

SOFTWARE & PRINTED TEXTS FOR THE "PIONEERS" EXHIBITION

In addition to a 15 page section on the exhibition in the ARS ELECTRONICA catalogue there will be produced three major formats for the software/information specific to the exhibition:

## BARCODE INTEGRATED SOFTWARE &amp; PRINTED TEXT

1. Laserdiscs (30 minutes each) with still and short sequence moving images, stored and retrieved interactively with a BarCode light pen.

a. Laserdisc programs with information on the audio/video instruments - one on audio and one on video.

1) The audio program will contain sequences of sound, photos, and some moving images that will present the audio origins related to the instruments on exhibit.

2) The video instrument information programs will contain images of the instruments, their inventors, and other available data related to the hardware. Each program will be dubbed so that there are multiple copies - one for each large gallery where the instruments themselves are on display.

b. Five laserdisc programs with short audio/video works, or excerpted works composed on the instruments exhibited (or related instruments). The selections in these compilations will have a particular relationship to the development of the electronic image. They will be grouped by the dominant processes used to generate and manipulate the images electronically, e.g. keying, colorizing, scan processing, switching, etc. The various audio/video laserdisc programs are being prepared for exhibition in the smaller galleries we have designated as Nanoteaters.

2. Printed catalogue - a traditional paper format - with BarCodes (to access images on the laserdiscs) printed and integrated into the text.

The composition of the catalogue and the laserdiscs are related through the BarCodes. The printed descriptions and photographs of the audio/video instruments in the exhibition will be directly related to the laserdisc instrument information programs. As for the contextual essay by David Dunn, BarCodes will be integrated throughout this overview at appropriate points in order to access

audio/video, including still and moving images.

**SPECIAL PROGRAM VIDEOTAPES**

3. Videotape programs that can accommodate last minute programming. These programs are being prepared for viewing on a daily schedule in the space we have designated as the "Endotheater".

a. Programs of full length video pieces

b. A special program on the early computer animation work of Lee Harrison

(Half Title Page)

ARS ELECTRONICA 1992  
**EIGENWELT DER APPARATE WELT  
PIONERE DER ELEKTRONISCHEN KUNST**

(Title Page)

ARS ELECTRONICA 1992

This catalog has been published on the occasion of the exhibition:

**EIGENWELT DER APPARATE WELT  
PIONERE DER ELEKTRONISCHEN KUNST**

JUNE 22 - July 9, 1992

Museum Francisco Carolinum  
4020 Linz, Oberosterreich

VASULKAS, INC.

Artistic Director: Peter Weibel. Curators: Woody Vasulka and Steina Vasulka. Editor: David Dunn. Contributing Editors: Woody Vasulka and Steina Vasulka, Peter Weibel, MaLin Wilson, Jeffrey Schier. Project Coordinator: MaLin Wilson. Designer: Michael Sumner. Managing Editor: Melody Sumner. Printer:

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ARS ELECTRONICA

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Exhibition Designers: Eichinger oder Knechtl, Vienna, Austria

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This exhibition and catalog were initiated and realized because of the enthusiasm and support of Peter Weibel, Artistic Director. We are also completely indebted to Ralph Hocking and Sherry Miller Hocking of the Experimental Television Center, Binghamton, for their extraordinary generosity in the assembly of the majority of the hardware and their careful attention to the myriad details of both hardware and archival information. Their professionalism and humor have been an inspiration and a pleasure.

Of course, we are especially grateful for the special efforts and cooperation of those inventors who personally excavated their past by agreeing to be interviewed, and by digging up schematics, photos, and dormant documents and, in many cases, by resuscitating their own machines. Thank you Stephen Beck, David Behrman, Don Buchla, Bob Diamond, Lee Harrison, Bill Hearn, David Jones, Don McArthur, Nam June Paik, Steve Rutt, Dan Sandin, Jeff Schier, Eric Siegel, Glen Southworth, and Aldo Tambellini. We deeply regret that during this process we were never able to locate Shuya Abe and George Brown.

We also wish to acknowledge Steve Anderson, Michael Czajkovsky, Gary Hill, Norman Lowrey, and Sara Seagull for their extra efforts and assistance in lending significant audio/video instruments to the exhibition.

The success of this venture has relied on the contributions of the team we have assembled: David Dunn, catalog editor and essayist, David Muller, technical supervisor, Jeff Schier, technical advisor and author of technical descriptions and block diagrams, Michael Sumner, catalog designer, Melody Sumner, managing editor, Bill Heckel, computer hacker, Dave Stafford, interview transcriptions and typing, and Pavel Skrýja, indefatigable driver and handyman.

None of this would have been possible without the funding of Ars Electronica and their dedicated staff, especially Dr. Katharina Gsöllpointner, Director, and Wolfgang Dorninger, Technical Director. In addition, we appreciate the attentions of Eichinger oder Knechtel, the designers of the exhibition installation at the Landesmuseum - Francisco Carolinum, Linz, Austria.

In addition to the subject of the interviews transcribed for this catalog, we acknowledge the following authors, editors and publications of the writings we have selected to print and reprint for this catalog:  
Arn, Robert. "The form and sense of video," *artscanada* (October

1973): 15-24.

Beck, Stephen. "Image Processing and Video Synthesis." Lapis Technologies, Alameda, California. Typescript. 1975.

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Crutchfield, James P. "Space-Time Dynamics in Video Feedback." *Physica* 10D (1984). North-Holland, Amsterdam: Elsevier Science Publishers, North Holland Physics Publishing Division.

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Gill, Johanna. "Video: State of the Art." *Working Papers*. New York: The Rockefeller Foundation, 1976.

Harrison, Lee. Notes for an Animation Device. 1961. Photocopy.

McArthur, Donald E. Introduction from "A Computer Based Video System." 1977. Typescript.

Miller Hocking, Sherry. Chronology of the Experimental Television Center (1992), and *Image Processing Manual*. Typescript. Owego, New York: Experimental Television Center, 1978-1986.

Paik, Nam June. "Binghamton Letter" to "Dear Friends at Radical Software." 8 January 1972. Binghamton, New York: Experimental Television Center.

Rosebush, Judson. "The Moog Synthesizer: An Interview with Its Inventor." *Syracuse New Times* (February 17, 1972).

Sandin, Daniel J. and Phil Morton. "Distribution Religion." Chicago: University of Illinois at Chicago Circle, ca. 1972.

Tambellini, Aldo. Statement on BLACK SPIRAL. Flier for exhibition *TV as a Creative Medium* (May 17 - June 14, 1969). New York: Howard Wise Gallery.

Yalkut, Jud. Excerpts from "PART THREE: OPEN CIRCUITS: The New Video Abstractionists" from unpublished book manuscript

*ELECTRONIC ZEN: The Alternate Video Generation*. 1984.

Woody Vasulka  
Steina Vasulka  
Curators

MaLin Wilson  
Coordinator &  
Contributing Editor

LIST OF ILLUSTRATIONS:

(For possible cover photo)

Steve Rutt and Bill Etra's RUTT/ETRA SCAN PROCESSOR PROTOTYPE, circa 1972. Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton. Donated by Barbara Buckner. Photo: Dennis Dunda.

(Integrated into David Dunn's essay)

Salvatore Martirano with his SAL-MAR CONSTRUCTION, 1969-72, School of Music, University of Illinois, Champaign/Urbana. Courtesy of Salvatore Martirano.

Salvatore Martirano's SAL-MAR CONSTRUCTION, 1969-72, set up for concert at State University of New York (SUNY), Stonybrook, Long Island. Courtesy of Salvatore Martirano.

Don Buchla in his Berkeley, California, studio with several of his creations, late 1970's. Courtesy of Don Buchla.

(Illus. for Crutchfield article)

James P. Crutchfield, feedback image classified as a quasi-attractor displaying "dislocation." Photo: James P. Crutchfield.

(Illustrations for Audio/Video Instruments)

Lee Harrison III, ANIMAC, 1962, Denver. Courtesy of Lee Harrison III.

Lee Harrison III, photo montage featuring a dancer with body mounted sensors controlling real-time animation on the ANIMAC, 1962, Denver. Courtesy of Lee Harrison III.

Lee Harrison III (right) receiving the National Academy of Television Arts and Science award for "Outstanding Achievement in Engineering Development," 1972, with his colleague Edwin J. Tajchman (left), V.P. of Engineering at Computer Image Corporation, Denver, Colorado. Courtesy of Lee Harrison III.

Don Buchla. Courtesy of Don Buchla.

Robert A. Moog at conference on *Electronic Art Tools*, 1977, at the State University of New York (SUNY), Buffalo.

Robert A. Moog's MOOG MODULAR AUDIO SYNTHESIZER, 1968-69. Courtesy of Norman Lowrey, Professor of Music. Collection of Drew University, Madison, New Jersey. Donated by CBS (Columbia Broadcasting System).

Bill Hearn's VIDIUUM, 1968-69. Photo: Steve Anderson.

Bill Hearn, ca. 1969, San Francisco. *Courtesy of Bill Hearn.*

PUTNEY, MODEL VCS 3, 1968.

Aldo Tambellini with BLACK SPIRAL prepared television set, 1969. *Courtesy of Aldo Tambellini.* Photo: Don Snyder.

Eric Siegel, 1971, from a video tape made at the Howard Wise Gallery, New York City.

Eric Siegel's DUAL COLORIZER, 1972. *Courtesy of Eric Siegel.*

Eric Siegel's DUAL COLORIZER, 1972.

Stephen Beck in his California studio. *Courtesy of Stephen Beck.*

Stephen Beck with BECK VIDEO WEAVER, 1974. *Courtesy of Stephen Beck.*

Glen Southworth, inventor and founder of CVI/Colorado Video, Inc. Self Portrait with first experiments on direct CRT copying with original XEROX color machine. *Courtesy of Glen Southworth.*

Glen Southworth's CVI VIDEO QUANTIZER, 1969. Collection of the *Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

Glen Southworth's CVI DATA CAMERA, 1970. Collection of the *Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

Nam June Paik visiting Buffalo, 1979. Photo: Woody Vasulka.

(? Shuya Abe, ca. 19 , from a video tape made .)

Nam June Paik and Shuya Abe's PAIK/ABE SYNTHESIZER & SCAN MODULATOR, 1971. Collection of the *Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

Nam June Paik and Shuya Abe's PAIK/ABE SYNTHESIZER SCAN MODULATOR component, ca. 1971. Collection of the *Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

George Brown's VIDEO SEQUENCER, 1971. Collection of the *Vasulkas, Santa Fe, New Mexico.*

George Brown's MULITKEYER, 1973. Collection of the *Vasulkas, Santa Fe, New Mexico.*

Dan Sandin with the IP (IMAGE PROCESSOR), 1972, Chicago. *Courtesy of Phil Morton.*

Dan Sandin's IP in studio with other instruments. *Courtesy of Phil Morton.*

Steve Rutt and Bill Etra's RUTT/ETRA SCAN PROCESSOR, MODEL RE-4, 1973. *Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

(? Bill Etra, ca. 19 , from a video tape made

(? Steve Rutt, ca. 19 , ?  
.)

Left to right - Kit Galloway, Dave Jones, Jack Henry Morre, founders of VIDEOHEADS, at the Melk Weg, Amsterdam, 1972. *Courtesy of Dave Jones.*

David Jones's JONES FRAME BUFFER, 1976. *Collection of Gary Hill, Seattle, Washington.*

Don McArthur's SAID, 1976. *Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton.*

Don McArthur in the Vasulka's loft, 1976, Buffalo, New York. *Photo: Woody Vasulka.*

Don McArthur (right) and Woody Vasulka (left), 1976, Buffalo, New York. *Photo: Steina Vasulka.*

Don McArthur (middle) and Woody Vasulka (left) and Lou James (right), 1976, Buffalo, New York. *Photo: Steina Vasulka.*

Jeff Schier in the Vasulka's loft, 1977, Buffalo, New York. *Photo: Woody Vasulka.*

(? Woody - Don McArthur and Jeff Schier's DIGITAL IMAGE GENERATOR. *Collection of the Vasulkas, Santa Fe, New Mexico.*)

(*Illustrations for Special installations*)  
Skip Sweeney, ca. 1983, with feedback set up at the Exploratorium, San Francisco, California. HW: Setchell-Carlson Television. *Courtesy of Skip Sweeney. Photo by Susan Schwartzberg.*

Skip Sweeney, black and white feedback images photographed from a video monitor. *Courtesy of Skip Sweeney.*

Steina and Woody Vasulka with portapack equipment, San Francisco, 1972. *Photo: Warner Jepson.*

David Behrman's diagram and summary of CLOUD MUSIC, ca. 1975. *Courtesy of Sara Seagull & David Behrman.*

CLOUD MUSIC monitor with image of 6 crosshairs amidst lively cloudscape. *Courtesy of Sara Seagull.*

First public installation, Electric Gallery, Toronto, 1974. *Courtesy of Sara Seagull.*

Bob Diamond with CLOUD MUSIC, work in progress, ca. 1976. Video analyzer (rear left) and music synthesizer (foreground). *Courtesy of Sara Seagull.*

(Assorted illustrations)

Conference on Electronic Art Tools, 1977, at the State University of New York (SUNY), Buffalo. First row - Wendy Clark, Jean-Pierre Boyer; second row - Taka Imura, Woody Vasulka, Nam June Paik, Dr. Gerald O'Grady; third row - Bill Viola, Ed Emshwiller, Kit Galloway, Steina Vasulka; standing - Walter Wright.

Jean-Pierre Boyer in the Vasulka's loft, ca. 1975, Buffalo, New York. *Photo: Woody Vasulka.*

Nam June Paik and Shuya Abe's SCAN MODULATOR, ca. 1971. Right-wave form input; left - output on monitor. *Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton. Photo: Susan Rothstein.*

Gene Youngblood in the Vasulka's loft, ca. 1975, Buffalo, New York. *Photo: Woody Vasulka.*

Left to right - unidentified, unidentified, Jack Henry Moore, Kit Galloway, Dave Jones, unidentified, VIDEOHEADS, at the Melk Weg, Amsterdam, 1972. *Courtesy of Dave Jones.*

Electronic Audio/Video Instrument Descriptions

- 1962  
**Lee Harrison Associates** **ANIMAC (Hybrid graphic animation computer)**  
*Destroyed, documented on film*
- 1964  
**Don Buchla** **BUCHLA PRE-100 SERIES (Audio synthesizer)**  
*Collection of Michael Czajkowsky, New York City*
- 1968 - 1969  
**Robert Moog** **MOOG MODULAR AUDIO SYNTHESIZER**  
*Courtesy of Norman Lowrey, Professor of Music  
Collection of Drew University, Madison New Jersey  
Donated by CBS (Columbia Broadcasting System)*
- 1968 - 1969  
**Bill Hearn** **VIDIUM (Analog XYZ driver sequencer)**  
*Courtesy of Steve Anderson, Physics Department,  
Sonoma State University, Rohnert Park,  
California  
Collection of Bill Hearn*
- 1968  
**Industrial** **PUTNEY, MODEL VCS 3 (Audio synthesizer)**  
*Collection of the Experimental Television Center,  
Ltd. & The State University of New York,  
Binghamton*
- 1969  
**Aldo Tambellini  
& Tracy Kinsel  
& Hank Reinbold** **BLACK SPIRAL INSTALLATION (Prepared television set)**  
*(Awaiting restoration)  
Collection of the Everson Museum of Art,  
Syracuse, New York*
- 1969 & 1970  
**Glen Southworth** **CVI (COLORADO VIDEO INC) QUANTIZER (Colorizer)**  
**&  
CVI DATA CAMERA (Camera scan processor)**  
*Collection of the Experimental Television Center,  
Ltd. & The State University of New York,  
Binghamton  
Ubiquitous*
- 1970 & 1974  
**Stephen Beck** **DIRECT VIDEO SYNTHESIZER (Analog)**  
*(Awaiting restoration)*  
**BECK DIGITAL VIDEO WEAVER (Synthesizer)**  
*Collection of Stephen Beck, San Francisco*

- 1970 & 1972  
**Eric Siegel**      **EVS (Analog ELECTRONIC VIDEO SYNTHESIZER)**  
*Whereabouts unknown, last in the possession of Al Phillips, documented in photographs*  
**DUAL COLORIZER (Analog)**  
*Collection of the Vasulkas, Santa Fe, New Mexico*
- 1971  
**Nam June Paik & Shuya Abe**      **PAIK/ABE SYNTHESIZER (Keyer & colorizer) & SCAN MODULATOR (a.k.a. as the "Wobulator")**  
*Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton*
- 1971 & 1973  
**George Brown**      **VIDEO SEQUENCER (a.k.a. FIELD FLIP/FLOP SWITCHER, with digital control)**  
**MULTIKEYER (Analog with digital control)**  
*Collection of the Vasulkas, Santa Fe, New Mexico*
- 1971  
**Dan Sandin**      **IP (Analog IMAGE PROCESSOR)**  
*Collection of Phil Morton, West Yellowstone, Montana*
- 1973  
**Bill Etra & Steve Rutt**      **RUTT/ETRA SCAN PROCESSOR (Analog)**  
*Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton*
- 1976  
**David Jones**      **JONES FRAME BUFFER (Digital buffer)**  
*Collection of Gary Hill, Seattle, Washington*
- 1976  
**Don McArthur**      **SAID (SPATIAL AND INTENSITY DIGITIZER)**  
*Collection of the Experimental Television Center, Ltd. & The State University of New York, Binghamton*
- 1976  
**Don McArthur**      **DIGITAL IMAGE GENERATOR**

## **Catalog Contents**

1. Introduction by Peter Weibel
2. Curatorial Statement by Woody Vasulka
3. A History of Electronic Music Pioneers by David Dunn  
(with bar codes correlated to 150 images and 53 sound examples on laser disc)
4. Video: State of the Art by Johanna Gill (with bar codes correlated to still and moving images on laser disc)
5. Descriptions of Tools and Designers (includes 80 pages of photos, diagrams, bios, interviews and bar codes correlated to laser discs about the tools on exhibit)
6. Installations (descriptions of installations on exhibit)
7. Tape List (list of videos to be exhibited)
8. The Form and Sense of Video by Robert Arn
9. Image Processing and Video Synthesis by Stephen Beck
10. Video Synthesis by Tom Dewitt
11. Space-Time Dynamics in Video Feedback by James Crutchfield
12. Notes on an Early Animation Device by Lee Harrison
13. Experimental Television Center Processing Manual