chicago Initiate course in 9/70 - 8/72 Independent Graduate Teaching
Ass't. Audible Constructs: sound studies for artists

'06 - '07 update and recap of Leif Brush soundworks

IV. RECOGNITIONS AND DISTINCTIONS

Charter Member, UMD Digital Imaging Lab, 1999-2000

Mcknight Foundation Fellowship Finalist 1990-91
Bush Foundation Artist Fellowship finalist 1989
Bush Foundation Artist Fellowship finalist 1988

Residency Fellow in Interdisciplinary Art, the Yellow Springs Institute for Contemporary Studies
and the Arts, Chester Springs, Pennsylvania, (Includes commissioning and July-Aug., 1987
performance of new work and participation in artist forum)

Arrowhead Regional Arts Council artist production grant of
$3,000, for Seasons, a performance/sound/ awarded 1986
collaboration with Suzanne Lacy and Gloria DeFilipps Brush

Visual Studies Workshop Artist-in-Residence awarded 1983, for (Applications for video artist-in-
residence use accepted nationwide for the V.S.W. Program in May-June, 1984 Rochester, New
York. Panelists: Prof. Harland Snodgrass, SUNY-Alfred; Nancy Norwood, Media Studies, Buffalo;
Nathan Lyons, Director, V.S.W.) Funding by
the National Endowment for the Arts.e
National Endowment for the Arts Visual Arts Fellowship Awarded 1983 of $15,000, Performance/Conceptual/New Genres for use in Program. (Panel: Robert Stearns, Director of 1983-1984 Performing Arts, Walker Art Center; Adrian Piper, Artist, Critic, Philosopher, Ann Arbor, Mi.; Suzanne Lacy, artist, Los Angeles; Bill Buchen, Artist, Composer, Musician, New York City; William Wegman, artist, Richmond, Va.; Jock Reynolds, artist, San Francisco) (In the Visual Arts Fellowship categories overall, about 2% of applicants are funded nationally.)

Jerome Foundation Artist Production Grant Award, $6,000 1982 for support of Teleconstructs Spacework at the Hudson River Museum, New York; ARAC Production Grant, $1,600.

McKnight Foundation Artist Fellowship of $5,000 1981 (Panel: Mary Jane Jacob, Curator, Museum of Contemporary Art, Chicago; Don McNeil, Curator, General Mills Collection, Minneapolis; Irving Sandler, art critic, New York City)

Bush Foundation Artist Fellowship of $8,000 1980 (Panel: Ralph T. Coe, Director, Nelson Gallery, Kansas City; Standish Lawder, filmmaker, San Diego, Dianne Vanderlip, Curator of Contemporary Art, Denver Art Museum; Benjamin Lifson, photographer and critic, New York City; Linda Pastan, poet, Potomac, Md; Irving Petlin, artist, NYC; William Ransom.)

Minnesota State Arts Board Artist Fellowship of $10,000 1979-80

Minnesota State Arts Board Artist Project Grant, $1,335 1976

Exhibition Award, Des Moines Art Center (Juror: Daniel J. 1975 Robbins, former curator, Guggenheim Museum and Director, Fogg Museum, Harvard University

National Endowment for the Arts Visual Artist Grant of $3,000 1973

Part 1: Art Institute of Chicago Fellowship Award of $2,500 1970 --(Rediceberg Memory, fans (major winds playings), Haloids Lithographs, Sound sculpture
Part 2: Art Institute of Chicago Fellowship Award of $1,100 1972 --Kent State Hexagram, Windscube, Meadow Piano, Terraplane Chorography, soundworks

TEACHING

A. Subject areas taught at college level during last five years:

Art in Technologies; Sculpture; 3 D design; 3 D Computer Design; Creating Across Disciplines; Art Today

B. New Courses and Course Improvements


Leif Brush : Weltweites Lauschen / Workshop in Natur- und Windbeobachtung in ... Leif Brush : Klangkunst im Internet / Seminar (Jeweils Englischkenntnisse...) 2006

Developed topic for ES 5001 Environmental Studies Seminar for Environmental Studies majors, offered fall, 2000 (new teaching assignment)

Art 3030/5030 Art in Technologies developed as a studio elective for all art majors and a requirement for students in the Pregraduate Art-Emphasis Art and Technology major, first offered, 1999-2000

ITV critique/ joint enrollments with Hibbing Community College, 97-98

Website created for exhibiting student show work and work from classes, spring, 1997

Created and pioneered use of two-way ITV with joint instructional project with Hibbing Community College, spring, 1996

Research involving the College of Education's CU-SeeMe internet multiple image interactive video/audio conferencing software system, for use in my own work and as an adjunct to future ITV usage for classes, 1995-96

Increased emphasis on presenting artists from diverse ethnic and cultural backgrounds in all of my courses, since 1992; continued to increase slide and videotape resources specifically for this purpose, 1993-96; computer projections are added, Fall 95
Prepared new course, Art 1014 3D Computer Design, as a computer-based departmental core course, 1995, first offered spring quarter, 1996

Approximately 600 new slides, audio and video tapes have been added to my personal class collections for use in all my courses. Teaching Art Today requires constant renewal of slide, computer and video resources.

C. General Advisor for 20-25 undergraduates annually; served on M.A. examining committees for Samantha Deskins, 98-99; Gayle Gorman and Steve Bardolph, spring/summer, 1997; chaired committee of David Smith, 1993-94

In 1987-88 proposed and taught (to present) FA 1200 and 5200 (now 1300/5300) Creating Across Disciplines, which explores cross-disciplinary and collaborative projects in the arts through exposure to guest artists and tapes. Co-ordination of final production of student performance works. Funded two years by the Educational Development Program of the University of Minnesota.

1984-87, initiated a program of workshops at the conclusion of Art Today courses, for the purpose of helping students to become active as well as passive appreciators of the arts.

Developed and taught, collaboratively with Thomas Wegren of the UMD Music Department, the course Divergent Harmonies in the Arts, summer, 1977

V SCHOLARLY ACHIEVEMENT

A. PUBLICATIONS AND CITATIONS

1. Articles, Essays and Publications

"Unfortunately no picture available" by Jörn P. Hiekel, Schott Music, German only Publications of the institute for new music and musician drawing, Darmstadt 49, ISBN : 978-3-7957-1839-8 Marz, 2009

Citations in Alan Licht's "SOUND ART beyond music, between categories", published by Rizzoli International Publications, NY, p. 73, 2007

Citation/image in Stephen Wilson's Information Arts: a Survey of Artists And Researchers Working at the Intersection of Art, Science and Technology, published by MIT Press, 2000

"Working Within the System," Tim Anderson, *Ripsaw*, review of the *All System Go* faculty exhibition at Tweed, cited as "most unique of the show."


Contributor by invitation, Project InterCommunication Center's CD-ROM version of The Artists' Database, a project of Nippon Telegraph and Telephone Corporation, Tokyo. One of 300 artists worldwide working with electronic media invited to submit photographs, sound, and biographical material. Produced as a working research version, 12/94. The final revised version coincided with the opening of the new Tokyo ICC center in April, 1997. CD

Publication in progress: responded to invitation to submit materials for Urban Design Research, Inc.'s Art & Techno-Science Dictionary, now being edited in Tokyo, Japan. The dictionary is a reference source for the InterCommunication Center, which opened in 1996 in Tokyo. The dictionary includes a compendium of key concepts from the history of techno-artistic interaction, a basic bibliography, profiles of important artists and their work, and an overview of related organizations worldwide.


"Music from Trees, Icefloes and Other Natural Phenomena: An Interview with Leif Brush," *Musicworks* 30, Winter, 1985, Toronto. Interview by Musicworks editor Gordon Monahan
at the New Music America Festival; magazine includes a sound cassette tape of the Brush work.

"TeleSuonovision: Sound's Image," EAR magazine, New York City, Fall, 1985 (Vol. 9, No. 5). Article selected for the issue on the theme "The Composer and the Moving Image."


Leif Brush's soundworks perspective by macCormac / sylvi, 2001 & 2003


Article , "OUT THROUGH IN The Soundworks of Leif Brush," No.16, Wi 83/84, published by Lightworks Magazine, Birmingham, Michigan

National Gallery of Canada Library & Archives,(soundworks) Art Metropole Collection Catalogue


Contributor, special issue of Leonardo: of the International Society for the Arts. Sciences, and Technology, titled "New Foundations: classroom Lessons in Art/Science/Technology for the 1990s" (Leonardo 23, Berkely, Ca.) Article subsequently reviewed in Leonardo 25 by Craig Rowland of the University of Florida, who saw this issue as a compass for art educators seeking to create 'a new foundation,' for their students to create new tools, new ideas, and new art forms." (March, 1993).

Met with Volker Staub of Frankfort, Germany, on December 12 and 13, 1992, in Duluth. Staub, a composer and author, interviewed me for a book on international makers of handmade instruments.


"The Iowa Riverharps: a Generative Public-Use Sculpture," published in Iowa Transit,

YONY, Generative Systems Journal of the School of the Art Institute Chicago, Fall, 1975 Leif Brush's research and TerraInstruments

Collage and text in Fifth Assembling, journal of experimental writing and art published by Richard Kostelanetz, New York, 1975

Contributor to 12X 12, arts publication, SUNY-Alfred, New York, 1975

Contributor, Volume Two, Center for New Performing Arts, University Iowa, Iowa City, 1973

User: Indrian/History of video and computer games University of Iowa art professor Leif Brush establish the university's first computer art class, 1974-'75

Contributor, 1.70, 2.70, 3.70, publications, School of the Art Institute of Chicago, 1970-72

2. Multiples: Recordings, Prints, Audio, and Video Tapes

Soundwork included in Kim Kascone's Layeral Intersect I (of a planned series), Deadtech/Anechoic label CD, 2000

Soundwork in the CD ZERO, a project devised and curated by Colin Fallows, commissioned by the Foundation for Art and Creative Technology (FACT), U.K., published with support from the Liverpool Art School, 3/2000.

Soundwork in the TRACE CD, distributed as part of the Liverpool Biennial of Contemporary Art, (September 24 - November 7, 1999), Liverpool, UK, hosted by such sponsors as the Centre for Art International Research, Liverpool John Moores University, and Tate Gallery Liverpool. The CD is a collection of the work of artists working in sound internationally.


Leif Brush Terrain Instruments soundwork featured on the January 6, 1994, broadcast of Sztuka Fabryka Radio in Tielrode, Belgium. The station presents industrial, experimental, independent and contemporary music and sound from around the world.

Soundwork and artist interview featured, Pulse of la et radio program (producer: Jim Metzner).
The program is heard on over 200 public and commercial stations in the United States and 130 countries around the world (January, 1994).


Soundwork accepted for inclusion on Artware's LPs/CDs Textual, Wiesbaden, Germany, 1991


Featured artist, *Soundview: Sources*, a cassette anthology of audio art distributed with an accompanying publication by Non-sequitur in Santa Fe, New Mexico, January, 1990. Among other artists included in the anthology are Bill Fontana, Charlemagne Palestine, Liz Phillips and Pauline Oliveros.

Featured artist, *New Music America 87*, Program four of an eight program series produced by WNYC, New York Public Radio and Relache, distributed by the American Public Radio network nationwide and worldwide by satellite, 1987-88


Inclusion of the current Terrain Instruments work in the David Moss series *U.S. Ear*, broadcast over the National Public Radio network, February, 1986

Inclusion in *Sound Sculptors-Art You Can Hear*, radio series produced by David Moss with support from the National Endowment for the Arts, featuring work initially performed in public places, national museum installations, media broadcasts, and live performances. Aired nationally in 1985-86.

Radio, February 15, 1985


Video Reflected Soundwork, holographic video/audio installation and color tape Visual Studies Workshop, Rochester, New York, June, 1984

Teleconstructs III (23) DAT version

Teleconstructs Spacework II, installation via satellite, stereo audio tape, Academy of Sciences Auditorium, Washington, D.C., and University of Wisconsin-Stevens Point, 1983


Contributor, Mail Music Project-. a Collective Work, a long-playing record of work of artists using sound, international participation, produced by Nicola Frangione, Italy, 1983

Teleconstructs Spacework II two hour performance via satellite on B&W reel-to-reel video and audio tapes, Hudson River Museum, New York, 1982

British Library SOUND ARCHIVE CATALOGUE, Teleconstructs Spacework I, 1982

Terraplane Chorography II: International Listening, choreographed performance in the landscape; VTR tape produced by Walker Art Center, Mpls., 1980

Terrain Instruments in Audio Arts Magazine on cassette, London, William Furlong, editor, Vol. 7 1CA0012481 S2 BD20, 1984 1CA0012481 S2 BD7 Teleconstructs Spacework II extract from longer recording (privately issued tape)1980

Terraplane Chorography I, choreographed performance, audio tape and live piano Tweed Museum of Art, Duluth, Minnesota, 1979

Contributor, The Ripoff Show, visual Studies Workshop, Rochester, New York, invitational offset exhibition, 1974

Contributor, The Oxbow Print Portfolio, published Saugatuck, Michigan, by the
Oxbow Foundation and Phyllis Kind Gallery, Chicago, 1969

Contributor, Sound, Art Institute of Chicago, long-playing record, School of the Art Institute of Chicago, 1972


3. Citations of Work by Others, Exhibition catalogs, Internet

"Continuo's weblog Reassessed aural delicacies, A Leif Brush round up," 2007


"Out To The Stars, Into The Heart: Spatial Movement in Recent and Earlier Music, "Blue" Gene Tyranny, NewMusicBox, 2003

"I Built It! The Built Environment In American Music", By Nicole V. Gagné, NewMusicBox, 2003

"atmospheric conditions / leif brush," sylvia macCormac, 2001

Leif Brush's Terrain Instruments work on Collin Fallow's CD "Zero" was cited in Alice Angus' Liverpool Roundup, a review of video and net projects published on-line by physicsroom's Log Illustrated Magazine, Christchurch, New Zealand, Issue Ten, winter 2000.

Bowery, Jim, creator of Spasim, the first 3D Multiplayer Networked Game in 1974; his URL cites Leif Brush with introducing him to PLATO graphics terminal technology and concepts at the University of Iowa Lindquist Computer Center in 1974, leading to the development of this seminal electronic game, 2000.

Means, David, "Zone of Magnified Power: Site-Specific Sound Art," Public Art Review, Vol.11, No. 2, Spring/Summer 2000, Brush New Music America Walker Art Center Loring Park installation photograph published in this feature article, along with citation of Brush's Terrain Instruments soundworks.

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Means, David, "Zone of Magnified Power: Site-Specific Sound Art," Public Art Review, Vol.11, No. 2, Spring/Summer 2000, Brush New Music America Walker Art Center Loring Park installation photograph published in this feature article, along with citation of Brush's Terrain Instruments soundworks.
photograph published in this feature article, along with citation of Brush's Terrain Instruments soundworks.


Work cited and shown by Beverly Reiser and Fred Stitt in their presentatio on artist soundworks at the 1990 Second International symposium on Electronic Arts in Groningen, Holland, 1990

Exhibition catalog, CRASH (Computer-Assisted Hardcopy), Wright Museum of Art, Beloit College, Beloit, Wisconsin, 1989

AUDIO ART, "Leif BRUSH (USA) natuurinstallaties en natuurgeluiden in combinatie met hedendaagse technologie," Logos Foundation, Moniek Darge

"Wilderness As Reentrant Form," David Dunn, 1988 pdf

Exhibition catalog, New Music America 87, accompanying sound installation in Philadelphia's Fairmount Park

Hugh Davies, Mittwoch, 10, 1987 pdf


"Leif Brush: De voltages van de natuur de impulsen voor de toekomst," by Jean Quist, Buma Stemra Magazine, Oktober, 1985, published by the Vereniging Buma/Stichting Stemra in Amstelveen, Holland. (Quist is writer for Music International, Amsterdam, as well as many other European journals.)

Article and review by Jean Quist, "Teleconstructs," 6e jaargang/no. 67, mei, 1984, Jazz Nu, Amsterdam cited in article by Jean Quist, 6e jaargang/no 68, 1984, Jazz Nu, Amsterdam
Catalog by Carol Emmons, "Devices: An Exhibition of Technological Art," Published by the University of Wisconsin System Board of Regents and the Wisconsin Humanities Committee, 1984


Exhibition catalog, New Music America '84, artist statement, photograph published by Real Art Ways, Hartford, Connecticut, July, 1984

Companion to Contemporary Musical Thought (Routledge Encyclopaedias), by John Paynter (Author);


Leif Brush: the Terrain Instruments-Soundworks, half-hour color documentary videotape commissioned by Curator Carol Emmons, the University of Wisconsin-Stevens Point, with support from the Wisconsin Humanities Committee and the Wisconsin Arts Board, 1983


Exhibition catalog, Seventh Annual International Audio Video Exhibition:Magnetic Image 7, Atlanta College of Art, Georgia, 1982

Exhibition catalog, Eight McKnight Artists, with artist statement, photographs, biography, and essay on work by Eleanor Heartney, Minneapolis College of Art and Design, 1982

Exhibition review, "Suono e ambiente per la vita," by Lauro Boselli, in Bergamo Oggi, Bergamo, Italy, 7 March, 1982


Radio interview series in eight parts, with excerpts from Teleconstructs Spacework I, *on "The Avant Garden,"* Series, KUMD-FM, 1982-83

Feature video segment, "He Makes Trees Sing," produced by John Summer, WDIO-TV, Duluth, April, 1982

Feature video segment on Teleconstructs Spacework, produced on site in Duluth, WCCO-TV, Minneapolis, 1982


"For Brush, Sound is Profound," article by Susan Decker, UMD Statesman, January, 1982

Artist interview and sound excerpts, KAXE-FM, Grand Rapids, Minnesota, produced by Terry O'Brien, 1982

Feature video segment, produced by John Summer, WDIO-TV, televised twice on ABC Television Network, October, 1982 and July, 1984


"Air I," by Martha Elsen, in the Louisville Times, March 22, 1982


"New Music America," a series narrated by Nigel Redden, Director of Performing Arts, Walker Art Center, Minneapolis, for MPR state radio network, 1981


Work broadcast, WXPN-FM, Philadelphia, Pennsylvania, on the program Directions in Music, which presented works from the exhibition Soundworks curated by Peter Frank at Franklin Furnace, New York, June, 1981


Documentation Centre of the Provincial Museum, Hasselt, Belgium, acquire October, 1982

The Atlanta College of Art, Atlanta, Georgia, 1982

Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Center Georges Pompidou, Centre National d'Art et de Culture, Paris-Beauborg, France, 1981

Arrowhead Library System art collection, Virginia, Minnesota, 1981

Shadow K&M Electroakustik, Erlangen, Germany, 1980

School of the Art Institute of Chicago Video Data Bank, Chicago, 1978


"Leif Brush and the Earth Philharmonic," by Dave Helland, NEW TIMES, December, 1974 pdf

Groupe de Musique Experimentale de Bourges, France, 1974, 1976 update


Mills College, Oakland, California, audio cassette, 1972

3. Curatorial Activities

Curated endeavor: I Ask You, the first cyberspace exhibition at the Tweed Museum of Art, which included a series of workshops, sound walks, public
sound events, and on-line activities in cyberspace and in the Museum. The show was focused on the theme of acoustic ecology and artists' responses to developing electronic technologies. Aspects of the exhibition were funded by the Chancellor's Small Grants program, the Tweed, and the Center for Community and Regional Research. This exhibition was two years in the making, requiring 3-4 hours a day of research and organizational work.

C. Membership on Juries and Selection Committees

Member, UMD Digital Imaging Lab committee to select initial research proposals, fall, 1999, 2000

Juror, 1993-94 exhibition season selection, reviewing national submissions, Berkshire Artisans, the Art Center, Pittsfield, Mass., fall, 1990

Manuscript reviewer (referee), Leonardo: an International Journal of the Arts, Sciences & Technology, edited in Berkeley, California, for Pergamon Press; 1989-90

Juror, Jerome Foundation Media Art Installation Commissions, UC Video, Minneapolis, Minnesota, March, 1987

Juror, Grand Rapids Public Schools Youth Art Festival, with Gloria Brush, March 6, 1987

Juror, 83rd Annual Art Institute Fellowships, School of the Art Institute of Chicago, May 16-19, 1985, with Moira Roth and Richard Artschwager

Juror, with Walker Art Center curator Graham J. Beal, for Outdoor Art 8 environmental works hosted on outdoor sites in the Twin Cities area by Forecast Gallery, Minneapolis, 1982

Juror, Air I, regional exhibition sponsored by the Water Tower Art Center, Louisville, Kentucky, 1982

Production panel member, Minnesota State Arts Board, statewide review, 1978-1980
Juror, Duluth Art Institute Arrowhead Exhibition, 1978

D. Membership in Professional societies

World Forum for Acoustic Ecology, Simon Fraser University, Canada

YLEM, Michigan (new technologies organization)- to present
ISAST, Leonardo, ongoing

E. Project and Research Grants

Chancellor's Small Grant, for continuing electronic explorations, $750, February, 2000

Chancellor's Grant, to share time as a member of IRCAM's Forum, a reciprocating United States to France creative sound/data "Studio on Line," $680, May, 1998

Center for Community and Regional Research, UMD, $3,000 grant in support of the Tweed Museum exhibition endeavor: I Ask You, September, 1997

Chancellor's Grant, for data to image and spatial and editable visual representational software. October, 1997, $750


Information Services Software Fund grant for Sound Editing software use in CCtr 25, Jan, 96

Continuing Education Evening Course Development Grant to establish a computer-based 3D Design course, to be taught spring, 1996, $1,250.

UMD Faculty & Academic Staff Professional Development Fund, $600 grant to purchase DAT recorder, 12/93

SFA Dean's Professional Development Fund, grant to purchase QuickTime software, 1993

UMD ICR Funds Equipment Grant, with Gloria DeFilipps Brush, $5,359, 1993

SFA Dean's Faculty Development Fund grant, $750, with Gloria DeFilipps Brush, 1990

Meet the Composer/Arts Midwest grant of $250, with Gloria D. Brush, for Annea Lockwood residency at UMD, 1990

Duluth Public Arts Commission, grant of $1,100, with Gloria D. Brush, for a residency at UMD by Annea Lockwood, 1989-90
Duluth-Superior Area Community Foundation, grant with Gloria D. Brush to bring environmental sculptor Alan Sonfist from New York for the Artist Lecture Series, 1988 for 1989-90

University of Minnesota Educational Development Program, with Gloria D. Brush, funding secured for the Creating Across Disciplines guest artist series and course, 1987-88, 1988-89

Shea Fund, Lake Superior Association of Colleges and Universities, support to bring new music composer and performer Joseph Celli from Miami for the Art Department Artist Lecture Series, 1988-89

University of Minnesota Graduate School Grant-in-Aid of Research, $3,000, in support of personal artistic research, 1987-88

Council on Liberal Education Small Grants Program, University of Minnesota, $787, for upgrading the Art Today course, 1981-82

Minnesota State Arts Board Sponsor Assistance grant, to bring New Work in Abstract Video Imagery exhibition from the Everson Museum, Syracuse, New York, to Tweed Museum of Art, 1979

University of Minnesota Graduate School Grant-in-aid of Research, $7,58 for "Terrain Instruments: sound orchestration through optical and vibra tional sensing of outdoor sculptural configurations and atmospherics, 1979

Arrowhead Regional Development Commission arts production grant of $600 for the Artists Interchange Series, 1979

Council on Liberal Education Small Grants Program, University of Minnesota, $965, for revising approaches to sculpture and three dimensional course, 1978

Minnesota State Arts Board Sponsor Assistance grant, to bring A History of the Avant Garde cinema series for screenings, 1978

Council on Liberal Education Small Grants Program, University of Minnesota $935, to initiate the Visiting Graduate Students in the Arts series, 1977

University of Iowa Graduate College research grant of $600, to investig sound imaging using scanning electron microscope, 1975-76

University of Iowa Lindquist Center Fellowship of $2,200, for study of computer's possible...
applications in the arts, 1973

Independent Graduate Teaching Assistantship to formulate course in sound for visual artists (became base for present audio program), School of the Art Institute of Chicago, 1970-72
Oxbow Summer School of Art, Saugatuck, Michigan, summer scholarship, 1966
Ford Foundation tuition Scholarships, 1967-1970

F. Consultantships and Lectures

Participant, COSTART (Computer Support for Artists) survey, a project of the U.K. Engineering and Physical Science Research Council, through the Telecommunications and Computer Human Interaction Research Centre at Loughborough University, Loughborough, U.K., 2/99

Presentation of sound workshop as part of the week-long workshop "Reading the Landscape: Linking Arts and the Environment," Wolf Ridge Environmental Learning Center, Finland, Minnesota; program sponsored by the Minnesota Center for Arts Education and Hamline University, June 12, 1990


Videotape presentations on contemporary art and artists for the Tweed Museum of Art docents group, three times during 1990-91.

Review participant, McKnight Foundation Arts Funding Plan, December, 1989

Participant, University of Minnesota Communication Services focus group "Media Resource Selection and Use in the Classroom," Gange & Assoc., Duluth, October 12, 1988

Visiting Artist, Art Department, University of Wisconsin, Madison, Wisconsin, March 10-12, 1988

Board Member, the national New Music Alliance (plans the annual New Music America Festival in an American or Canadian city, elected in Philadelphia, 1987)

Visiting Artist, Fine Arts Division Art Department, Lakehead University, Thunder Bay, Ontario, Canada, April, 1987

Evanston Art Center, Evanston, Illinois, October, 1986, in conjunction with the exhibition Making Waves: An Interactive Art/Science Exhibition

Virginia Commonwealth University, Art Department, April 18-21, 1985
Visiting lecturer, "Technology in a Human[e] Society," College of Liberal Arts 6th Annual Humanities and Arts Colloquium, March 15, 1985

Visiting artist, Visual "Sound" Forum panelist, New Music America 84, Real Art Ways Gallery, with Alvin Lucier, Liz Phillips, Phil Niblock, Jim Pomeroy, Hartford, Connecticut

Environmental Sculpture Symposium, St. Cloud State University, sponsored by the University Program Board, January 13-15, 1982

Visiting Artist, Water Tower Art Center, Louisville, Kentucky, February 1982

Art Research Center, 15th Anniversary Symposium on Structure and Sequence, Kansas City, 1981 Overhead planes of helium-filled balloons each w/FM transmitter

Breaking Harness with Madness, West Hubbard Gallery, Chicago, Illinois, April 4-5, 1981

Visiting Artist and Seminar Guest, Bemidji State University, Minnesota, "Sources for Art: The Artist and the Environment," with William Stafford Emmet Gowin, and Byron Burford; and "Found Art in Minnesota," with Robe Bly, Gendron Jensen, Robert T. Smith, and Jim Zazoski, February 8-10, 19

Artist-in-residence, Oxbow Summer School of Art, Saugatuck, Michigan, with support from the National Endowment for the Arts, August 6-15, 1979

Visiting Artist, University of North Dakota at Grand Forks, April 17-20 1979

Artist-in-residence, ZBS Foundation, competitive award, Saratoga Spring New York, summer, 1979

Visiting Artist, Art Research Center, Kansas City, June 18-19, 1978

Wright State University, Dayton, Ohio, April 24-28, 1978

Arts Symposium speaker, University of Wisconsin-Superior, May 3, 1978

University of Maryland-Baltimore County, Guest artist for "Progressions series an public access to artists in the visual and performing arts, with support from the Maryland Arts Council and the National Endowment, May 11-13, 1977
Guest artist, Grand Rapids, Minnesota public school system, March, 1977

Visiting Artist, University of Chicago, February 2, 1977

SUNY at Alfred, New York, December, 1976

Goodman Theatre, Chicago, "New Music from Chicago: Explorations in Sight and Sound," May 26, 1976

University of Colorado at Boulder, November, 1975

Visiting Artist, Scattergood School, West Branch, Iowa, 1975, 1974

University of Victoria, Victoria, B.C., 1973

Simon Fraser University, Vancouver, B.C., 1973

Telelecturer, (Willard Van de Boagart’s classes) University of Pittsburgh, 1973

Visiting Artist, St. Xavier College, Chicago, 1972

Visiting Artist, DuPage College, DuPage, Illinois, 1969

F. Conference/Workshop Participation

Presentor, visual arts imaging technologies, UMD TechFest 98, April 30, 1998

Participant, Instructional Development Service workshop, "Weaving Threaded Discussions into Your Courses, October 30, 1998

Participant, ITV Video Editing Workshop, Instructional Development Service, March 7, 1996

Participant, Using Interactive Television with Grace and Ease, Instructional Development Service workshop, January 12, 1996

Participant WWW Home Pages Workshop hosted by Info. Services, June 28 and 29, 1995

Gopher Workshop, six sessions, on-line, August, 1994

ITV Teacher Training Workshop, UMD/CSS, at the College of Saint Scholastica, 2-day workshop, August, 1994

SFA representative, "Writing to Learn" conference and workshop, University of Minnesota, Minneapolis, February, 1987
Dr. Lucie Arbuthnot's "Group Discussion" seminar on teaching, UMD Instructional Service, 1984

Workshop Participant, Linda Hilsen's "Asking Questions and Stimulating Thinking," UMD Instructional Development Service, October 18, 1984

Participant, national "Media Arts in Transition" conference, June 8-10, 1983 at the Walker Art Center, Minneapolis; co-sponsored by Walker Art Center; the National Alliance of Media Centers; Minneapolis College of Art and Desi University Community Video; and Film in the Cities, St. Paul

Participant, "New Medium/New Market Updates," conference on electronic media for artists, University Community Video, Minneapolis, March 30, 1984


VII. SERVICE

A. Campus-Wide Service

Presenter, UMD TechFest, April 30, 1998

Member, Environmental Studies Major (CLA) Advisory Board, 1995-96

Member, UMD Commission on Disabilities, 1995-96; Sub- Committees: Health Tunneling, Closed Captioning Videos

Member, Research Grant Conflict-of-Interest Review Committee, 1996

Faculty Artist Presentation, Art Department/Tweed Museum Lecture Series September 23, 1986

Search Committee, UMD Computing Services Director, 1985-86

Consultant to Prof. Joseph Gallian on proposed High School for the Arts! and Sciences, Duluth, 1983

All-campus Committee on Computing, 1977-1980
Project Director, New Work in Abstract Video Imagery program screenings
Tweed Museum of Art, 1979

Panel moderator, Arts Leadership Conference, 1978

All-campus Open House Committee, 1978

Participant, UMD Faculty Seminars on Innovation, 1978-79

Project Director, A History of the Avant Garde Cinema screenings, 1978

University of Iowa Computer Committee, 1972-1976

B. School of Fine Arts Service

Charter Member, UMD Digital Imaging Laboratory, and Member, digital Imaging Lab committee to select research projects for 1999-2000

Outreach, Planning and Extension Committee, 1980-81

Faculty Grievance Committee, 1977-78
Lecturer to Prof. Jean Swanson's Music Theory class, May, 1977
Lecturer to Prof. Pete Raby's Theatre class, May, 1977

C. Art Department Service

Along with Catherine Ishino, responsibility for researching software and hardware possibilities to serve both fine arts and graphic design students in the department's electronically-based programs.

Departmental Senior Survey analyst, 2000-01

Agreed to present at the UMD TechFest, for 2001

Co-Consultant on establishing digital video courses in the department, 1999-00 and beyond

Member, Art/Tweed Joint Ventures Board, 1992-98, 99-2000

Member, Studio Semesters Planning Department Subcommitee, winter/spring, 1996, 1997-98
Senior Exhibition Evaluator, Winter Quarter, 1996 and 1997

Member, Graduate Program Subcommittee, 1994-96

Member, Annual Art Student Exhibition Committee, 1994-95

Senior Exhibition Evaluator, Winter Quarter, 1995

Information Services Academic Information Co-ordinator for Art Department, 1993-94 (network connection completed 2/94)

Tweed Museum Docent Presentation, "Form and Meaning," 11/18/92

Chair, Art Today Subcommittee (to review course in light of new campus diversity initiatives), February, 1993

Art Department Tweed Associates Liaison, 1990-91, 1989-90

Senior Exhibition Evaluator, fall, 1993, winter quarter, 1993

Graduate Review organizer, winter quarter, 1991, and later

Representative to the Graduate Faculty Committee, winter quarter, 1989

Member, Art Department Annual Student Exhibition Committee, 1988-89

Search committee for tenure-track Art Historian and sabbatical replacement in Print Processes, 1986-87

Visiting Artist Committee member, 1989-90

Curriculum Committee member, 1986-87, 1987-88, 1989-90

Search committees for temporary positions in ceramics/Art Today, painting, and 3-Dimensional Design, 1985-86

Panelist, "The Fine Arts Life," spring, 1986

Annual Student Exhibition Faculty Committee, 1985-86

Scholarships Committee, 1983-84
Lecturer to Dr. Lucie Arbuthnot's Survey of the Arts course, 1983

Annual Student Exhibition Faculty Committee, 1982, later

Honors Committee, 1977-78, 1978-79

Activity Calendar Committee, 1977-78

Statewide Arts Consortium Representative, 1978-79

National Association of Schools of Art Accreditation Report Committees Chairman #7, Member #5, 1978

Faculty Committees for Review of Student Exhibitions, 1976-1983

Short and Long Range Planning Committee, 1977-78

Recruitment Committee, Chairman, 1977-78

Field trip coordinator, Minneapolis College of Art and Design Laser/Holography exhibition, November, 1976

Program Director, Visiting Graduate Students in the Arts, 1976-77, 1977-78

Co-ordinator, Grantswriting Workshop for students, 1978
Lecturer to Mary Washburn's Careers in Art course, winter, 1977
Lecturer to Prof. Robin Poyner's Art and Culture class, November, 1976

D. Professionally Related Public Service


Artist exhibition interview, KUMD-FM, UMD, September, 1986

Featured artist, Arts in Duluth, WSCD-FM, Duluth, Minnesota, 1986

Juror and quest speaker for the Youth Art Festival in the Grand Rapids, Minnesota school system, April 3, 1986
Participant, University of Minnesota-Duluth "Technology Day," Kirby Student Center, October 15, 1983


Guest speaker, Friends of Tweed docents group, October, 1978-present

Host and Lecturer, Depot Poetry Workshop, St. Louis County Heritage and Arts Center, April, 1978

E. Other Community Service

Springwatch bird reporter, ongoing

Minnesota State Horticultural Society annual conference volunteer, summer, 1995

WDSE-TV Area Educational Television telethon volunteer, 1980-85

Vol.14, No.6, 1980

Exhibition catalog, with statement and photographs, Minnesota Energy: an artist-curated exhibition, published by the University of Minnesota cooperation with the Tweed Museum of Art and the Duluth Summer Festival Arts, with Jerome Foundation support, 1980

Terraplane Chorography II: International Listening, half-hour, 3/4" color documentary videotape produced by the Walker Art Center, Minneapolis, 1980

Work cited, "New Music America Festival," article by Michael Anthony, Musical America, November, 1980

Walker Art Center, Minneapolis, June 1980, Nigel Redden, Program Director, with New Times music critic John Rockwell, 1980

Minneapolis PM Magazine, "Leif Brush Terrain Instruments and Performance" recorded and aired June, 1980, during New Music America

KTCA-TV, Minneapolis: Re Sounding: Variations on New Music, with host L Larsen, produced by Kathryn Allen, June, 1980

Work reviewed, "New Music America," by Allen Robertson, in the Minneapolis Star, June, 1980


Work reviewed, critic's choice, with Harry Bouras, WFMT-FM, Chicago, 1979

Exhibition catalog, National Sculpture 79, with introduction by Robert Pincus-Witten, 1979

Artist interview by Claudia Hampston of WSCD-FM, Duluth on MPR state radio network's Noonday, January, 1979

Tape broadcast, Inside The Hidden Landscape with Leif Brush, WDSE-TV, Duluth, July, 1978

Artist interview, Insight, WDTH-FM, Duluth, April, 1978

Feature videotape, Inside The Hidden Landscape with Leif Brush, half-hour color videotape, produced by the Minneapolis Institute of Arts with the Minnesota Artists Exhibition Program and Jerome Foundation, 1978 (was available for purchase or loan from the Institute)


"Leif Brush: Terrain Instruments," feature article by Gloria DeFilipps Brush in the School of the Art Institute of Chicago Alumni Newsletter, summer issue, 1977


Terrain Instrument work featured, KBJR-TV, Duluth, evening news, October 2, 1977


"Famous Artists: One foot in the Art World, the Other in the Classroom, University of Minnesota-Duluth Alumnotes, winter issue, 1977
Exhibition catalog, Performance/Midway, published by R.A.U. Connection, with the Illinois Arts Council and the University of Chicago, 1977


Work cited, "UMD/UWS Dance Theatre," review by Allen Robertson, in the Minnesota Daily, April 8, 1977


Work cited, exhibition review by Harold Hayden, Chicago Sun-Times, October, 1976


"His is Definitely Sound Art," by Janet Burns, Duluth News-Tribune, December 19, 1976

Cover photograph, WDTH-FM Log, University of Minnesota-Duluth, December 19, 1976

Work cited, "Faculty Work Exhibits Great Diversity," by D. Cox, in the Statesman, November 11, 1976

Work reviewed, N.A.M.E. Gallery exhibition, by C. L. Morrison, in natio magazine Artforum, with photograph, June, 1976

Work cited, "Art on Tape," review by D. Weinstein, Artweek, Oakland, California, July 3, 1976

Work cited, Space Time Sound/Conceptual Art in San Francisco Bay Area: the 70s, San Francisco Museum of Modern Art, 1976

Sound playings, "Channel Twenty," WDTH-FM, The University of Minnesota- Duluth, December, 1976

Interview by Wayne Jarvis, KUNI on Oscar Brand's "Voices in the Wind," NPR, 1973, MP4


Sound playings, Terrain Instruments, KCSB-FM, Berkeley, California, 1975

Artist interview, "Conversations," WSUI-FM, University of Iowa, 1975

"Natural Sound Recordings at UI," Iowa City Press-Citizen, April 5, 197

"Tramp Tramp Tramp," feature article by Dave Helland, Sunday Des Moines Register picture section, October 6, 1974

Feature videotape, by the Brazilian Globo Television Network, Sao Paulo and Rio de Janiero, 1975

"Harp Would Put Iowa on Cultural Map," Daily Igwan, October 4, 1973

"New Computer Art Course Planned," Iowa City Press-Citizen, December 2, 1973


Work cited, review by Franz Schulze, Chicago Daily News Panorama, June, 1972

Work cited, review by Jane Allen and Derek Guthrie, Chicago Tribune, June 8, 1972

Work reviewed, St. Xavier College Gallery exhibition, by Donald J. Anderson, Chicago Today, March 5, 1972


ARTISTIC ACHIEVEMENT

1. Internet, Exhibitions and Commissions

Terrain Instruments 2nd retrospective and faux Microflown soundwork 2008 1, 2

Terrain Instruments Frost Printer 1973 construction; "Frost pictures machine PIE, 2007"

Institut International de Musique Electroacoustique ' H2O ', Leif BRUSH (USA) w d a s a-June'74-Mar'06


Windbeobachtung in Echtzeit-Audio-Streaming; Klangkunst im Internet / Seminar (Jeweils Englischkenntnisse der Teilnehmer

erforderlich, möglichst Erfahrung mit Computer und neuer Technologie", Stuttgart, 2006 pdf

Terrain Instruments soundwork mars moon snatch, positioning played as part of the GMEB Le Festival Synthese 2001, a project of the Institut International Electroacoustic in Bourges, France

Terrain Instruments soundwork broadcast as part of the Other Worlds program on Australian National Radio, late 2000. The program was presented by Bert Clough and programmed by sound artist Warren Burt. Annea Lockwood, Hildegard Westerkamp and David Dunn were among the other international artists included in the program.

Soundworks presented, Art, Design and Music in the Electronic Age, Center for the Humanities, University of Missouri at St. Louis, March 10-12, 1999 (also included Johanna Drucker, Morton Subotnik, Eduardo Kac, and others); also discussed recent work with IRCAM's real-time digital forum

Represented artist (of three hundred worldwide), Tokyo NTT InterCommunication Center (ICC) on-line database profiling artists who have brought arts, technology and communications together in their work. The Center opened to the public in 1998, and the on-line project is on integral part of its activities. 1998

YLEM/Artists Using Science and Technology, national organization's Art on the Edge Website featuring acoustic experiments from Leif Brush's endeavor: I Ask You exhibition at the Tweed Museum of Art, October-December, 1997
Ear to the Ground, interactive sound installation, all campus Faculty Exhibition, Katherine E. Nash Gallery, Wiley Hall, University of Minnesota, January, 1997

Creating Across Disciplines class Terrain Instruments video/sound/multiple slide projections performance work, May 13, 1996

Presentation of computer-manipulated Terrain Instruments soundworks in the Listening Room at the San Francisco Art Commission Gallery from April 3-13, 1996, as part of SoundCulture 96, a trans-Pacific festival of sonic art and contemporary sound practice sponsored by the Mills College Center for Contemporary Music, the San Francisco Art Institute, The Lab, and New Langton Arts

Sonic environment presentation as part of Magma Morphose, digital Terrain Instruments tapes, The Space Gallery, Minneapolis, March 31, 1996

Multimedia and interactive works in the December-January, 1995 Faculty Biennial Exhibition, Tweed Museum of Art, include "Jukebox-in-the-sky over deconstructed voting booth" installations, utilizing lights and sound

One of fifteen artists from the U.S., Canada, Switzerland and Australia whose work was exhibited in Lend Me Your Ears: Sound City Spaces, curated by Charles de Mestral. Terrain Instruments Soundwork with video and slides, Creating Across Disciplines class performances to the public, May 7, 1995, in UMD's Bull Pub


The Sound Symposium, Arts and Culture Center, St. John's, Newfoundland, Canada, July 15-23, 1994


University of Minnesota-Duluth, Terrain Instruments Soundwork, as part of the Creating Across Disciplines annual performance, May, 1994
Presentation of the Terrain Instruments work for Tuning of the World, the First International Conference on Acoustic Ecology sponsored jointly by the Banff Centre and the University of Calgary (August 14, 1993, the Banff Centre for the Arts, Brush presentation August 11, 1993).

Center for the Arts Gallery, Moorhead State University, Moorhead, Minnesota, Art & Science: Method & Metaphor, an invitational group exhibition (February 1-25, 1994).

Tweed Museum of Art, 1993 Faculty Exhibition, sound sculpture installation, December 5-January 23, 1994

Northern State University, Aberdeen, South Dakota, international invitational Electronic Art Exhibition, curated by James Gibson, January-February, 1992.

Tweed Museum of Art, Duluth, Minnesota, Faculty Exhibition, January 18-February 24, 1991

Charles A. Wustum Museum of Fine Arts, Racine, Wisconsin, ForBirds, an exhibition with an avian theme, June 1-September 13, 1990. Catalog.

University of Illinois at Chicago Gallery 400, Chicago, Illinois, invitational exhibition Faxart, July 13- August 17, 1990

Dudley Experimental Theatre, Marshall Performing Arts Center, University of Minnesota-Duluth, collaborative performance with new music composer/performer Annea Lockwood and two students, Spirit Catchers, May 7, 1990


Minneapolis Institute of Arts Pillsbury Auditorium, The Telephone Finally Earns Its Keep, premiere of new performance work presented by the Minnesota Artists Exhibition Program in conjunction with Film in the Cities, February 25, 1989 (two performances).

New Music America 1987, commissioned work for the interdisciplinary visual arts/performance section of this annual national festival, Philadelphia, October, 1987; with funding through the NEA


Tweed Museum of Art, University of Minnesota-Duluth, A SuonoHologram, August 27-September 24, 1986

Intraspace, a dance/audio collaboration with choreographer Marni Mahaffey, University of Minnesota-Duluth, Dance Concert, April, 1986

Minneapolis Institute of Art, Tenth MAEP Anniversary Exhibition, invitational, Dayton-Hudson Gallery, February 15 - April 20, 1986

Northern State College, Aberdeen, South Dakota, The Dakota Video_Review, national invitational

"Unattended Terrain Instruments by Leif Brush," color video tape with sound, traveling in 1985-86 to Phillips Academy, Andover, Mass.; University of Denver; University of South Dakota, Vermillion; The University of North Dakota Cable Television Network; Aberdeen Public Schools Cable TV Network; St. Mary's College of Notre Dame, Indiana; Syracuse University (five artists were chosen nationally)

University of Minnesota Coffman Galleries, Minneapolis, invitational, 1986

Technology in a Human(e) Society, February 18 - March 15, 1985


Walker Art Center, Performance Series, "Image Perturbations/Sound Chorographics," sponsored by Minneapolis public FM radio station KFAI, May 1, 1984

Visual Studies Workshop, Rochester, New York, video and sound installation, May-June,
1984

The Image Resource Center, Cleveland, Ohio, Electrostatics International, international invitational, January 6 - February 3, 1984 (curator: Will Larson, Tyler School of Art, Temple University, Philadelphia)

Academy of Science Auditorium, Washington, D.C., Teleconstructs Space-work II, commissioned by New Music America 83; carried live from the Terrain Instruments site to Washington via Westar V satellite, October 7, 1983

University of Wisconsin-Stevens Point, Devices : an Exhibition of Tech-nological Art - Sculpture Incorporating Electricity, Light, Sound. Motion, Neon and Lasers, national invitational, September 25 - October 14, 1983 curated by Carol Emmons; October 7, 1983 Washington, D.C. transmission simultaneously on the Wisconsin campus and broadcast over public radio stations in the United States; project support from the Wisconsin Human ities Commission and the Wisconsin Arts Board

Tweed Museum of Art, University of Minnesota-Duluth, Eight McKnight Artists, traveling invitational exhibition, January, 1983

Center for the Arts Gallery, Moorhead State University, Eight McKnight Artists, traveling invitational exhibition, April, 1983

Kiehle Gallery, St. Cloud State University, Minnesota, Eight McKnight Artists, traveling invitational exhibition, December, 1982

Terrain Instruments sound playings, Spring Concert, University of Minn-esota-Duluth dance program,

Marshall Performing Arts Center, 1982

Hudson River Museum, Yonkers, New York, Teleconstructs Spacework I, soundwork performance via Westar IV satellite, in collaboration with minnesota and New York artists, with production support from Jerome Foundation, St. Paul, October 9, 1982

Atlanta College of Art, Atlanta, Georgia, Magnetic Image 7, 7th Annual International-Audio-.Video Exhibition, curated by Ben Davis, November 1-1982

Minneapolis College of Art and Design, Eight McKnight Artists, Septem-ber, 1982

Biennale de Paris, France, soundworks, invitational exhibition, October and November, 1982
Suono/Ambiente/Musica, Rimini, Italy, international invitational, photo murals and soundworks, 1982, traveling in 1982-83 to the Venice Biennial Kulturforum of Bonn, Germany; Kulturreferat, Munich, Germany; Turin, It and the Oggi Musica, Lugano, Switzerland


Art Research Center, Kansas City, invitational Apparative Art, April, 1, 1981
Franklin Furnace, New York City, Soundworks II, national invitational curated by Peter Frank, May, 1981

The Downey Museum of Art, Downey, California, waves in Space/New Art an Technology, curated by Craig O'Rourke, February-April, 1981, with support from Rockwell International, JPL-Caltech, and NASA-Goddard Space Flight Training Center

Minneapolis Jewish Community Center, juried group exhibition Conceptual Art, 1981

Forecast Gallery, Minneapolis, Minnesota, Color Copy Art: the Middle States, Midwestern juried exhibition, 1981

West Lake Street Gallery, Chicago, The Red Wedge Show, invitational, 1981

Walker Art Center, Minneapolis, New Music America 80 national invitational, Terraplane Chorography II: Internat.ional Listening, curated by Nigel Redden, June, 1980

West Hubbard Gallery, Chicago, three-artist invitational, Breaking Harnness with Madness, curated by Gary Justis, 1980

Minneapolis Institute at Arts, Technology: an Introductory Gallery Exhi ition, 1979

School of the Art Institute of Chicago, wire Trees in Four Vectors, a collaborative sound/videotape performance by Leif Brush, Stuart Pettigrew, Gunther Tetz and Phillip Lee Morton; traveled to the University of Michigan, Ann Arbor; the Everson Museum, Syracuse, New York; and California State University, 1979

Laser Soundwork, Oxbow Summer School of Art, Saugatuck, Michigan, July, 1979

University Galleries, University of North Dakota at Grand Forks, solo invitational exhibition, April
16-20, 1979

Tweed Museum of Art, University of Minnesota-Duluth, Terraplane Chorography, Part I, 1979

Art Research Center, Kansas City, invitational Enter the Ether: Multiple Balloon Sound and Spacework, during "Ten Acres Over Kansas City Parks," May 19-25, 1979

Georgia Southern College, National Sculpture 79, national juried exhibition, February, 1979 (traveled to Appalachian State University, April, I Handshake Gallery, Atlanta, April, 1979; University of Alabama at Huntsville, April, 1979; Columbia Museum of Art, September, 1979; Rodgers Museum of Art, Laurel, Mississippi, December, 1979; Juror: Robert Pincus-Witten. New York)

Works Gallery, San Jose, California, two-artist invitational, January, 1978

Walker Art Center, Minneapolis, Brush II soundwork choreographed by Sharon Friedler, April 21, 1978

Tweed Museum of Art, University of Minnesota-Duluth, Leif Brush: Exactly What is he Doing?, 1978

Wright State University Gallery, Dayton, Ohio, solo invitational s-able Atmospheres, April-May, 1978

Marshall Performing Arts Center, University of Minnesota-Duluth, Brush soundwork choreographed by Sharon Friedler, 1978

N.A.M.E. Gallery, Chicago, invitational Daley's Tomb exhibition, March 1978

N.A.M.E. Gallery, Chicago, invitational Seven by.Nine, curated by Ellen Lanyon, June, 1978 (work acquired by the Museum of Contemporary Art, Chicago)

Duluth Art Institute, Duluth, Minnesota, invitational Containers, 1978

Art Research Center, Kansas City, invitational solo "Proposals" exhibition, May-Jun 1978

St. Louis County Heritage and Arts Center, Duluth, Minnesota, Terrain Instruments sound playings, Depot Theatre, 1978

Minneapolis Institute of Arts, Minnesota, solo invitational exhibition, Imported Sources: Forest Compression/Real Time Satellite Transmission and Playing from the Terrain Instruments Structure Series Installation. Duluth, Out door Courtyard, Minnesota Artists Exhibition
Program, October, 1977
Art Research Center, Kansas City, invitational Telic exhibition, 1977

N.A.M.E. Gallery, Chicago, solo invitational Imported Sources: Forest Compression Series, December, 1977

University of Maryland, Baltimore County, solo invitational Imported Sources: Terrain Instruments and Tree Clusters, May, 1977

Marshall Performing Arts Center, University of Minnesota-Duluth, Brush choreographed by Sharon Friedler and Tara Givens, 1977

Minnesota Museum of Art, St. Paul, Minnesota, Sculpture Unlimited exhibition, 1977

Tweed Museum of Art, University of Minnesota-Duluth, traveling Button, Button exhibition, originating from SUNY-Alfred, New York, 1977 (also shown at the University of Colorado; Appelgarth Follies, London, Ontario Photoworks, Richmond, Virginia; the University of Oklahoma; and Albion College, Michigan)

Itasca Community College, Grand Rapids, Minnesota, UMD Art Faculty Exhibition, 1977

University of Chicago, Midway Studios, Chicago, Illinois, invitational Imported Sources, as part of the Performance/Midway Series, February, 1976

Tweed Museum of Art, University of Minnesota-Duluth, Faculty Exhibition 1976

University of Kansas, Lawrence, Kansas, national invitational Audio Art December, 1976

State University of New York at Alfred (SUNY), solo invitational exhibition, Terrain Instruments Structure Series and Voltages From Nature, December, 1976

Gallery 1134, Chicago, Illinois, Critics Choose Artists, invitational, October, 1976

LaMamelle Gallery, San Francisco, California, Recorded Works invitation July, 1976 (traveled in 1977)

N.A.M.E. Gallery, Chicago, Illinois, solo invitational exhibition, Orchestral Concept Array, Terrain Instruments, and...Personal Scans, March-April 1976

Center for New Performing Arts, University of Iowa, Iowa City, Clapp Recital Hall, All
Occurrences are Linked: terrInstruments, thunders, 2 county modulated laser/telephone recordings, April and October, 1975; Collaborative sound and video performance, Multimedia Area, 1975

Art Research Center, Kansas City, invitational Sensorium, sponsored by National Endowment for the Arts workshop grant, 1975

Museum of Art, University of Iowa, Iowa City, faculty invitationals, 1976

Kemper Gallery, Kansas City Art Institute, invitational Pictorial History of the World, 1975

Bradley University Gallery, Peoria, Illinois, juried prints exhibition, 1975

Davenport Art Museum, Iowa, juried exhibition, 1974

Sioux City Art Center, Iowa, group juried shows, 1973 and 1974

Des Moines Art Center, Iowa, juried exhibitions, 1974 and 1975

Visual Studies Workshop, Rochester, New York, invitational, 1974

Joslyn Museum, Omaha, Omaha Flow Systems, group invitational, 1973

University of Iowa Museum of Art, Iowa City, Free Spectral Ranae, using the Cross-Jeffries Video Laser II system, 1972

Design Center, Iowa State University, Ames, Iowa, Regents Invitational, 1972

Henry Gallery, Seattle, Washington, invitational group show, 1973

Lindquist Computer Center, University of Iowa, Iowa City, group invitational, 1972

SUNY at Alfred, New York, 12X12, invitational group, 1972

St. Xavier College Gallery, Chicago, Illinois, solo invitational, 1972

Paw Paw and Lawton, Michigan, satellite conducts and roadside sound sculpture installations, 1971
School of the Art Institute of Chicago, 1/2 hexagram, roof sound installation, 1971


University of Wisconsin-Whitewater, invitational group sound exhibition, 1970

Art Institute of Chicago, juried fellowship satellite/wind/sound exhibitions, 1970 and 1972

Hyde Park Art Center, Chicago, invitational group exhibition, 1970
Frumkin Gallery, Chicago, group invitational, 1970

Renaissance Gallery, University of Chicago, Illinois, juried show, 1971

Wabash Transit Gallery, Chicago, represented, 1970-1971
Art Institute Sales and Rental Gallery, Chicago, represented, 1970-1971


Rosner Gallery, Chicago, invitational group exhibition, 1968

2. Public Collections
Natural Art Laboratory, Milan, Italy
"Aspects of the Terrain Instruments" by Leif Brush. 5 pages; 14 photos

Brush's article describes his systems for creating and listening to and sometimes modifying the sounds of hidden natural events. In one of his outdoor installations, galvanized and stainless steel wires strung between trees can be monitored. The large-scale site-specific pieces use special contact sensors or transducers, attached to wood or ribbons, to amplify microsound events. FM radio transmitters are used to carry preamplified vibrations of atmospheric phenomena acting upon man-made sources. In some cases sounds are presented as they are, in others sounds are manipulated electronically. Among the many installations shown here are Insect Recording Studio, Chord Draft Monitor, Meany Ice Floe, Treeharps Network, Terraplane Chorography II, and The Telephone Finally Earns Its Keep. One concept involves solar powered electronics and satellite transponders. [Additional keywords: electroacoustic, nature sounds, soundscapes, interactive arts]
Subsequent projects now and later under this cover also included reel to reel B&W video, natural sound collections via cassette recorder and as a segues beyond MFA days.
Diploma exhibition, Gunsaulus Hall, Art Institute of Chicago

EAST FACEING CONTEXT AND OTHER VIEWS

Headphones provided at Console; potential high speed (fan) winds
LEFT VIEW: Prototype of hexagram showing sensor placements on galvanized steel strands, and as wind monitors here, interactive switches available to the participant allow for controlling the "wind" speed from the electric fans. Headphones are available for listening to the amplified sounds produced from the strands.
crystal sensors were attached to strands w/beeswax
photo-documentations by Gloria DeFillips Brush of the works LB did between 1964 & 1972
SAIC Travelling Fellowship Hexagram entry w/a section installed in Gunsaulus Hall AI, Chicago

SAIC student Linda Novak / REDICEBERGMEMORY volume middle left  return home
MODE: WINDS PLAYING Participants were challenged to produce winds (from w floor fans, r., center: 0 to X rpm) by pulling tubular switches and required two hands to do so. When successful the wind vibrations from the Hexagram strands could be volume controlled at this console. MODE: BRUSH The two right knobs controlled the volume of a two channel cassette mix of sound sculptures and steel wire strandage from the school roof. MODE: QUIET Were cassette recordings of a fifty foot cable dragging a Shure M637 mike x feet, stop, record and so on during a midnight recording session. Sequential quiets were cassette-edited as on demand tapes by manipulating console switches. Successfully pulling upwards and holding obvious positions was a real challenge since both sound and fan speed were related. Position one, say, produced the slowest breeze across the wires together with activation of a particular cassette. The highest detent switch position activated additional natural audio sources. The three mode switches produced different layers of content: earphones sounded crickets and breeze-blown dried corn stalks from rural terrain from rural Elmhurst and very faintly, traffic barely audible from Chicago's northbound outer drive at the
Belmont Harbor was among natural and diminished urban sounds available
picked up gallery voices and retransmitted this sound to hand held FM radios in the hall...wireless mics elsewhere REDOT mindvoice realtime passedaround sound a/or winds influence voiceing poetry_ updates:

return home
Gloria and I would regularly visit Sonia and Jim in their Evanston apartment. LB holds a portrait of Jim, a China scholar at Northwestern University. This large portrait of Sonia was output to one of her many printers.
Kent State University 1/2 hexagram commemorative project entry to mark the site of a death on the campus and the shootings of students by the Ohio National Guard.

This Kent State commemorative construction ...audibly represent a drone/humming as in very large swarmed cloud of agitated bees throughout the campus.
holographic sonification, 1972
The Meadow Piano, a kind of extended and updated Aeolian harp, sits in a large, relatively flat meadow space and is itself 1/16th mile long by 1/8th mile wide. Its horizontal planes (only one is shown in the model), arranged in layers from three feet to three hundred feet above ground, are made up of stainless steel strands of varying diameters; these accomplish an imaging process both audible (by means means of flat response transducers) and visual (through slow scan video) of snow, sleet, hail, rain and mist. The diagonal strands sense soft or gusty surface winds. The bottommost layer or grid gives a readout, again both audible and visually, of the complex thermal variations within the terrain, rising heat eddies, and the earth's ambient magnetism.
There are touch sounds of raindrops and snow drops and non touch sounds of concussive thunder and cricket choruses. Insect steps across the strands and the activity of spiders building night webs between strands is available for sensing and recording, as well as the approach of cold or warm fronts. The sudden interruption of light and heat caused by a passing cloud shadow is both seeable and hearable. This is in addition to what the ear might normally garner from the surface cusion sounds of a meadow: the grass whooshings, grasshoppers, redwinged blackbirds, bob-o-links, and snakes in the grass.

Some of these sensed meadow facets can be isolated, and all sounds can be intermixed; in the master control room, the operator of the Meadow Piano can both tune the individual strands and choose particular sounds, as they occur, and personally organize sound.
Meadow Piano's

eddy imaging

holographic mode (B&W Haloid of 30X40'')
BraunSixtant dirigible paabove MP's plane.

return to earthguest

Meadow Piano's
W-Example monitoring site: Terra plane coverage area ranging below and reaching far and wide out from the distant mountain. X-Profiles of sequentially scanned graphs showing a tiered disturbance detail caused by the entry of a foreign body as read by the vertical plane of the thermal, breeze, eddy and dust/pollen particulates monitor. Z-Detail of construction and affiliate site of thermometers and flow meters in 20 inch intervals. Vertical monitoring of transient temperature gradients will cover warm to cold during a sequence. Data is relayed via radar to a mountain top position and uplinked to satellite for computer disc storage and Fourier_transform studies.

Tony Kroll and the "crew" pose for a thermal image.
Receiver video mini or collage  

of TERRAPLANE PERFORMANCE and 

SONIC SCULPTURE 

Defining Terraplane spread regarding 

overlaying 

2.50 mm lens 1809/105  

smith
depicted Braun Sixtant dirigible receives data from a variety of sensors and simultaneously resends these analog mirrorings— which are varied aural surface layerings, including the escarpment's face together with an array of terrain sound and vibrations for multiplex input—and utilizing radar, satellite and FM-transmitting/receiving channels. Together in tandem with visual counterparts, these terrain surfaces are observed by stationary cameras in the dirigible. Imaging this vision uses heat-imaging sensors together with a fish-eye video lens. Incoming inputs are mixed together in the dirigible. This fusion merging of sound and image is intended to provide a perceptually faux holographic whole. This spatial capture, necessarily, includes enrichments from nuanced sound playings of earthen features, whose anomalies may be wind-disturbed, emphasizing aural/visual textures and expected wide ranging fluxed soundings. Realtime describes this challenge: these aural and visual counterparts from existing inputs are combined (multiplexed) in the Braun Sixtant and are instantly re-relayed to the ground-to-satellite uplink. This whole context is simultaneously handed over (uploaded) to Westar IV satellite and thereafter may be demultiplexed (decoded) and downloaded into the black set top box for re-construction into multiple speakers of all the sound and vision details.

more 1pdf, 2 return home

continues
THE ART INSTITUTE OF CHICAGO
Chicago, Illinois 60611

ARTIST  Leif Brush
TITLE  Meadow Piano
MEDIUM  Audible Sculpture: Meadow Piano
EXHIBITION  The School of The Art Institute of Chicago Fellowship
DATES OF EXHIBITION  May 20 – July 2, 1979
LENDER’S NAME AS IT SHOULD APPEAR
RELEASE DATE
PERMISSION GRANTED FOR REPRODUCTION
ONLY UNTIL:

A drawing in metal of the MEADOW PIANO, which, though not to "scale," would occupy a relatively flat meadow space 1/8th by 1/15th mile by 300 feet high. The MEADOW PIANO would serve as a research site for imaging from such phenomena as proximity sound, heat, wind, rain, and ambient magnetism.

1972 Fellowship entry – Art Institute of Chicago

LEIF BRUSH
615 Gaffield Place, Evanston, Ill. 60202
Terrain Instruments: a tree, an ice floe, human made objects for listening to and the overhearing of vibrations stirred by wind, ice/water movements and other natural vibrational phenomena: "global's artifacts".

Overall, Terrain Instrument sensors coupled with solar-powered electronic preamps are my preference for the unheard vibrations which are possible with these and similarly constructed parts. I concentrate on sounds which come directly from natural sources (e.g., winds, ice floes).
LORING PARK MINNEAPOLIS  passaroundsound.net  (Duluth-StPaul-Duluth via Westsar IV satellite)

This magnesium '50s computer disc was recycled as the Signal Disc v 1 and monitored rain drops that were filtered by the overhead tree canopy. and employed as triggers of additional TIs; windribbon detail. Signal Disc v 3.1

terrestrial selfbroadcasting TIs: trees, details
Terrestrial Whistlers w/stainless steel pigtails (l) & Single Rain Drop Monitor/electronic Triggerer installed in a cottonwood tree (the solar panel and FM transmitter are not shown as they were elsewhere on this same south-faceing trunk.

realtime ROADSIDERADIO for solar-electric cars 2-way between Hinckley and Duluth Minnesota usa (infinity terrain broadcasting (to car radio) w/quad sound synced along adjacent and viewable I-35 vistas; shows details of solar panel and FM transmitter. & solar panel w/ FM transmitter installed mid-Birch tree.
realtime Satellite 2-way between the Hudson River Museum (via WNYC) and Duluth Terrain Instrument(s) --shows the TREESWAY site/ w/ Richard Paske and Nancy Ruppenthal and uplinked via KSJ N St Paul Minnesota; right is detail of the sounding block that was used during the interactive performance