

**2007 New Media Fellowships
Project Cover Form**

MICHAEL NAIMARK

Title: Moving Camera Studies

Genre: New Media

Applicant's Role in Production: Artist

Production Format: an early-stage investigation leading to an installation

Brief Project Description (do not exceed space given below)

"Moving Camera Studies" investigates why our personal sense of looking around and moving through space differ from the gaze of a camera. The method of investigation is through using a hand-held digital camera along with GPS and angular sensors, then relying on extensive handiwork, frame by frame, after shooting. The intention is explore aesthetic potential in the fastest, least constrained way. The goal is to become fluent in what can be done, and to make an installation.

Check One: <input checked="" type="checkbox"/> Sample <input type="checkbox"/> Supplemental
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2007 New Media Fellowships Sample Work Form

MICHAEL NAIMARK

If you are sending more than one sample, please copy this page. Sample(s) must be cued: indicate how long each sample should be viewed for a COMBINED viewing time of no more than 10 minutes. If slides are included in this application, please list the title and year of the work on this form.

Title: Naimark Rockefeller 2007 Sample

Year: 2006

Technical

Original Format

☐ Software
☐ Web
☒ Installation(s)
☐ Other _____
 Other _____

Format Submitted for Viewing

☐ Software
☐ Web
☐ VHS
☒ Other DVD

Preferred OS

☐ Windows
☐ Mac
☐ Unix

Web Information (answer only if sample work is in Web format)

☐ URL _____ (if more than one please list them below)

☐ Browser requirement(s)

☐ Plug-in requirement(s)

☐ This sample requires broadband connection (fast Internet connection)

☐ A local copy of the sample work has been included with the application

Special Information For Viewing:

Description of Work (use an additional sheet if necessary)

My sample DVD consists of two parts (TRT 8:33):

Previous Moving Camera Work

- from moviemaps (Banff, Karlsruhe, Aspen, Golden Gate) (1978-94)
- from an early dance study (1978)

Two Previous Largescale Installations

- Displacements (1980-84/2005)
- Be Now Here (1995-97)

Additional information may be found on my website: <http://www.naimark.net>

Artist Statement

Michael Naimark

November 2006

I've been a professional "media artist" (at least in the eyes of the IRS) since 1980. My particular area of experience may be called "place representation," exploring how new media technologies can be used to expand and broaden our sense of place, particularly real (rather than fantasy) places. It's both a commitment and a celebration.

On a deepest level, I'm driven by embracing our unique planetary moment: we are the witnesses, indeed participants, of our planet becoming a live networked whole. Among the most significant implications is a shift of fitness factor from a Western "conquest" ideology to an Eastern "sustenance" one, probably resulting in a synthesis of the two. Exciting times.

The closest guiding principles of my practice may be Gregory Bateson's assertion that almost all meaningful human interaction happens on a non-verbal level; Gyorgy Kepes' philosophy that an interdisciplinary approach to the arts builds bridges - between people, their environments, and themselves; and Stewart Brand's statement about art as "at guerrilla war with artifice, employing and subverting the artificial to reawaken the real." I've had the fortune of having had several conversations with Bateson, Kepes as a longtime mentor, and Brand as an occasional colleague.

"Media art," like "anything art" (conceptual, feminist, video) addresses a dual agenda, and like all dualisms, sometimes there is symbiosis and sometimes there is strife. And though I've chosen media, or tech-based, art as my field, I do believe in the existence of "pure art," art without any other agenda.

A related issue is the distinction between "first word art," where newness, novelty, and innovation are its prominent features, and "last word art," where doing well, doing best, and

virtuosity are most prominent. History has demonstrated that, on occasion, it's possible to do both. (1)

Another related issue is the dynamics of getting innovative work successfully realized. Traditionally, the old media world (e.g., film) required a much higher commitment to staying on-plan while the new media world encourages experimentation where it's OK to fail. I'm convinced that a "calculated risk" can be nurtured which balances creative exploration with getting things done. (2)

Over time, my "place representation" work slowly evolved from formal art and technology concerns to acknowledge the politics both of place and of representation. My work became as much about cultural geography, indigenoussness, and the future of travel and tourism as it was about field cinematography, interactive installations, and immersive display. (3)

But my current challenge as an artist is personal rather than political. I've done serious. "Highlights" from "Be Now Here" (1995) alone included filming through a bomb scare in Jerusalem, driving solo through Bosnia at night during wartime, negotiating with rebel Taurig camel drivers in Timbuktu, and bribing members of the Cambodian army to get my driver out of jail. My work with "camera zapping" (2002) led to several death threats after it was featured in the New York Times.

We may be witnessing a unique planetary moment, but on a more immediate, human scale (say, since Bush 2000), these are dark times. It's no surprise that contemporary art and activism are so tightly interwoven right now. But if our work as artists doesn't start from deep within our bodies, minds, and hearts - we've lost.

(1) Naimark, M. (2001). First Word Art/Last Word Art. *FineArtForum* vol.15, issue 8.

(2) Naimark, M. (2004). Calculated Risk. Forward for *A Guide to Good Practice in Collaborative Working Methods and New Media Tools Creation*, L. Goodman and K. Milton, Eds., AHDS.

(3) Naimark, M. (2006). Aspen the Verb: Musings on Heritage and Virtuality, *Presence*, Special Issue on Virtual Heritage, MIT Press, 15.3.

These, and relate writings, can be found at <http://www.naimark.net>.

Moving Camera Studies

(an early-stage investigation)

Michael Naimark

November 2006

DESCRIPTION --- I've been walking a lot lately, ideally several miles every morning. This is rather unusual since I live in LA. I don't drive to canyons or hiking trails, I just walk through nearby residential neighborhoods. The scale of walking, as a mode of transportation, is a very human one.

On good days, days when I feel clear-minded and well, my gaze is straightforward and level with the horizon. Of course, my eyes may wander to look at things I pass by, but mostly my eyes are looking forward. If you were to ask me "looking at what?" my answer would be "looking at nothing," perhaps similar to one's gaze during open-eyed meditation like zazen.

Eyes and cameras have a lot in common, but they also have major differences, and this "looking at nothing" is one of them. Much of my past work has been around conveying "sense of place," usually via custom camera systems and interactive installations. Some have addressed the matter of "looking around" (e.g., *Displacements* 1984/2005, *Be Now Here* 1995-7), while others have addressed the matter of "moving around" ("moviemaps").

Consider the different ways to record moving forward in space:

- The camera could be hand-held, but even the steadiest hand will result in some wobble. Hand-held wobble is a well-known cinematic trope (think "Blair Witch") but it's far from what our eyes do. Our eyes have a wonderful way to compensate by rotating in their sockets.
- The camera could be mounted on a "Steadicam" style stabilizer. These are devices that use balance and inertia to minimize jumpy (high-frequency) wobble, but do nothing for slower wobble. The original *Aspen Moviemap* (1978) was filmed using such a system, but the

remaining wobble was distracting and unacceptable (particularly for the stop-frame style footage preferred for interactive moviemaps).

- The camera could be mounted on a dolly and moved forward either on wheels or on a track (the latter being the preferred Hollywood method). "See Banff" (1993) was shot with cameras mounted on a custom dolly, and the "Karslsruhe Moviemap" (1990) shot with a camera mounted on the front of a tramcar to exploit the rails. While both produced novel footage, neither had the human feel of walking. This was partially due to the gaze of the camera remaining fixed in a single direction.

- The camera could be mounted in a high-tech, expensive gyro stabilizer, a motorized gimbal whose motor is controlled by gyroscopic sensors. These stabilizers even look like giant eyeballs. They can be locked on a specific setting (measured in "azimuth-elevation"); and very expensive ones can track objects using human or computer-vision techniques. The Aspen Moviemap was entirely reshot in 1979 with a gyro stabilized system pointing forward, while the Golden Gate Flyover (1987) used a gyro-stabilized helicopter camera which was manually tracked to be centered on the Golden Gate Bridge. Again, novel footage resulted, but again, lacking a human scale. And expensive.

An entirely different approach is proposed here: to record more than is needed spatially, then to carefully recompose the material by hand, frame by frame. This is the spatial equivalent to traditional film editing, where more is recorded than is needed temporally, then carefully selected by hand. Tedious as this may be, it would allow for maximum unfettered experimentation.

The toolset would consist of a digital camera system and a computer. The camera system would be augmented by relatively cheap GPS and angular sensors. Digital editing software such as Final Cut Pro and Shake would make such activity relatively fast and efficient, certainly compared to the old days using film (e.g., Dance Study 1978). Digital tiling software

such as QuickTime VR and Realviz would additionally enable experimentation with "looking around" as well as "moving around."

It's important to distinguish handiwork from automation. Computer graphics, computer vision, and perceptual psychology experts often think about similar issues of visual representation, then work to develop algorithms to automate the process. My goal is different. It's to explore aesthetic potential, and the fastest, least constrained means is through brute force handiwork. History has shown that new forms of representation usually begin as an art before becoming a science (e.g., rotoscoping).

This proposal is for an early stage investigation. My confidence is high that visual material will result where folks say "hey, I've never seen anything like that before." I expect an installation to result, whose exact nature will reveal itself along the way, as it has with most of my past projects. I would begin making studies - shooting locally is fine - and work to become fluent in what can be done. It may end there, with snippets packaged into some form of mini-installations (Jim Campbell's work comes to mind), though there's a better chance that a larger integrated installation will emerge.

FEASIBILITY --- As an early stage investigation, the feasibility of producing the proposed studies (as "studies") is a no-brainer, though developing them further into a finished installation is the goal.

USE OF WORK --- Some form of small-scale or large-scale installation, TBD.

BUDGET --- The budget is based around having a self-contained tool set including cameras and sensors, computer and software, and technical assistance. This will get me started. A substantial allocation is reserved for a final production leading toward an installation. It is expected that most of the work will take place during the summer of 2007, though it may naturally spread out as it dovetails with the rest of my USC activities.

CURRICULUM VITA

Michael Naimark

www.naimark.net

Interests

Art and science: presence and abstraction, new media and interactivity, psychophysics and cognition.
Place representation: field cinematography, image-based modeling, immersive virtual environments.
Consequences: virtual travel and tourism, cultural geography, globalization.
Technology-based art and the dynamics of sustainability.

Born

16 November 1952, Detroit, MI
US Citizen

School

M.S., Visual Studies and Environmental Art, Massachusetts Institute of Technology, 1979
B.S., Cybernetic Systems (Independent major, with high distinction and high honors), University of Michigan, 1974

Work

2004-6: Visiting Associate Professor, Interactive Media Division, School of Cinema/Television, USC

2001-2004: Media Artist and Researcher (self-employed). Clients and supporters include:

2004: Ars Electronica Festival, Linz, AUSTRIA
2004: Columbia University School of the Arts
2002-03: Rockefeller Foundation and Leonardo/ISAST, New York
2001-02: Institute of Advanced Media Arts and Science, Gifu, JAPAN

1992-2001: Member of the Research Staff, Interval Research Corporation, Palo Alto

One of first 15 employees. Founding Member, Intellectual Property Committee (1994). Project Coordinator, "Immersion," one of Interval's original projects (1993-1997). Responsible for building two 3D portable camera systems, two 3D interactive display systems, and exploring computer models made from camera-base imagery. Produced 2 art projects (See Banff Kinetoscope and Be Now Here) and mentored 2 (Rouen Revisited by Paul Debevec and Golan Levin, and Jam-o-Drum by Tina Bean Blain). Mentored 12 university interns. Published 29 trip reports. Applied for 6 patents (4 allowed to date). Co-Chair, Publications Committee (1998). Formed "Publications and Media" Committee after Interval closed to coordinate release efforts (2000). Instigated "Kundi.com," a spinoff venture based on a unique realtime alert system for webcams and live network media.

1980-1992: Media Artist and Researcher (self-employed). Major clients include:

1980-81, 1991-92: MIT Media Lab
1987-90: Apple Multimedia Lab and Human Interface Group
1986-90: Lucasfilm Ltd., Nicosio, CA
1985-86: Panavision, Tarzana, CA
1982-84: Atari Research Lab, Sunnyvale, CA

And:

St. Louis Zoo (1989); Technology Center of Silicon Valley, San Jose (1989); City of Karlsruhe ZKM Advisory delegation (1988); Fleet Science Center, San Diego (1988); LA Open School (1988); Museum of Science and Industry, Chicago (1988); Advanced Interaction Inc., San Francisco (1987); Videodisc Publishing, Inc., New York (1987); HOK Associates, St. Louis (1987); Mattel Inc., Hawthorne, CA (1987); Lotus Development Corporation (w/The Future Squad), Cambridge (1987); NY Museum of Modern Art (1986); Advanced Decision Systems, Mountainview, CA (1986); Microsoft Corporation, Seattle (1986); Renan Productions, Los Angeles (1985); SF Museum of Modern Art (1985); Mirror Systems, Cambridge (1985); Lynn Hershman Projects, San Francisco (1984); Realtime Video Productions, San Francisco (1984); Bank of America, San Francisco (1983); Search and Design, San Anselmo (1982); WED Enterprises (Disney Research) (1982);, Glendale, CA; Office of the President, National Geographic Society, Washington DC (1981).

Faculty Appointments and Residencies

2004-6: Visiting Associate Professor, Interactive Media Division, School of Cinema/Television, USC

2005: Guest Artist, Art Center College of Design, Pasadena
 2004: Adjunct Faculty, Interactive Media Division, School of Cinema/Television, University of Southern California
 2004: Adjunct Faculty, Interactive Telecommunications Program, Tisch School of the Arts, New York University
 2001-2: Residency, Institute of Advanced Media Arts and Sciences (IAMAS), Gifu, JAPAN
 1993: Residency, "Art and Virtual Environments," Banff Centre for the Arts, CANADA
 1991: Residency, "Bioapparatus," Banff Centre for the Arts, CANADA
 1990: Residency, Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe, GERMANY
 1990: Visiting Faculty, "Immersive Virtual Environments," New Genres Department, San Francisco Art Institute
 1989: Visiting Faculty, "Virtual Environments," New Genres Department, San Francisco Art Institute
 1987: Residency, Exploratorium, San Francisco
 1987: Visiting Faculty, "Interactive Art," School of Creative Arts, San Francisco State University
 1986: Visiting Faculty, "Media Technology and the Arts," School of Creative Arts, San Francisco State University
 1986: Visiting Faculty, "Aesthetics of Interactivity," School of Film/Video, California Institute of the Arts
 1981-82: Visiting Faculty, "The Arts Today," School of Creative Arts, San Francisco State University
 1981: Visiting Faculty, "New Media and the Arts," School of Creative Arts, San Francisco State University
 1979-80: Research Fellow, Center for Advanced Visual Studies, Massachusetts Institute of Technology
 1978-79: Technical Instructor (film/video), Architecture Machine Group, Massachusetts Institute of Technology
 1977: Teaching Assistant, "Creative Seeing," College of Architecture, Massachusetts Institute of Technology
 1974-75: Instructor (video), Residential College and Department of Geography, University of Michigan
 1972-75: Instructor, Future Worlds Program, College of Literature, Science, and Arts, University of Michigan

Awards, Grants, and Acknowledgements

2005: Nominee, Rockefeller Foundation Fellowship, New York
 2002: Recipient, Rockefeller Foundation Creativity & Culture grant, New York (Leonardo/ISAST "arts lab" study)
 2002: Recipient, World Technology Award for the Arts, New York
 2001: Nominee, World Technology Award for the Arts, London, UK
 1998: Nominee, ICC Biennale '99, Tokyo, JAPAN (abstained)
 1997: Nominee, Rockefeller Foundation Fellowship, New York (abstained)
 1995: Finalist, Interactive Media Festival, Los Angeles
 1995: Nominee, Chrysler Innovation in Design Award, New York
 1994: Nominee, ARTEC '95, Nagoya, JAPAN
 1992: Recipient, First Award (SFAI Immersive Virtual Environments class), Futures Scenario, ACM SigCHI, Monterey
 1992: Recipient, Artist Fellowship Program Grant in "New Genres," California Arts Council
 1991: Recipient, Artist Grant, Tamarack Foundation, San Rafael, CA
 1989: Recipient, Spring Show Award (Virtual Environments class), SF Art Institute
 1984: Recipient, First Award, SECA "Film as Art," SF MOMA
 1983: Finalist, Society for the Encouragement of Contemporary Art (SECA) Award, SF MOMA
 1980: Recipient, Media Arts Fellowship, National Endowment for the Arts
 1979: Finalist, Video Artists Fellowship, The Artists Foundation, Boston
 1979: Recipient, M.I.T. Council for the Arts Grant
 1978: Recipient, M.I.T. Council for the Arts Grant

Professional Activities

Major

2004-2008: Member, MIT Corporation Visiting Committee, Media Laboratory and Media Arts & Sciences
 2006-present: Member, Scientific Council of the Ludwig Boltzmann Institute for Media Art Research, Vienna, AUSTRIA
 2000-present: Board of Directors, ZeroOne Foundation, Palo Alto
 1993-present: Editorial Advisory Board, Leonardo Electronic Almanac, MIT Press
 1991-2006: Editorial Board, PRESENCE, MIT Press
 2001-2005: Board of Advisors, Media Lab Europe, Dublin, IRELAND
 2004: Guest Curator, Ars Electronica Festival 25th anniversary Symposium, Linz, AUSTRIA
 1998: Jury Chair, Interactive Art, Ars Electronica, Linz, AUSTRIA
 1990: Steering Committee, Cyberthon Conference, Point Foundation, Sausalito

Minor

2002-present: Board of Advisors, International Society of Arts, Science & Technology (ISAST), San Francisco
 2001-present: Board of Advisors, The Lab artists organization, San Francisco
 2001-present: Papers Reviewer, Siggraph Conferences
 2001-present: Program Committee, Virtual Systems and Multimedia (VSMM) Conferences
 1999-present: Submissions Reviewer, Leonardo journal, MIT Press
 1984-present: Member, Society for Visual Anthropology, American Anthropological Association, Washington, DC
 2006: Tenure Reviewer, Interactive Telecommunications Program (ITP), NYU
 2005: Proposal Evaluator, Creative Capital Foundation, New York
 2004: Juror, Tania Trepanier Award, Labyrinth Project, Annenberg Center, USC
 2004: Collaborator, Siggraph '04 Computer Animation Pre-Show (Squid Ball)
 2003: Thesis Reviewer, Comparative Media Studies, MIT
 2003: Demonstrations Program Committee, UbiComp 2003, Seattle (self-withdrawn under protest)
 2002-2004: Board of Advisors, National Art and Technology Network (NATN), The Kitchen, New York
 2000-2002: Board of Advisors, Creative Disturbance, San Francisco/Marseilles, FRANCE

2000: Advisor, Jewish Museum planning meeting, San Francisco
 1999: Graduates Reviewer, SF Art Institute, New Genres
 1998-2002: Board of Advisors, Coalition of Artists and Life Forms, San Francisco
 1998-2001: Board of Directors, The Lab artists organization, San Francisco
 1997: Thesis Reviewer, MIT Media Lab
 1997: Juror, Interactive Art, Ars Electronica, Linz, AUSTRIA
 1996: Papers Reviewer, Symposium for User Interface Software and Technology (UIST), Seattle
 1995: Juror, Interactive Art, Ars Electronica, Linz, AUSTRIA
 1995: Juror, 10/10 Portraits in Cyberspace Artshow, MIT Media Lab
 1994: Thesis Reviewer, School of Architecture, UC San Diego
 1994: Juror, Interactive Art, Ars Electronica, Linz, AUSTRIA
 1994: Juror, "NewMediaTopia" Exhibition, Moscow, RUSSIA
 1993: Guest Co-Editor, Wide Angle, vol. 15, no. 4, December 1993, John Hopkins University Press, Baltimore
 1993: Program Committee, First Virtual Reality Annual International Symposium (VRAIS), IEEE, Seattle
 1993: Nominator, Interactive Media Festival, Los Angeles
 1993: Juror, Siggraph Multimedia Exhibition, Los Angeles
 1991: Thesis Reviewer, SF Art Institute, New Genres
 1990: Advisory Group, "Reality on Wheels" VR Exhibition, The Computer Museum, Boston
 1989: Graduates Reviewer, Architecture Dept, Cal College of Arts and Crafts, San Francisco
 1988: Nominator, SECA Video Art Award, SF MOMA
 1988: Juror, San Francisco International Film Festival
 1987: Project Development Committee, "Anthropology" Television Series, Institute of Human Origins, Berkeley
 1987: Juror, San Francisco International Film Festival
 1987: Juror, Athens International Video Festival, Athens, OH
 1986: Juror, San Francisco International Film Festival
 1986: Juror, Ann Arbor Film Festival
 1985-90: Co-Host, Interactive Video Conference, Whole Earth "Electronic Link (The WELL), Sausalito
 1985: Juror, "Cindy" videodisc award, Assoc of Visual Communicators, San Francisco
 1984: Contributing Editor, Video and the Arts (formerly Video Eighties), San Francisco
 1984: Board of Advisors, Twin Palms Gallery, San Francisco

Publications

- Naimark, M., Tribe, M. (2006). Academic Art and Technology Wiki (online)
 Naimark, M. (2006). Aspen the Verb: Musings on Heritage and Virtuality. *Presence* 15.3
- Naimark, M. (2005). Two Unusual Projection Spaces. *Presence* 14.5
 Naimark, M. (2005). Be Now Here: an Interactive 3D Panorama. *Proc. 12th International Panorama Conference, IPC International Panorama Council, Bonn, GERMANY*
 Fisher S., Anderson S., Ruiz S., Naimark M., Hoberman P., Weinberg R. (2005). "Experiments in Interactive Panoramic Cinema", Stereoscopic Displays and Virtual Reality Systems IX, Woods, A., Bolas, M.T., and Merritt, J. O., Editors, *Proc. SPIE* 5664
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 Naimark, M., Sutton, G. (2004). Chronological Age: Ars Electronica's Timeline Project 1979-2003, *Ars Electronica 2004*, G. Stocker, Editor, Ostfildern-Ruit, GERMANY: Hatje Cantz Verlag
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 Naimark, M. (2002). How to Zap a Camera. (self published on www.naimark.net).
 Naimark, M. (2002). Interaction 01 Review. *Diabxt, the critical journal by the Kyoto Art Center*, vol. 6, Kyoto, JAPAN.
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 Naimark, M. (2001). First Word Art/Last Word Art. *FineArtForum* vol.15, issue 8.
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 Naimark, M. (2000). Memorial for Bernard Q. Nietschmann. (self published on www.naimark.net) U C Berkeley Faculty Club.

- Naimark, M. (1999). Art at Interval. (self published on www.naimark.net) Tech Museum of Innovation, San Jose.
- Naimark, M. (1998). Field Recording Techniques for Virtual Reality Applications. *VSM '98 Proceedings*, Gifu, JAPAN.
- Naimark, M. (1998). Place Runs Deep: Virtuality, Place, and Indigenoussness. *Virtual Museums Symposium Proceedings*, Arch Foundation, Salzburg, AUSTRIA.
- Naimark, M. (1998). Art School en Provence. *Interval Research Trip Report*, Aix, FRANCE, 11/98.
- Naimark, M. (1998). Virtual Systems and Multimedia (VSM) Conference. *Interval Research Trip Report*, Gifu, JAPAN, 11/98.
- Naimark, M. (1998). World's First Interactive Filmmaker. *Interval Research Trip Report*, Prague, CZECH, 5/98.
- Naimark, M. (1998). Prix Ars Electronica Jury. *Interval Research Trip Report*, Linz, AUSTRIA, 5/98.
- Naimark, M. (1997). Art ("and" or "versus") Technology: Some Personal Observations. In C. Sommerer (Ed.), *Art@Science*. Vienna and NY: Springer Press.
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- Naimark, M. (1997). Interactive Art: Maybe it's a Bad Idea. In H. Leopoldseeder, C. Schopf (Eds.), *Cyberarts, International Compendium Prix Ars Electronica*. Vienna and NY: Springer Press.
- Naimark, M. (1997). ZKM Opening. *Interval Research Trip Report*, Karlsruhe, GERMANY, 10/97.
- Naimark, M. (1996). Field Recording Studies. In M.A. Moser (Ed.), *Immersed in Technology*. Cambridge, MA: MIT Press.
- Naimark, M. (1996). Be Now Here. *Leonardo Electronic Almanac*, vol. 4, no. 1.
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- Naimark, M. (1995). Art, Artifacts, and Presence. *Oksnoen '95 Proceedings*, Oksnoen, NORWAY.
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- Naimark, M. (1995). Interaction '95 Artshow. *Interval Research Trip Report*, Gifu, JAPAN, 7/95.
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- Naimark, M. (1994). New Media International Symposium. *Interval Research Trip Report*, Moscow, RUSSIA, 11/94.
- Naimark, M. (1994). Digital Expression Symposium, MIT Media Lab. *Interval Research Trip Report*, Cambridge, 10/94.
- Naimark, M. (1994). UNESCO III. *Interval Research Trip Report*, Paris, FRANCE, 9/94.
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- Naimark, M. (1994). New Media for New Museums First International Retreat. *Interval Research Trip Report*, Ferrara, Bologna, ITALY, 5/94.
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- Naimark, M. (1993). ZKM MultiMediale 3. *Interval Research Trip Report*, Karlsruhe, GERMANY, 11/93.
- Naimark, M. (1993). UNESCO II. *Interval Research Trip Report*, Paris, FRANCE, 11/93.
- Naimark, M. (1993). Elk Update. *Interval Research Trip Report*, Banff, CANADA, 10/93.
- Naimark, M. (1993). Beaux-Arts Conference. *Interval Research Trip Report*, Paris, FRANCE, 6/93.
- Naimark, M. (1993). National Association of Broadcasters (NAB) Convention. *Interval Research Trip Report*, Las Vegas, 4/93.
- Naimark, M. (1993). UNESCO. *Interval Research Trip Report*, Paris, FRANCE, 2/93.
- Naimark, M. (1993). Interface II Conference. *Interval Research Trip Report*, Hamburg, GERMANY, 2/93.
- Naimark, M. (1992). Expo '92 Seville. *Presence*, vol. 1, no. 3.
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Exhibitions

Permanent Exhibitions

2000-present: American Museum of the Moving Image, Queens, NY (See Banff Kinetoscope)
1997-present: Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe, GERMANY (Karlsruhe Moviemap)
1987-present: Exploratorium, San Francisco (Golden Gate Flyover)

Solo Exhibitions

2005: Alyce de Roulet Williamson Gallery, Center College of Design, Pasadena (6 installations 1977-1997)
2001: Presidio, SF International Film Festival and SF MOMA (Be Now Here)
1995-6: Yerba Buena Center for the Arts, San Francisco (Be Now Here)
1995: Berkeley Art Museum / Pacific Film Archive (See Banff Kinetoscope)
1985-86: Madeleine Metro Station, Paris FRANCE (Paris VideoPlan)
1984: Bruce Velick Gallery, San Francisco (Virtual Object Series)
1984: San Francisco Museum of Modern Art (Displacements)
1980: Center for Advanced Visual Studies (CAVS), MIT (Movie Room)
1978: Dept of Architecture, MIT (Moving Movie Studies and Dome Projections)

Group Exhibitions

2006: technoSpheres: FutureS of Thinking, Beall Center for Art and Technology, UC Irving (Fast Cheap GigaPixel Image)
2006: Sensorium colloquium, USC (Fast Cheap GigaPixel Image)
2005: The Art Formerly Known As New Media, Walter Phillips Gallery, Banff Centre, Banff, CANADA (See Banff)
2004: Interactions/Art and Technology, American Museum of the Moving Image, New York (See Banff)
2003: Future Cinema, Kiasma Museum of Contemporary Art, Helsinki, FINLAND (Be Now Here)
2002-3: Future Cinema, Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe, GERMANY (Be Now Here)
2002: Navigate @ Art, Automobil Forum Unter den Linden, Berlin, GERMANY (Karlsruhe Moviemap)
2001: ArtSale 2001, The Lab, San Francisco (sortitout.org)
2000: ArtSale 2000, The Lab, San Francisco (Predictions)
1998: Inventing Experience, The Tech Museum of Innovation, San Jose (See Banff and Be Now Here)
1998: Exploding Cinema, International Film Festival, Rotterdam, NL (Be Now Here)
1997: Art in the Anchorage, Creative Time, New York (Be Now Here)
1997: Dallas Video Festival, Dallas Museum of Art (See Banff)
1997: Best of Dallas Video Festival, LA Film Forum, Los Angeles (compilation video)
1997: Finding the Fulcrum (Leonardo's 30th Anniversary Show), 111 Minna Gallery, San Francisco (Eyepiece)"
1996: Digital Bayou, Siggraph '96, New Orleans (Be Now Here)
1995: Interaction '95, International Academy of Media Arts and Sciences (IAMAS), Gifu, JAPAN (Karlsruhe Moviemap)
1995: Old Glory, Santa Monica Museum of Art (No State)
1994: Old Glory, Capp Street Project, San Francisco (No State)
1994: International Symposium on Electronic Art (ISEA) 94, Museum of Contemporary Art, Helsinki, FINLAND (See Banff)
1994: Mill Valley Film Festival (See Banff)
1994: Walter Phillips Gallery, Banff Centre for the Arts, CANADA (See Banff)
1994: Film Academy (w/ISEA), St. Petersburg, RUSSIA (Virtuality, Inc.)
1993: Multimediale 3, Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe, GERMANY (EVE project)
1992: G-Tech Exhibit, Siggraph '92, Chicago (Field Recording Studies)
1992: The Culture and Science of Finding Your Way, Exploratorium, San Francisco (Karlsruhe Moviemap)
1992: Images du Futur '92, Montreal, CANADA (Karlsruhe Moviemap)
1992: Triennale di Milano, ITALY (EAT and Karlsruhe Moviemap)
1992: Futures Scenarios, ACM SigCHI Conference, Monterey (Virtuality, Inc.)
1991: Tomorrow's Reality Gallery, Siggraph '91, Las Vegas (EAT and Karlsruhe Moviemap)
1991: Multimediale 2, Zentrum für Kunst und Medientechnologie (ZKM), Karlsruhe, GERMANY (Karlsruhe Moviemap)
1991: Art and Multimedia, Center for Advanced Visual Studies (CAVS), MIT (compilation video)
1990: Cyberthon Conference, Point Foundation, San Francisco (EAT, Golden Gate Flyover, and Virtual Object Series)
1990: Virtual Reality Panel, Siggraph '90, Dallas (Virtuality Inc.)
1989: Mill Valley Film Festival (EAT)
1989: San Francisco Art Institute (EAT)
1989: Kanagawa International Art and Science Exhibition, JAPAN (Golden Gate Flyover)
1989: Exploratorium at the World Financial Center, New York (Golden Gate Flyover)
1988: Exploratorium at the Kennedy Center for the Performing Arts, Washington, DC (Golden Gate Flyover)
1987: The Situated Image, Mandeville Art Gallery, UC San Diego (Computer Eyepiece)
1986: Silicon Valley Electronic Arts Festival, Institute of Contemporary Art, San Jose (Computer Eyepiece)
1986: American Association of Anthropology (AAA) annual conference, Philadelphia (compilation video)
1986: Art New Vision '86, Nippon High Technology Arts Festival, Tokyo, JAPAN (compilation video)
1985: US Pavilion, EXPO '85, Tsukuba, JAPAN (Siggraph Videodisc)
1984: Ann Arbor Film Festival (Computer Eyepiece)
1984: The Artist As A Young Machine, Ontario Science Center, Toronto, CANADA (Computer Eyepiece)

1984: San Francisco International Video Festival (Computer Eye-piece)
 1983: Siggraph '83 Artshow, Detroit (Computer Eye-piece)
 1982: Palo Alto Film Festival (All My Worldly Things)
 1981: SF Art Institute Film Festival (Eye-piece and Moving Movie)
 1981: Centervideo, American Center, Paris, FRANCE (Babies on the Subway)
 1981: CenterVideo, Koelnischer Kunstverein, Cologne, Germany (Babies on the Subway)
 1981: CenterVideo, Kunsthaus, Zurich, SWITZERLAND (Babies on the Subway)
 1980: New York Avant Garde Festival (Eye-piece)
 1980: Beyond Object, Aspen Art Museum (Moving Movie)
 1980: Council for the Arts annual meeting, MIT (Talking Head)
 1980: SF Art Institute Film Festival (All My Worldly Things)
 1980: CenterScreen Series, Harvard University (All My Worldly Things)
 1979: Ann Arbor Film Festival (All My Worldly Things)
 1978: The Mall, Washington, DC (Centerbeam)
 1977: Documenta 6, Kassel, GERMANY (Centerbeam)

Invited Presentations

214 (10/06): Opening Seminar for the Art and Technology Planning Group, NYU
 213 (09/06): PICNIC '06 Cross Media Week, Amsterdam, NETHERLANDS
 212 (08/06): Third Annual Seminar in Experimental Critical Theory, UC Irving
 211 (07/06): Institute for Creative Technology, USC
 210 (06/06): Big Picture Summit, National Geographic Society, Washington, DC
 209 (05/06): Department of Design | Media, UCLA
 208 (03/06): School of Art, USC

 207 (10/05): Frontiers in Optics, the 89th Annual Meeting of the Optical Society of America, Tucson
 206 (10/05): REFRESH! First International Conference on Media Arts, Science, and Technology, Banff Centre, CANADA
 205 (9/05): School of Fine Arts, San Francisco State University
 204 (4/05): IMC Expo, Chelsea Art Museum, New York
 203 (2/05): Vision Group, California Institute of Technology, Pasadena
 202 (2/05): Design Dialogues, Media Design Program, Art Center College of Design, Pasadena

 201 (12/04): EALA Presents, Electronic Arts, Marina del Ray
 200 (12/04): Big Picture Summit, Interactive Telecommunications Program, NYU
 199 (11/04): Interactive Media Division Forum, USC
 198 (11/04): 12th International Panorama Conference, Hunter College, New York
 197 (11/04): Art, Science, Technology Forum for National Science Week, Gijón, SPAIN
 196 (11/04): Institute for Creative Technologies, USC
 195 (09/04): Ars Electronica, Linz, AUSTRIA
 194 (08/04): Siggraph '04, Los Angeles
 193 (07/04): First International Conference on Design Computing and Cognition (DCC '04) Workshop, MIT
 192 (05/04): Digital Avant-Garde, Celebrating 25 Years of Ars Electronica (moderator), Austrian Cultural Forum, New York
 191 (02/04): Dolphin Cognition Workshop, Wildlife Conservation Society, NYC Zoo, New York
 190 (01/04): Interactive Media Division, USC School of Cinema-Television Visiting Speaker Series

 189 (11/03): Role of the Arts in a Research University (open mic statement to the Presidents of NYU and Columbia), NYU
 188 (11/03): National Art and Technology Network meeting, Arizona State University, Tempe
 187 (10/03): Intro Class, Interactive Telecommunications Program (ITP), NYU
 186 (06/03): ZeroOne Foundation, Palo Alto
 185 (06/03): Intel Research Invited Seminar Speaker Series, Berkeley
 184 (04/03): Exploratorium, San Francisco
 183 (04/03): Friday Seminar Series, Interactive Telecommunications Program (ITP), NYU
 182 (02/03): TTI Vanguard Conference, San Jose
 180 (01/03): Dublin Arts and Technology Association (DATA), Dublin, IRELAND

 179 (10/02): Computer Art Department, School of the Visual Arts (SVA), New York
 178 (10/02): Intro Class, Interactive Telecommunications Program (ITP), NYU
 177 (10/02): Future Cameras, Computer Science Department, NYU
 176 (04/02): Art, Technology, and Culture Colloquium, UC Berkeley
 175 (04/02): Numer.02 Interactive Design Conference, Centre Pompidou, Paris, FRANCE
 174 (04/02): Media Lab Europe, Dublin, IRELAND
 173 (04/02): Digital Arts Symposium, College of Fine Arts and Center for Consciousness Studies, U Arizona, Tucson
 172 (01/02): InterMediun Institute, Osaka, JAPAN

 171 (12/01): DoCoMo House, Keio University, Tokyo, JAPAN
 170 (11/01): Ways of Working Seminar, Arts Council of England, London, UK
 169 (11/01): Future of Creativity Symposium Discussant, AAC / School of the Art Institute, Chicago
 168 (10/01): Embedding Media in Culture Panel, Interaction '01, IAMAS, Gifu, JAPAN
 167 (10/01): International Academy of Media Arts and Sciences, Gifu, JAPAN
 166 (06/01): Bridges Symposium, USC / Banff Centre, Los Angeles
 165 (02/01): Center for Digital Media, SF Art Institute

 164 (11/00): Art Frontiers: Partners in Art and Industry Symposium, Ground Zero / The Kitchen, Menlo Park, CA

- 163 (10/00): Arts Panel, First MIT Media Lab Reunion
 162 (10/00): Looking at San Francisco Panel, "Really Wired" exhibition, New Langton Arts, San Francisco
 161 (10/00): Master Viewpoints Presentation, Edgewise Conference, New York
 160 (05/00): Green Interfaces Panel, Planetnetwork Conference, Presidio, San Francisco
 159 (05/00): Bernard Q. Nietschmann Memorial, Faculty Club, UC Berkeley
 158 (05/00): Center for Interactive Art, SFSU
 157 (04/00): Digital Work and Play Symposium, Mission College, Santa Clara
 156 (03/00): At What Stage Art and Technology Symposium, The Kitchen, New York
 155 (03/00): Design Department, UCLA
 154 (02/00): Art Dept, Mills College, Oakland
 153 (02/00): New Media: Where To Now? Panel, The Lab, San Francisco
 152 (02/00): Computer Science Department, UNC, Chapel Hill
- 151 (06/99): Design Digital Theme, International Design Conference, Aspen
 150 (04/99): Lannan Foundation, Geography Dept, UC Berkeley
 149 (03/99): Arts Dedication Ceremony, The Tech Museum of Innovation, San Jose
- 148 (11/98): Artists and Technologists Working Together Panel, ACM UIST Conference, San Francisco
 147 (11/98): Ecole des Beaux Arts Aix en Provence, FRANCE
 146 (11/98): VSMM '98, Gifu, JAPAN
 145 (09/98): Center for Advanced Visual Studies (CAVS) Series, MIT
 144 (05/98): Virtual Museums on the Internet Symposium, Salzburg, AUSTRIA
 143 (04/98): Scripted Spaces Conference, Art Center, Pasadena
 142 (03/98): Design Department, UCLA
 141 (02/98): Spatial and Collaborative Cinema Panel, International Film Festival, Rotterdam, NL
- 140 (12/97): Conceptual Design/Information Arts Dept, SFSU
 139 (11/97): Global Jukebox presentation, ITP, NYU
 138 (10/97): Art Dept, UC Santa Barbara
 137 (10/97): Multimedia Series, Santa Barbara Community College
 136 (10/97): Art Dept, Art Center, Pasadena
 135 (10/97): Virtual Worlds Beyond the Screen Lecture Series, SF MOMA
 134 (09/97): Telepresence Panel, International Symposium of Electronic Art (ISEA), Chicago
 133 (08/97): Multimedia Studies Program, SFSU
 132 (07/97): Consciousness Reframed Conference, CAiA, University of Wales, Newport, WALES
 131 (06/97): Multimedia Summit, Banff Centre for the Arts, CANADA
 130 (02/97): Stereoscopic Displays and Applications, SPIE, San Jose
 129 (02/97): Fleming Fund Dinner Series, Villa Montalvo, Saratoga, CA
 128 (02/97): New Genres Dept, SF Art Institute
 127 (02/97): Computer-Related Design Dept, Royal College of Art, London, UK
- 126 (11/96): Visual Research Conference (SVA), American Anthropological Assn Annual Meetings, San Francisco
 125 (09/96): Digitale '96, Media Academy, Cologne, GERMANY
 124 (05/96): Art@Science Symposium, Advanced Telecommunications Research (ATR), Nara, JAPAN
 123 (05/96): International Academy of Media Arts and Sciences (IAMAS), Gifu, JAPAN
 122 (05/96): Center for Design Research, Stanford University
 121 (04/96): Arts Dept, UC Santa Cruz
 120 (02/96): Governor's Conference on the Arts, Los Angeles
 119 (01/96): Urban Site Panel, Yerba Buena Center for the Arts, San Francisco
- 118 (11/95): Geography Dept, UC Berkeley
 117 (11/95): Seminar on Cinema Research, Directors Guild/American Museum of the Moving Image, Queens, NY
 116 (08/95): Museums of the Future Panel, Siggraph 95, Los Angeles
 115 (05/95): Oksnoen 95 Symposium on "Presence," Oksnoen, NORWAY
- 114 (11/94): NewMediaLogia Symposium, Moscow, RUSSIA
 113 (10/94): Artists in Multimedia Panel, ACM Multimedia Symposium, San Francisco
 112 (08/94): Film Academy (in conjunction with ISEA '94), St. Petersburg, RUSSIA
 111 (06/94): Virtual Café (via picturephone), McLuhan Program, U Toronto, CANADA
 110 (05/94): Museum of the Future Symposium, University of Ferrara/UC Berkeley, Bologna, ITALY
 109 (05/94): Art and Virtual Environments Symposium / Cyberconf 4, Banff Centre, CANADA
 108 (04/94): Center for Digital Multimedia, NYU
 107 (03/94): Espace Electra, U Paris 1+8 Joint Series, Paris, FRANCE
- 106 (11/93): Explorations in New Realities, Dallas Video Festival, Dallas Museum of Art
 105 (05/93): Cyberspace 3 Conference, Austin
 104 (05/93): Beaux-Arts, Paris, FRANCE
 103 (03/93): Dept of Architecture, UC Berkeley
 102 (03/93): Art Talk, Xerox PARC, Palo Alto
 101 (02/93): Interface II Conference, Hamburg, GERMANY
 100 (02/93): College of Arts and Sciences, USF
- 99 (11/92): Human Computer Interaction Seminar, Stanford University
 98 (11/92): Navigation Series, Exploratorium, San Francisco
 97 (10/92): CyberArts Conference, Pasadena
 96 (09/92): Center for Creative Imaging, Camden, ME

95 (06/92): Virtual Travel Panel, Travel and Tourism Research Association (TTRA) Annual Conference, Minneapolis
 94 (06/92): VR and Art Panel, YLEM, Exploratorium, San Francisco
 93 (05/92): Design for Conversations Seminar for duPont, Pangaro Inc., Boston
 92 (01/92): Artistic Experimentation with Multimedia Panel, MacWorld EXPO, San Francisco

 91 (11/91): Bioapparatus Residency, Banff Centre, CANADA
 90 (10/91): Bits of Art series, School of Art, University of Cincinnati
 89 (10/91): Pioneer LDC, Tokyo, JAPAN
 88 (10/91): Art and Multimedia panel, International Conference on Multimedia '91, Tokyo, JAPAN
 87 (10/91): Savannah College of Art and Design
 86 (10/91): Center for Electronic Art, San Francisco
 85 (08/91): First Moscow International Workshop on Human-Computer Interaction, Moscow, USSR
 84 (08/91): Virtual Reality Summer Seminar, SF Art Institute
 83 (06/91): Center for Electronic Art, San Francisco
 82 (05/91): MultiMediale 2, ZKM, Karlsruhe, GERMANY
 81 (04/91): Cyberspace II Conference, Santa Cruz
 80 (03/91): ITVA panel, San Francisco
 79 (03/91): IBM (DPS Project), Los Angeles
 78 (02/91): Center for Electronic Art, San Francisco

 77 (12/90): Interactive Multimedia Association Developer's Forum, Scottsdale, AR
 76 (10/90): Cyberthon Conference, San Francisco
 75 (10/90): Center for Electronic Art, San Francisco
 74 (08/90): Interface Panel, Siggraph '90, Dallas
 73 (08/90): Center for Electronic Art, San Francisco
 72 (07/90): Multimedia '90 Conference, Hakone, JAPAN
 71 (07/90): Center for Electronic Art, San Francisco
 70 (04/90): Gender and Cultural Bias Panel, Computer Games Developer's Conference, San Jose
 69 (03/90): Whittle Communications, Knoxville
 68 (03/90): Pacific Film Archive, UC Berkeley
 67 (02/90): Conceptual Design Dept, SFSU

 66 (12/89): Whittle Communications, Chicago
 65 (12/89): St Louis Zoo
 64 (11/89): US International Cultural and Trade Center Commission, Washington DC
 63 (11/89): Lucasfilm/Apple Umbrella (LUAU) talk, Headlands Center for the Arts, Marin Headlands, CA
 62 (11/89): Art Dept, SFSU
 61 (10/89): Autodesk Corporation, Sausalito
 60 (10/89): Society of Motion Picture and Television Engineers (SMPTE) Conference, Los Angeles
 59 (10/89): Avenues Toward Artificial Reality Panel, Entertainment '89 conference, New York
 58 (09/89): Film Dept, SF Art Institute
 57 (02/89): American Society of Magazine Photographers, San Francisco
 56 (02/89): Developing Interactive Video Workshop, Aspen Institute, Wye Woods, MD

 55 (11/88): Apple Developer's Conference, Cupertino
 54 (10/88): Production Issues Panel, Entertainment '88 Conference, New York
 53 (08/88): Museum of Science and Industry, Chicago
 52 (08/88): Multi Image Association, Phoenix
 51 (07/88): Open School, Apple Vivarium Project, Los Angeles
 50 (06/88): Fluid Media Conference, Apple Computer, Cupertino
 49 (05/88): Beyond CAD Symposium, American Institute of Architects, San Francisco
 48 (02/88): Multimedia Authoring Panel, Microsoft Third International CD-ROM conference, Seattle

 47 (12/87): Lotus Development Corporation, Cambridge
 46 (10/87): Mattel Inc., Hawthorne, CA
 45 (09/87): Interactive Video for Museums Workshop, Boston Museum of Science
 44 (07/87): Society of Motion Picture and Television Engineers (SMPTE), San Francisco Chapter
 43 (06/87): High Technology Media Panel, American Association of Museums Annual Conference, San Francisco
 42 (06/87): Emerging Media Landscape Conference, Diaquest Corporation, Berkeley
 41 (05/87): HOK Associates, St Louis
 40 (03/87): Athens International Video Festival, Athens, OH

 39 (10/86): Microsoft Corporation
 38 (10/86): Advanced Decision Systems, Santa Clara
 37 (07/86): Summer Arts '86 Conference, Cal State University, San Luis Obispo
 36 (06/86): School of Medicine, Stanford University
 35 (05/86): Panavision, Tarzana, CA
 34 (03/86): Film/Video Program, Univ of Michigan

 33 (12/85): Film/Video Dept, Cal Arts
 32 (12/85): Interactive Videodisc Consortium, San Francisco
 31 (11/85): California Academy of Science, San Francisco
 30 (10/85): MIT Media Lab
 29 (04/85): Dept of Geography, UC Berkeley
 28 (03/85): International Interactive Communications Society (IICS), San Francisco Chapter
 27 (02/85): Centre Mondial, Paris, FRANCE

- 26 (02/85): Ecole National Superior des Art Decoratif, Paris, FRANCE
25 (02/85): Mirror Systems, Cambridge
- 24 (11/84): First Annual Hacker's Conference, Marin Headlands, CA
23 (06/84): 4th grade class, South Elementary School, Hingham, MA
22 (04/84): Renan Productions, Los Angeles
21 (03/84): Dept of Education, University of Michigan
20 (02/84): Friends of the Earth, San Francisco
19 (01/84): SPIE Conference, Los Angeles
18 (01/84): Videodisc Workshop, Bay Area Video Coalition (BAVC), San Francisco
- 17 (01/83): Warner Brothers Records, Los Angeles
- 16 (12/82): Bank of America, San Francisco
15 (07/82): World Future Society Fourth General Assembly, Washington DC
14 (06/82): International Television Association (ITVA), Houston chapter
13 (04/82): AEC Seminar, Engineering News-Record, Denver
12 (04/82): AEC Seminar, Engineering News-Record, Houston
11 (03/82): Landor Associates, San Francisco
10 (03/82): Math Imagery Conference, UC Santa Cruz
9 (02/82): New Directions/New Dimensions Showcase, Diaquest Corporation, Berkeley
- 8 (12/81): Office of the President, National Geographic Society, Washington DC
7 (10/81): Graphics Gathering, Stanford University
6 (09/81): Video Department, California College of Arts and Crafts, Oakland
5 (08/81): Still-Frame and Optical Transfer, Summer Session on Interactive Videodiscs, MIT
4 (08/81): Videodisc Cinematography, Summer Session on Interactive Videodiscs, MIT
3 (05/81): WED Enterprises (Disney Research), Glendale, CA
- 2 (03/80): Center for Advanced Visual Studies, MIT
1 (01/80): Art and Perception Conference, Dept of Psychology, MIT