Image Processing Manual

I. Theory of Signals
II. Theory of Sync
III. Introduction
   A. System Architecture
   B. Sync and Distribution
   C. Routing Systems
   D. Output Amplifier
   E. Monitoring:
      1. Waveform Monitor
      2. VectorScope
      3. Output Signal Routing
IV. Setting Up the System
   A. Adjusting Monitors
   B. Image Sources
      1. Pre-recorded Tapes
      2. Cameras
      3. Video Line Converters
V. Processing Modules
   A. Voltage Control Amplifiers
   B. Sequencers
      1. Jones 8 Input
      2. Four Channel
   C. Keyers
      1. Theory
      2. Jones Keyers
   D. Colorizers
      1. Jones Six Channel
      2. Paik/Abe
   E. Special Effects Generator
   F. Jones Frame Buffer
   G. Character Generator
VI. Analog Control Systems
   A. Analog Synthesizer
   B. Jones Oscillators

rev'd

c. 1986
ELECTRONIC ZEN: The Alternate Video Generation

BIBLIOGRAPHY

PART ONE: VIDEO


Bourtourline, Serge, THE CONCEPT OF ENVIRONMENTAL MANAGEMENT (1968), an address delivered to the Conference on Computers and Their Potential Applications in Museums at the Metropolitan Museum of Art, N.Y.C., April 17, 1968.

Clarke, Shirley, NOTES FOR A VIDEO EXPERIENCE WITH SHIRLEY CLARKE (1971), The Museum of Modern Art Department of Film program May 6, 1971, N.Y.


Davis, Douglas, EVENTSDRAWINGSOBJECTS VIDEOTAPES, DOUGLAS DAVIS: (1972) AN EXHIBITION: INSIDE AND OUTSIDE THE MUSEUM, catalog, with essays by James Harithas, Nam June Paik and David Ross, The Everson Museum of Art, Syracuse, N.Y.


Gillette, Frank, BETWEEN PARADIGMS (1973), An Interface Book, Gordon and Breach, N.Y.

Gillette, Frank, VIDEO: PROCESS AND META-PROCESS, edited by Judson Rosebush, a catalog, with essays by James Harithas, David Ross, and excerpts from A VIDEOVIEW OF FRANK GILLETTE by WILLOUGHBY SHARP, Everson Museum of Art, Syracuse, N.Y.

Global Village, THE INDEPENDENT PRODUCER, PUBLIC TELEVISION AND THE NEW VIDEO TECHNOLOGIES, prepared by Karen Mooney and Julie
Gustafson, Introduction by John Reilly, edited by Karen Mooney, Global Village, N.Y.

Gruber, Bettina and Vedder, Maria, KUNST UND VIDEO: Internationale Entwicklung Und Kunstler (1983), DuMont Buchverlag Koln, Cologne, Germany.

Kelly, Joanne, Editor, VIDEO FREE AMERICA PRESENTS (1979), Video Free America, San Francisco, California.


Paik, Nam June, ELECTRONIC ART I, II AND III, catalogs, with essays by John Cage, Allan Kaprow, and Russell Connor, Galeria Bonino, N.Y.

Paik, Nam June, ELECTRONIC TV & COLOR TV EXPERIMENT, program notes, The New School Presents Nam June Paik (January 1965), N.Y. (See also DECOLLAGE NO. 4 and FLUXUS NEWSPAPER NO. 3).


Schneider, Ira and Korot, Beryl, VIDEO ART: An Anthology, editors, (1976), Harcourt Brace Jovanovich, N.Y.

Shamberg, Michael and Raindance Corporation, GUERILLA TELEVISION (1971), Holy, Rinehart and Winston, N.Y.


The Television Laboratory At WNET/13 News, edited by Diane English and Danny Goldberg, Director: David Loxton, particularly Vol 1, No. 1 (August 1973) and Vol. 1, No. 3 (May 1974), The Television Laboratory, N.Y.

TVTV (Top Value Television), PRIME TIME (1973), San Francisco, Ca.


The Videofreex, COOPERSTOWN TV IS A MUSEUM (1973), documentation, Maple Tree Farm, Lanesville, N.Y.

The Videofreex, SPAGHETTI CITY VIDEO MANUAL (1973), Media Bus and Praeger Publishers, N.Y.

VISION AND TELEVISION, catalog of a show curated by Russel Conner, (1970), Poses Institute of Fine Arts, Rose Art Museum, Brandeis University, Waltham, Massachusetts.

WGBH Educational Foundation Annual Report, (1968), Boston, Massachusetts.


Wise, Howard, TV AS A CREATIVE MEDIUM, exhibition catalog curated by Howard Wise (1969), Howard Wise Gallery, N.Y.

Wright, Walter, VIDEOTAPE KITCHEN NOTES (1972), Program notes for a videotape show by Walter Wright, The Kitchen, N.Y.

Yalkut, Jud, LUMINOUS REALITIES: Video And Projected Art, (1975), editor and curator: Jud Yalkut, a catalog for an exhibition, University Galleries, Wright State University, Dayton, Ohio.
Youngblood, Gene, EXPANDED CINEMA (1970), introduction by R. Buckminster Fuller, E.P. Dutton, N.Y.


Also all published articles by Jud Yalkut listed in the acknowledgments section of ELECTRONIC ZEN: The Alternate Video Generation.

BIBLIOGRAPHY: PART TWO: General Background

Bateson, Gregory, STEPS TO AN ECOLOGY OF MIND (1972), Chandler Publishing Company and Ballantine Books, N.Y.
Brown, G. Spencer, LAWS OF FORM (1972), Julian Press, N.Y.
Buchler, Justin, PHILOSOPHICAL WRITINGS OF PEIRCE, selected and edited from the works of Charles Sanders Pierce by Justin Buchlet, (1955), Dover Publications, N.Y.
Carpenter, Edmund, OH, WHAT A BLOW THAT PHANTOM GAVE ME! (1974), Bantam Books, Toronto and N.Y.
Goscia, Victor, TIME FORMS (1972), Gordon and Breach, N.Y.
Herrigel, Eugen, ZEN IN THE ART OF ARCHERY (1953), Pantheon Books, N.
BIBLIOGRAPHY
Page Five


McLuhan, Marshall, UNDERSTANDING MEDIA (1964), McGraw-Hill, N.Y.

McLuhan, Marshall, WAR AND PEACE IN THE GLOBAL VILLAGE, with Quentin Flore and Jerome Agel (1968), Bantam Books, N.Y.

McLuhan, Marshall, CULTURE IS OUR BUSINESS (1972), Ballantine Books.

Ornstein, Robert E., THE PSYCHOLOGY OF CONSCIOUSNESS (1972), The Viking Press, N.Y.


Pierce, Charles S., ESSAYS IN THE PHILOSOPHY OF SCIENCE (1957), The Liberal Arts Press and Bobbs-Merrill Company, Indianapolis, Indiana and N.Y.

Pierce, John R., SCIENCE, ART, AND COMMUNICATION (1968), Clarkson N. Potter, Inc./Publisher, N.Y.

Puharich, Andrija, BEYOND TELEPATHY (1962, 1973), Anchor Press, Doubleday, Garden City, N.Y.

Ruesch, Jurgen and Bateson, Gregory, COMMUNICATION: The Social Matrix of Psychiatry (1968), W.W. Norton & Company, N.Y.


Thom, Rene, STRUCTURAL STABILITY AND MORPHOGENESIS (1975), W.A. Benjamin, Inc., Reading, Massachusetts.


Wilhelm, Richard, THE I CHING or BOOK OF CHANGES (1950 and other editions), Bollingen Foundation, Pantheon Books, N.Y.

Woodcock, Alexander and Davis, Monte, CATASTROPHE THEORY (1980), Avon Books, N.Y.
Selected Bibliography


15. Sargent-Wooster, Ann, "Why Don't They tell Stories Like They Used To?", *College Art Journal*, Fall, 1985, pp. 204 - 212.


COLLABORATION IN ELECTRONIC IMAGE PROCESSING

By ALAN WAYNE POWELL

A thesis submitted to

THE MASON GROSS SCHOOL OF THE ARTS

of

Rutgers University

in partial fulfillment of the requirements

for the degree of

MASTER OF FINE ARTS

Written under the direction of

Joan Semmel

of the VISUAL ARTS PROGRAM

and approved by

New Brunswick, New Jersey

May, 1987
BIBLIOGRAPHIE SOMMAIRE

VIDEO IS BEING INVENTED : Bruce Kurtz
Arts Magazine , Décembre 1973

EXPANDED CINEMA : Gene Youngblood
Television as a creative medium (p. 257 à 344)
E.P. Dutton & Co. , New York

THE ISSUE OF VIDEO ART : en collaboration
The form and sense of video: Robert Arn - Arts Canada Oct. 1973

REPORTS FROM THE NATIONAL CENTER FOR EXPERIMENTS IN TELEVISION
No. 1 et 3 - KQED , San Francisco, California

THE PERCEPTION OF TELEVISION DISPLAYS : J. Hockberg & V. Brooks
Columbia University Dec. 1973 - Publié par Television Laboratory, N.Y.

CYBERNETICS OF THE SACRED : Paul Ryan

CYBERNETIQUE ET SOCIETE : Norbert Weiner
Coll. 10/18 no. 569-70

MEDIUM MEDIA : Société Nouvelle - Magnétoscopie et Videosphère
Société Nouvelle - ONF, Montréal

RADICAL SOFTWARE - Vol. I & II
Raindance Corporation , New York
electronic
abstractions

by Ben F. Laposky

OSCILLONS
ELECTRONIC ABSTRACTIONS
by Ben F. Laposky

Exhibition Catalogue
A NEW APPROACH TO DESIGN
Chevrolet, Iowa: Ben F. Laposky, 1940.

Draft D w/
RS 11/28/74
Published in conjunction with an exhibition at the University Art Gallery, State University of New York at Binghamton, March 2-March 25, 1983

This exhibition was made possible through a grant from the Media Bureau of the New York State Council on the Arts.

unnumbered pages.

cover: HENRY LINHART  Impersonations  1980
based on the principles of the human interference of radio waves in space, first for electronic security systems, then applied to musical purposes.

There was a big electronics conference in Moscow, and I showed my instruments there. The conference was a great success; it was written up in the literature and the newspapers, of which we had many at the time, and many doors were opened for me in the Soviet Union. And so Vladimir Ilyich Lenin, the leader of our state, learned that I had shown an interesting thing at this conference, and he wanted to get acquainted with it himself. They asked me to come with my apparatus, with my musical instruments, to his office, to show him. And I did so.

What did Lenin think of it?

He was very gracious, and I was very pleased to meet him. I showed him and his colleagues the control system of my instrument, which I played by moving my hands in the air, and which at that time was called the Thereminox. I played a piece of music, after which they applauded, including Vladimir Ilyich, who had been watching very attentively. I played Glinka’s The Lark, which he loved very much. After all this applause, Vladimir Ilyich said that I should show him, and he would try to play it himself.

He stood up, moved to the instrument, stretched his hands out, right hand to the pitch antenna and left to the volume antenna. I took his hands from behind and helped him. He started to play The Lark. He had a very good ear, and he felt where to move his hands to get the sound — to lower or raise the pitch. In the middle of this piece I thought that he could, independently, move his hands. So I took my hands off his and he completed the whole thing independently, by himself, with great success and with great applause following. He was very happy that he could play on this instrument all by himself.

 Incredible! In what year did you arrive in New York?

At the end of 1929, approximately. In fact, the exact date was December 22, 1927.

What brought you to New York?

When I was working in Leningrad in the Ioffe Institute for Physics and Technology, I had a lab. I was the inventor of this instrument, the first instrument. I was also the first in the world to invent a television device; that was in 1926.

Then I was sent abroad, I was sent to an international conference in Frankfurt. My wife Katia joined me in Paris, where I went next, and we stayed with my relatives. After that we went to America.

Katia was interested in medicine, and she wanted to enter a medical institute that was about 35 kilometers from New York. So she entered this medical school, and she slept there in the dormitory, but she visited me once or twice a week in New York.

I’ll tell you what happened afterwards. One fine day a young man came to me and said, “You know,” (he gave me his calling card), “I have a request to make of you and of your wife too. We love each other. Let us marry each other.” It was not quite pleasant for me, but I said, “Of course I cannot forbid — well, in the Soviet Union we have freedom. Divorce is legal.” But I told him that things could not happen in this way. He left, and I felt terrible.

I tried to reach my wife, but the phones weren’t working well. After a while, maybe three days later, I received from my embassy — because at the time I was working under the leadership of our consulate — a magazine that was published by German representatives of a fascist organization in America. In this article it was written that, “The wife of Theremin is sympathetic to our work, and we accepted her into our society, but Theremin doesn’t want to pay money, because he’s probably a Jew, and he is afraid to give money. That’s why he won’t become a member of our society.” Well, there was such a magazine.

At the embassy, the people said, “We cannot allow this.” Then in a few days, they said something more definite. The embassy called me and demanded that I get a divorce from her. They gave us a divorce without her presence or consent. I talked to her on the telephone about it. She said, “It’s my friends, but I was never a member of any such society,” and that was it. This was my first divorce. She continued to live there and to study at that institute.

Are you Jewish?

No.

Do you remember meeting Edgard Varèse in New York?

No. I couldn’t tell you. I met so many people. It was long ago, decades ago. I met a lot of people. I remember well a lot of my good students. I had a wonderful student Clara Rockmore, and also Lucie Rosen. These were the better ones whom I remember who worked in my studio.
CREATIVE SOUND
SELECTED BIBLIOGRAPHY

<table>
<thead>
<tr>
<th>H. REF.</th>
<th>S. REF.</th>
<th>THEORY</th>
<th>PRACT.</th>
<th>HISTORY</th>
<th>TEXT</th>
<th>GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A comprehensive and accurate treatment of the subject by a professional in the field (BBC).

An up-to-date collection of historical/critical essays principally of interest to the musician or listener with an interest in electronic music. Good bibliography and discography.

A comprehensive survey of tape recording procedures and hardware, including analog, digital, FM, and instrumentation recording.

Readable and accurate, this text is a recommended reference in acoustics.

Includes a basic discussion of the history and theory, good coverage of the tape recorder and synthesizer by a man who participated in the development of the Moog Synthesizer. Exercises are given, and a record of sample techniques (33 1/3 rpm) is included.

(1)
A classic, dealing with recording setups and techniques, studio control-room procedures, film sound track composing and recording, TV production, even electronic music. Slightly dated, but a standard reference nonetheless.

An excellent, recommended text for a First Studio, suitable for a wide range of ages (although illustrations appear to show Jr. H.S.-age students). Many ingenious, creative techniques are explained clearly and simply, and all require an absolute minimum of equipment. Cleverly lays the groundwork for later use of more sophisticated studios.

"The best book on the technical side of recording... thoroughly recommended." (Studio Sound) Highly technical, for the advanced student of the art or the working pro. Deals with sophisticated equipment and theory.

A Classic, comprehensive reference. The comments re Eargle apply to this text as well. Also available from High Fidelity Music Listeners' Book Service.

A practical reference described by its title. Useful when you get to the semi-pro level (recommended by TEAC in manuals supplied with their multichannel mixers).

Clearly of use primarily in music education. Written specifically for use with ARP synthesizers; basics are nonetheless accurate, and the book will be very useful if you have an ARP or can tolerate "translating" for the synthesizer you do have. Extensive technical details.


A good, readable introduction to the making and presentation of AV materials for instructional use. Includes valuable practical information on the care and feeding of equipment, and on presentation.


A well written, clear manual specifically dealing with the many problems of electric music performance. Useful to Creative Sound programs in terms of presentation, and in its introduction to some of the many inexpensive modifier boxes made for the Pop musician. Foreword by R.A. Moog.


This accessible text integrates acoustics and optics, and includes unusual information on acoustic lenses, illustrated photographically with a method which gives the reader a rare opportunity to see sound as it undergoes reflection and focusing.


A most important text on the subject, containing an excellent chapter on recording.

This is a very readable, anecdotal history of sound recording technology and applications, containing many ideas for creative uses in a broader range of areas than is covered by most other texts in this bibliography. While a bit dated, it is well written, and the author is clearly an enthusiast. A recommended source/textbook for Creative Sound.


Comments re Lipton, above, apply.


Recommended by a number of sources, this volume is in use as a text in the seminars offered by the Recording Institute of America. Again, more useful at the semi-pro level.


A "handbook for the modern music teacher," this readable and interesting volume offers some ear- and consciousness-expanding material useful to the teacher and student of Creative Sound, as well. Written by a recognized artist in electronic music, in response to his teaching experiences.


Good basic discussions of acoustics, electricity, magnetism, recording, synthesizer principles. No unnecessary detail is given, and writing is suitable for H.S. level.

This oft-cited, classic text is relatively approachable and useful, despite several technical errors. Again, slanted toward musical applications.

TEAC Corp.: The White Paper. TEAC Corp. Of America, Montebello, Ca., available through hifi dealers.

A 24-page booklet about tape recorder technology. Critical performance parameters are explained for the novice, making this a handy little reference.


The classic, standard reference. A must for comprehension of the more technical of the sources here listed, and always handy.


Best suited for elementary school use, this "awareness" text offers the student comparisons between electronic music compositions and contemporary art, and includes some exercises that can be interest-generating and use equipment found in most schools.


Available through Modern Recording Magazine, Port Washington, N.Y.

An up-to-date, high level reference for the more sophisticated studio, written by a pro (former Eastern V.P. of the Audio Engineering Society, engineer for RCA and Vanguard). Hefty and expensive.
PERIODICALS:
The technical aspects of sound recording advance quite rapidly, and the contact with the field that is necessary if one is to stay abreast of new developments can only be maintained through periodical literature. Following is a selected list:

Audio (high fidelity orientation)
Audio Engineering Society Journal (excellent, right at the forefront, but highly technical; good occasional library reading)
The Audio Amateur (approachable, some do-it-yourself)
db, The Sound Engineering Magazine (studio procedures, high tech)
High Fidelity (orientation obvious from the name; often good articles)
Popular Electronics (broad range of information, do-it-yourself, theoretical articles)
Radio-Electronics (same comments as above, preferred by this author)
Recording Engineer/Producer (studio procedures, high tech)
Modern Recording Magazine (this author's current favorite; studio procedures, live recording and sound reinforcement, semi-pro as well as pro coverage)
Studio Sound (from London, some do-it-yourself, sometimes highly technical)

* * *

Categorization Abbreviations:
H. REF. denotes "handbook" references.
S. REF. denotes "standard" references (i.e. to be referred to for definitions and clarification of questions).
AWAPE. denotes those texts promoting expansion of sound awareness.
PRACT. denotes those texts suitable for use in practicum.
TEXT denotes those suitable as textbooks.
GUIDE denotes those suitable as reference guides for instructors.
MISCELLANEOUS INSPIRATIONS

Following is an incomplete and thoroughly personal listing of a few books and recordings found by the author to have been helpful in the understanding and development of a creative approach to sound:

Books


Recordings

Columbia:

MS 7207 "The World Of Harry Partch"
MS 7051 "New Electronic Music..." (Music of Our Time series)
MS 6146 "Music of Edgar Varese"
MS 7222 "Conlon Nancarrow: Studies For Player Piano"

Deutsche Grammophon Gesellschaft:

139421/22 "Hymnen" (K. Stockhausen)
138811 "Stockhausen: Electronic Music"

Nonesuch:

H-71246 "Iannis Xenakis: Electroacoustic Music"

Limelight:

LS-86049 "Pierre Henry: Le Voyage"

Earthquack:

EQ0001 "Mother Mallard's Portable Masterpiece Company"
EQ 0002 "Like A Duck To Water"
REFERENCES FOR CREATIVE SOUND

Prepared by:

Ralph Jones
Creative Sound Artist/Teacher
New York State Summer School of the Arts
School of Film/Media
The Division of Humanities and Arts Education
State Education Department
Albany, New York 12234