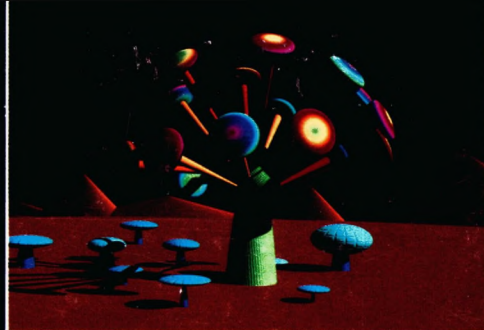


Electronic Theater



Minneapolis, Minnesota USA
July 23-27, 1984



Front Cover

Large Image:

Fantastico

Hans Donner/Richard Chuang

Pacific Data Images, Sunnyvale, CA

Small Images (top to bottom)

Martian Magnolia

J.F. Mareda

Sandia National Laboratory, Albuquerque, NM

Link Flight Simulation

Singer Company,

Link Flight Simulation Division, Sunnyvale, CA

Laser Fantasy

Floyd Rollefstad, Steve Heminover, Bob Mueller

Laser Fantasy Productions, Inc., Redmond, WA

Electronic theater

The annual SIGGRAPH conference film and video show has achieved prominence as an international showcase for the presentation of outstanding achievements in computer graphics motion imagery. This year, the scope of this celebrated event has been expanded to reflect the growing synergy of creative arts and high technology.

Renamed the electronic theater, this event features the traditional film and videotape presentations, and gives recognition to related forms of electronic entertainment media. In particular, there are real time performances demonstrating the application of computer graphics in the areas of information displays, dance and laser presentations. A great deal of attention has been given to integrating these elements into a cohesive multi-media performance event.

A prestigious jury of well-known computer graphics professionals selected the entries listed in this catalog for the Tuesday and Wednesday evening programs. Response to this year's call for participation was tremendous. A total of 136 films and videotapes, totalling over 11 hours of screening time, were submitted by artists and scientists from the United States, West Germany, Canada, England, France, Japan, Brazil, Australia and Italy.

A performance committee of visual artists and production experts helped select some of the live performances, and directed the staging and sequencing of both evening events. Each show consists of a mix of artistic, commercial, scientific and applications-oriented motion computer graphics, and real time presentations.

The unsung heroes of this endeavor are the volunteers and professionals that make up the A/V crew. For the past twelve months I have worked closely with them on the electronic theater, and their patience, encouragement and instructive assistance have been greatly appreciated. Every year the A/V crew excels in assembling the highest quality A/V technology that best displays our outstanding collection of computer generated imagery. This year, they are meeting the added challenge of integrating and operating the variety of electronic equipment required for our multi-media performances.

The electronic theater has been planned in accordance with SIGGRAPH's philosophy of innovation with excellence. So sit back, relax and enjoy!

Maxine D. Brown

Electronic theater chair

Film & video show presentations

Abel & Associates SIGGRAPH '84 Reel

Contact:

Alan DiNoble
Robert Abel & Associates
953 N. Highland Ave.
Hollywood, California 90038
(213) 462-8100

Produced at:

Robert Abel & Associates,
Hollywood, California
1984

Format:

5:00; 35mm and 3/4"; sound

The Adventures of André & Wally B.

Contact:

Alvy Ray Smith
Lucasfilm Ltd.
P.O. Box 2009
San Rafael, California 94912
(415) 499-0239

Credits:

Forest set design and rendering: William Reeves
Character design and animation: John Lasseter
3-D animation program: Tom Duff, Eben Ostby
3-D rendering: Rob Cook, Loren Carpenter
Concept and direction: Alvy Ray Smith
Additional models: Ed Catmull, David Salesin, Tom Porter, Sam Leffler
Computer logistics: Craig Good

Produced at:

Lucasfilm Ltd., San Rafael, California 1984

Format:

2:00; 35mm; sound

Hardware:

Ikonas frame buffers, E&S Picture System II,
Hitachi tablets, SMI Sun Computers, VAX 11/780,
VAX 11/750

Software:

Animation, rendering and compositing software,
created by the members of the Lucasfilm
Computer Graphics Project, is written in C under
UNIX 4.2.

Summary statement:

André & Wally B. demonstrates classic full character animation augmented by complete motion blur and rich environments. All characters and sets are 3-D. Everything is completely computer generated and illustrates the many techniques presented in the SIGGRAPH '84 technical sessions by members of the Lucasfilm Computer Graphics Project.

Beethoven's Sixth in CIG

Contact:

Geoffrey Y. Gardner
Grumman Aerospace Corp.
MS A08-35
Bethpage, New York 11714
(516) 575-4791

Credits:

Produced by Geoffrey Y. Gardner.
Significant contributions to the development of algorithms were made by Tom Jaquish, Ed Berlin, Bob Gelman and Mike Gershowitz.

Produced at:

Grumman Aerospace Corporation, Research and Development Center, Bethpage, New York 1984

Format:

5:30; 3/4"; sound

Hardware:

Data General Eclipse S/250 minicomputer, Genisio GCT-3000 frame buffer, Oktel DM3000 RGB video disk, JVC CR-8500LU VCR

Software:

Original Computer Image Generation (CIG) software written in FORTRAN V

Technical notes:

Scenes are synthesized using bounded quadric surfaces and mathematical texture functions

The Bicycle Company

Contact:

John Cavala
Archey/Cavala & Associates, Inc.
185 Berry St., Suite 261
San Francisco, California 94107
(415) 957-1124

Credits:

Produced by: Landor Associates, San Francisco, California
Director: Chuck Maisel
Designer: Rebecca Archey
Animation realization: Archey/Cavala & Associates, San Francisco, California

Produced at:

The Post Group, Los Angeles, California 1984

Format:

1:00; 3/4"; sound

Hardware:

Bosch 4000, Aurora

Technical notes:

Each robot was created as a 3-D object and animated as a separate element. The robots were composited over the background using video editing techniques; sometimes as many as 8 layers of video were used.

Summary statements:

This animated sequence is the centerpiece of the Hewlett-Packard exhibit, "The Bicycle Company", at the Museum of Science and Industry in Los Angeles. This show runs continuously on a pair of video projectors; the left and right halves of the mural were created separately and are projected side-by-side.

Bio-Sensor

Contact:

Hitoshi Nishimura
Osaka University
Computer Graphics Research Group
Department of Electrical Engineering
Yamada-Oka 2-1, Suita-shi
Osaka 565 JAPAN
(06) 877-5111 ext. 5026

Credits:

Takashi Fukumoto, Toyo LINKS Corporation
Hitoshi Nishimura, Osaka University

Produced at:

Osaka University Computer Graphics Research Group and Toyo LINKS Corporation 1984

Format:

3:00; 3/4"; sound

Hardware:

A multi-microcomputer system LINKS-1 (System 256, System 64 and System 48), frame buffer (1024 x 1024 pixels x 24 bits/pixels), SONY BVH-2000 video recorder. The resolution of this video image is 1024 x 480 pixels.

Software:

A rendering and ray tracing package on the LINKS-1 includes techniques for computing reflection, refraction, shadows, texture mapping, anti-aliasing, atmospheric haze and several lighting effects.

Technical notes:

Two 35mm films were made simultaneously of the front and side views of a real tiger walking. The data for the coordinates of his joints were obtained by digitizing pairs of scenes. A new rendering model, "bio-metaball", was developed to represent objects such as muscles. This model is controlled by the movements of the joints and has been realized by means of equi-potential surface techniques.

Summary statement:

This piece is from an experimental work and demonstrates the simulation of the muscles of a creature. The main objective is to simulate the movements of a skeletal structure. In this particular piece, a robot in the form of a tiger searches for unknown life on the surface of a planet.

Broadway Video 1984 Special Effects**Contact:**

Peter Rudoy
Broadway Video
1619 Broadway
New York, New York 10019
(212) 265-7600

Credits:

Mirage programming: Eric Hoffert, Maury Rosenfeld, Lorene Lavora

Mr. and Mrs. Magritte directed by:

Joan Logue

Produced at:

Broadway Video, New York, New York 1984

Format:

2:30; 1"; sound

Hardware:

Quantel Mirage and Paintbox, HP A700, COL-480 video switchers

Software:

The majority of the software was developed in-house, including B-Spline surface and super-quadric programs. All software is written in PASCAL.

Summary statement:

Mr. and Mrs. Magritte is a music video produced for Paul Simon. It represents the collaborative effort of Broadway Video personnel utilizing the Quantel Mirage and Paintbox, and state-of-the-art editing techniques.

Composite News, 2nd Edition**Contact:**

Nancy Burson
Face Systems Inc.
548 Broadway
New York, New York 10012
(212) 925-5359

Credits:

Nancy Burson, with Richard Carling and David Kramlich

Format:

5:20; 3/4"; sound

Hardware:

VAX 11/780, AED terminals

Software:

Black and white software by Richard Carling; color software by David Kramlich. Programmed in C.

Cranston/Csuri Productions Demo Reel**Contact:**

Charles A. Csuri
Cranston/Csuri Productions
1501 Neil Ave.
Columbus, Ohio 43201
(614) 421-2000

Credits:

Created by: Ramish Balasabramanian, John Berton, Wayne Carlson, Peter Carswell, Ronnie Cheung, Michael Coltery, Paul Conley, Scott Dyer, Jose Garabis, Julian Gomez, Shaun Ho, Marc Howard, Janice Jensen, Doug Kingsbury, Jeff Light, Thomas Longtin, Bob Marshall, Steve Martino, John Miller, Maria Palazzi, Sally Pryor, Andrew Quinn, Paul Sidlo, Mark Steeves, Don Stredney, Bob Sutterfield, Ron Tsang, Wayne Tyler, Susan Van Baerle, John Weber

Produced at:

Cranston/Csuri Productions, Columbus, Ohio 1984

Format:

5:30; 1"; sound

Hardware:

Two VAX 11/780's, two VAX 11/750's, IMI-500 display, Megatek 7200 vector device, Eikonix camera digitizing system, two custom-built frame buffers, one Sun Micro Workstation I, seven Sun Micro Workstation II's, a number of vector drawing terminals and tablets, Ampex ESS-2 electronic still store, Celco optical film recorder, 1" videotape recorder

Summary statement:

The Cranston/Csuri demo reel is comprised of recent contributions to advertising and television promotion as well as work in progress for research and development.

Sequences: ABC News, ABC Sports, CBS Sports, NBC Sports, HBO/Cinemax, Goldcrest Multimedia Television, Canadian Broadcasting Corp./Bo Gehring & Associates, Contac/Ogilvy & Mather/Lofaro & Associates, Gannet Broadcasting, Bay Cable/J. Walter Thompson, WCVB-TV Boston, Ohio Lottery, Caesar's Palace, WFLD-TV Channel 32 Chicago

The Cube's Transformation**Contact:**

Ron Resch
Computer Graphics Center
620 Commonwealth Ave.
Boston, Massachusetts 02215
(617) 353-2163

Credits:

Conceived and directed by: Ron Resch
Visual data base design: Steven Connelly, Michael Cosman, Charles Loop, Margo Taylor, Stephen Zimmerman

Produced at:

Evans & Sutherland Computer Corp., Salt Lake City, Utah 1984

Format:

5:00; 3/4"; sound

Hardware:

E&S CT5 real time image generator

Software:

E&S in-house modeling language

Technical notes:

All imagery was produced in real time

Summary statement:

The Cube's Transformation presents the hexahedron as being the octant-symmetric common denominator of other more complex polyhedra. A cubic lattice work is then used as a basis for polyhedra and sphere packing. This concept is illustrated by a flight over a topographically faithful polyhedra-packed representation of the San Gabriel mountain range. Other intriguing symmetries and relationships are depicted by kinematic polyhedra and fractal solids.

Digital Effects: Our Favorites**Contact:**

Judson Rosebush
Digital Effects, Inc.
321 West 44th St.
New York, New York 10036
(212) 581-7760

Credits:

Animation: Don Leich, D.L. Deas, Andy Kopra, Joe Pasquale
Software: C. Robert Hoffman III, Carl Frederick
Hardware: Paul Yurt
Producers/directors: Jeffrey Kleiser, Judson Rosebush, George Parker

Produced at:
Digital Effects, Inc., New York, New York 1984

Format:
5:00; 35mm; sound

Hardware:
Harris 800, Harris 500, IBM 4341, PDP 11/34, output onto 35mm film using a Dicomed film recorder at 2000 lines of resolution, motion developed and tested using an IRIS 1200, rendering preview done on Kanematsu GRAPHICA frame buffer

Software:
VISIONS is the proprietary software developed by Digital Effects

Summary statement:
These materials were produced at Digital Effects. In some instances, computer generated imagery is composited optically with live action footage. Digital Effects is the first computer animation facility located in New York.

Digital Fantasy

Contact:
Masa Inakage
Visible Language Workshop
Massachusetts Institute of Technology
275 Massachusetts Ave.
Cambridge, Massachusetts 02139

Credits:
Computer graphics developed at the Visible Language Workshop, MIT. Music by Masa Inakage.

Produced at:
Visible Language Workshop, MIT, Cambridge, Massachusetts 1984

Format:
1:20; 3/4"; sound

Hardware:
Perkin-Elmer 3220, Grinnell frame buffer, Bit Pad One tablet, Panasonic switcher for keying

Software:
Developed at Visible Language Workshop, MIT

Technical notes:
Most of the computer generated images were manipulated in 2-D, including the last sequence of planets

Summary statement:
This is an example of visual music, an integration of sound and imagery

Digital Pictures Limited 1984 SIGGRAPH Show Reel

Contact:
Chris Briscoe
Digital Pictures Limited
185 Drury Lane
London WC1A ENGLAND
(01) 831-0209

Credits:
Artist/programmers: Chris Briscoe, Paul Brown
Designer and animator: Steve Lowe
Producer: Pete Florence

Produced at:
Digital Pictures Ltd., London, England 1984

Format:
2:30; 1"; sound

Hardware:
Two Data General C330 minicomputers, output to 35mm pin-registered cine film via a modified Matrix OCR-D2000

Software:
Developed by Digital Pictures Ltd., London, England

Summary statement:
Sequences: BBC Olympics '84 designed by Liz Jones, BBC; Rai TV; Imperial Tobacco; Weekend World for London Weekend Television; Imagination title sequence designed and produced by Digital Pictures; Grampian TV title sequence designed by Tony White, SSK productions.

Dream House

Contact:
Sally Pryor
Cranston/Csuri Productions
1501 Neil Ave.
Columbus, Ohio 43201
(614) 421-2000

Credits:
Directed, scripted, animated and edited by Sally Pryor

Produced at:
Swinburne Institute of Technology, Melbourne, Australia 1984

Format:
2:30; 16mm; sound

Hardware:
FACOM

Software:
MOVIE.BYU

Summary statement:
This film shows a dream in which the dreamer imagines she can tour her own brain. Her brain is laid out like a house with each room containing different aspects of her personality and experiences.

Eidos Show Reel

Contact:
Giovanni della Rossa
Eidos
Via Fontana 16
Milan 20122 ITALY
(2) 545-8621

Credits:
Executive producer: Giovanni della Rossa
Scientific coordinator: Daniele Marini
Software specialist: Sandro Missaglia
Computer choreographer: Luca Bacci

Produced at:
Eidos, Milan, Italy 1984

Format:
3:32; 3/4"; sound

Hardware:
Computervision CV CGP 200X, CGP 4000

Software:
Computervision CADD5 4 and proprietary Eidos animation software

Technical notes:
The monitor used was a CV INSTAVIEW, 1024 x 1280. Single frames were shot on 35mm film.

Summary statement:
The Show Reel includes some of the commercial works done by Eidos between October 1983 and June 1984.

First Flight

Contact:
Thomas Bisogno
MAGI Synthavision
3 Westchester Plaza
Elmsford, New York 10523
(914) 592-4646 ext. 276

Credits:
Carl Ludwig, Ken Perlin, Joshua Pines, Eugene Troubetsky, Gene Miller

Produced at:
MAGI Synthavision, Elmsford, New York 1984

Format:
3:30; 3/4"; sound

Hardware:

Gould SEL 3287 for geometry and image calculations, Perkin-Elmer 3240, Celco CFR 4000 color recorder

Software:

MAGI Synthavision solids modeling system and Image Code for the rendering step

Summary statement:

This film demonstrates a flight through a misty paradise

Fly Lorenz**Contact:**

Hartmüt Jürgens
Fachbereich Mathematik
Universität Bremen
D-2800 Bremen 33, WEST GERMANY
(0421) 218-2926

Credits:

Created by Hartmüt Jürgens, Heinz-Otto Peitgen.
This work was supported by Stiftung Volkswagenwerk

Produced at:

Graphiklabor Dynamische Systeme, Universität Bremen, Bremen, West Germany 1984

Format:

4:00; 3/4" black and white; sound

Hardware:

E&S PS300, Norak Data, Nord 100

Software:

Special user software

Technical notes:

This film allows us to visualize the dynamics of a differential equation, the Lorenz system. A "space ship" is following the trajectories; "planets" mark singularities of the system. Several mathematical experiments have been visualized; experiment 4 is presented here.

Experiment 4 visualizes [The Hat Function](#). Mathematicians started to study the hat function and noticed that it was possible to study something simpler instead, the parabola.

Graphics at GLOBO**Contact:**

José Dias
TV GLOBO
Rua Von Martius 22
Rio de Janeiro, BRAZIL
(55-21) 259-4632

Credits:

Art direction/design: Hans Donner
Assistant design: Nilton Nunes, Ruth Reis, Ricardo Nauenberg, Alvaro Barata
Oxberry/plotter: Cesar Nunes, Roberto Shimose
Paint system: John Dunn, Paulo Roberto, Rogério Ponce, Lucia Modesto, Toni Guimarães
3-D computer animation: Pacific Data Images (Carl Rosendahl, Glenn Entis, Richard Chuang), TV GLOBO (Lucia Modesto)
Research and development: José Dias
Production: José Dias

Produced at:

Paint system and plotter graphics: TV GLOBO, Rio de Janeiro, Brazil 1984
3-D raster graphics: Pacific Data Images, Sunnyvale, California 1984

Format:

7:00; 3/4"; sound

Hardware:

VAX 750 computer, De Anza IP-8500 frame buffer, Cromemco system III computer, CAT frame buffer

Software:

Pacific Data Images' 3-D animation system, TV GLOBO paint system PINTOR

Summary statement:

TV GLOBO produces high quality graphics for its own broadcasting. For this purpose it employs several video and optical-printing techniques in addition to 2-D and 3-D computer graphics.

Growth II: Morphogenesis**Contact:**

Yoichiro Kawaguchi
Art and Science Laboratory
Nippon Electronics College
1-25-4, Hyakunin-cho
Shinjuku-ku, Tokyo 160 JAPAN
(03) 363-7761

Credits:

Created by Yoichiro Kawaguchi and the members of the Art and Science Laboratory, Nippon Electronics College, with the cooperation of Osaka University

Produced at:

Osaka University Computer Graphics Research Center and Nippon Electronics College Art and Science Laboratory 1984

Format:

6:00; 1"; sound

Hardware:

LINKS-1 parallel multi-microprocessor system

Software:

GROWTH model by Y. Kawaguchi, "Metaball" algorithm with ray tracing by Osaka University

Technical notes:

The parallel multi-microprocessor architecture of the LINKS-1 permitted highly interactive control during the image design stage, by manipulation of the screen step parameter. The generation of the final image for film recording involved a range of 5 to 20 minutes per frame.

Summary statement:

This piece represents a further investigation into the aesthetic dimensions of the growth process, begun in "Growth: Mysterious Galaxy" (presented at SIGGRAPH '83), and strives to demonstrate that true artistic creation is based upon both intuition and insight into natural, as well as scientific, principles.

I, Robot**Contact:**

Russell Dawe
Atari, Inc.
1501 McCarthy Blvd.
P.O. Box 906
Milpitas, California 95035
(408) 942-7416

Credits:

Hardware: Dave Sherman
Software: Dave Theurer
Graphics: Dave Theurer, Barry Whitebook, Dave Sherman
Video Production: Rusty Dawe, Moe Shore

Produced at:

Atari Coin Operated Games Division 1984

Format:

1:30; 1"; sound

Hardware:

6809 microprocessor, 2901 bit-slice, assisted frame buffer

Software:

Software written in 6809 assembly language, microcode

Technical notes:

Images are generated real time at 512 x 240 resolution. The system can process approximately 12,000 3-D vertices per second.

Summary statement:

The images were generated in real time for Atari's latest videogame, "I, Robot". This is a low-cost 3-D raster graphics display system.

JCGL Demo**Contact:**

Shimomura
JCGL (Japan Computer Graphics Lab, Inc.)
6-17 Nampeidai
Shibuya-ku, Tokyo 150 JAPAN
(03) 496-3220

Produced at:

JCGL, Tokyo, Japan 1984

Format:

5:00; 3/4"; sound

Hardware:

JCGL/MK System I, VAX 11/780, Dicomd D-48S

Software:

Various software is used, including some developed by JCGL

Summary statement:

This is a sample of current work produced at JCGL, a major commercial production studio in Tokyo.

Joblove/Kay SIGGRAPH '84 Sample Reel**Contact:**

Douglas Kay
Joblove/Kay, Inc.
1545 North Wilcox Ave., Suite 201
Hollywood, California 90028
(213) 461-6424

Credits:

Technical direction: George Joblove, Douglas Kay
Creative direction: Mark Peterson (for Novocom, Inc.), Jon Lee (for Richard Goldstone Productions and The Philadelphia Experiment), Harry Marks (for Marks Communications)

Produced at:

Joblove/Kay, Inc., Hollywood, California 1984

Format:

1:40; 1"; sound

Hardware:

DEC PDP 11/23 minicomputer, Adage RDS3000 frame buffer, Dunn Camera System, Mitchell 35mm camera

Software:

Proprietary 3-D computer animation software developed by Joblove/Kay

Summary statement:

This sample reel contains computer generated graphics created during the last year for television commercials, feature film inserts and industrial applications.

The Last Starfighter (preview)**Contact:**

Stephanie Mardesich
Digital Productions
3416 S. La Cienega Blvd.
Los Angeles, California 90016
(213) 938-1111

Credits:

Digital Scene SimulationSM by Digital Productions for Lorimar/Universal, Los Angeles, California

Produced at:

Digital Scene SimulationSM by Digital Productions, Los Angeles, California 1984

Format:

3:00; 35mm; sound

Hardware:

CRAY X-MP supercomputer

Software:

DP3D proprietary in-house software

Summary statement:

Digital Productions provided all the computer generated images for The Last Starfighter movie, approximately 25 minutes, 230 scenes—by far the greatest number of computer images of any kind in any motion picture. Digital Productions does it with exclusive Digital Scene SimulationSM computer generated moving imagery that simulates objects and events realistically.

The Last Supper at the Computer**Contact:**

Giovanni della Rossa
Eidos
Via Fontana 16
Milan 20122 ITALY
(2) 545-8621

Credits:

Project by: D. Marini, L. Forges Davanzati
Produced by: Computervision Srl, Milan, Italy
Operators: D. Marini, S. Attanasio, S. Missaglia
Audiovisual realization: Il Laboratorio

Format:

1:00; 3/4"; sound

Hardware:

Computervision CGP 200X

Software:

Computervision CADD5 4

Technical notes:

The tape is a reproduction of a slide visual realized by shooting an instaview low resolution 512 x 512

Summary statement:

An analysis of Leonardo's masterpiece aired to explore the space painted in the Cenacolo

Link Flight Simulation Demo**Contact:**

Eliezer Rosengaus
The Singer Company
Link Flight Simulation Division
1077 E. Arques Ave.
Sunnyvale, California 94088
(408) 720-5918

Produced at:

The Singer Company—Link Flight Simulation Division, Advanced Products Operation, Sunnyvale, California 1984

Format:

2:00; 3/4"; sound

Hardware:

Link DIG II visual system, Link MOD DIG emulation computed on a Perkin-Elmer 3252

Software:

Some scenes require no additional software; others use VPMOD4 emulators, written in FORTRAN 77

MAGI Demo Reel 1984**Contact:**

Tom Bisogno
MAGI, Synthavision Movie Group
3 Westchester Plaza
Elmsford, New York 10523
(914) 592-4646

Credits:

Phil Mittleman, Larry Elin, Chris Wedge, Tom Bisogno, Jan Carlee, Eugene Troubetskoy, Ken Perlin, Joshua Pines, Gene Miller, Christine Chang, Paul Harris

Produced at:

MAGI Synthavision, Elmsford, New York 1984

Format:

6:20; 3/4"; sound

Hardware:

Gould SEL 3287 for geometry and image calculations, Perkin-Elmer 3240, Celco CFR 4000 film recorder

Software:

MAGI Synthavision Solid Modeling System and Image Code

Summary statement:

This is a sampler of MAGI's most recent commercial projects

La Maison Vole**Contact:**

Andre Martin
INA

4 avenue de L'Europe
Bry sur Marne 94360 FRANCE
(01) 875-8724 ext. 4713

Credits:

Direction: Andre Martin, Philippe Queau
Computer direction: Claude Machoulam
Music and sound: Genevieve Martin
Technical collaboration on sound: Olivier Kouchlin (Sogitec), Jean Pierre Armand (IRCAM)

Produced at:

Sogitec, Paris, France 1983
Produced in collaboration with INA, Paris, France.

Format:

3:00; 35mm; sound

Hardware:

Digital processor 4X under license to IRCAM, Perkin-Elmer 3250

Summary statement:

This is the first French example of computer animation using solid objects for artistic purposes.

Martian Magnolia (A Day in the Life of a . . .)**Contact:**

John Mareda
Division 2644
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185
(505) 844-6672

Credit:

Produced by John Mareda

Produced at:

Sandia National Laboratories, Albuquerque, New Mexico 1984

Format:

1:50; 3/4"; sound

Hardware:

Cyber 76, CDC 170/855, VAX 11/780, Lyon Lamb VAS4 animation system, Raster Technologies Model One/25

Software:

Surrealistic scene synthesis software written by Peter Watterberg

Technical notes:

Images generated at 512 x 483 resolution and recorded directly onto videotape. The software uses a ray tracing algorithm and has texture mapping capabilities.

Summary statement:

The viewer witnesses a typical day in the life of a martian magnolia, beginning with sunrise and ending with retaliation towards a pesky flying saucer.

The Mechanical Universe**Contact:**

Don Delson
California Institute of Technology 1-70
Pasadena, California 91125
(818) 356-4215

Credits:

JPL Computer Graphics Lab

Produced at:

JPL Computer Graphics Lab, Pasadena, California 1984

Format:

7:10; 1"; sound

Hardware:

VAX 11/780

Software:

In-house animation system

Summary statement:

This tape contains animation excerpts from a telecourse on physics produced by the California Institute of Technology

Miroku**Contact:**

Toyohiko Higashi
Sedic Inc.
Wave Bldg. 5F
6-2-27 Roppongi
Minato-ku, Tokyo 106 JAPAN
(03) 423-0601

Credits:

Produced by: Toyohiko Higashi
Directed by: Masaki Fujihata
Software developed by: Masataka Ohta, Moritaka Arai, Kentsu Hanabusa

Produced at:

Sedic Inc., Tokyo, Japan 1984

Format:

1:30; 1"; sound

Hardware:

VAX 750, Adage RDS-3000, E&S PS-300, Cray 1 (Mitsubishi Research Institute, Tokyo), Bosch BCN-50 videotape recorder

Software:

Proprietary software developed by Sedic Inc.

Technical notes:

This sequence demonstrates ray tracing volume densities with refraction and reflection

Summary statement:

The concept is a letter from the future. According to Buddhist legend, Miroku will come down to this world to bring relief to all living things 5,670,000,000 years after the death of Shakamuni. In this tape, the "computer of the future" is analogous to Miroku and uses its data base and simulation powers to send a message back to the present.

MOVIE MAKER™ Demo Reel**Contact:**

Guy Nouri
Interactive Picture Systems, Inc.
270 Park Ave. South, Suite 6A
New York, New York 10010
(212) 475-7053

Credits:

Designers: Guy Nouri, Eric Podietz
Programming: Eric Podietz, Mark W. Scott, Jimmy Snyder
Animation: Bob Svihovec, Jim Ehlers
Sound: Bill Mauchly

Produced at:

Interactive Picture Systems, Inc., New York, New York 1984

Format:

1:00; 3/4"; sound

Hardware:

Atari, Apple, Commodore, IBM, Cromemco

Software:

MOVIE MAKER™ animation system, designed by Guy Nouri and Eric Podietz

Technical notes:

This tape illustrates microcomputer generated computer graphics character animation

Summary statement:

MOVIE MAKER™ is a versatile and easy-to-use computer animation system that emulates traditional cel animation techniques, allowing for the creation of painted and automatically sequenced cels. The animated sequences are recorded in real time or single frame, then fully edited and enhanced.

New York Institute of Technology Computer Graphics Lab 1984**Contact:**

Louis Schure
New York Institute of Technology/Computer Graphics Laboratory
P.O. Box 170, Wheatley Road
Old Westbury, New York 11568
(516) 686-7644

Produced at:

New York Institute of Technology,
Computer Graphics Laboratory, Old Westbury,
New York 1984

Format:

10:00; 1"; sound

Ohio State University Computer Graphics Research Group Demo Reel**Contact:**

Charles A. Csurí, Director
Ohio State University
Computer Graphics Research Group
1501 Neil Ave.
Columbus, Ohio 43201
(614) 422-3416

Credits:

Trash: Animator: John C. Donkin
Animation software: Julian E. Gomez
Texture mapping software: Paul MacDougal
Snoot & Muttly: Animation by Susan Van Baerle,
Douglas Kingsbury. Original music by
John A. Berton, Jr.
Chimera: Thuy Tran, Marsha McDevitt,
Kevin Reagh
The Skeleton Animation System: David Zeltzer
Hidden Agenda: Animation and programming:
Michael Girard, Susan Amkraut

Produced at:

Ohio State University Computer Graphics
Research Group and Department of Art Education,
Columbus, Ohio 1984

Format:

8:21; 1"; sound.

Hardware:

VAX 11/780, 640 x 484 x 32 bit frame buffer,
E&S PS-300, Megatek vector display, Ampex ESS 2,
Yamaha DX-7 digital synthesizer

Software:

"scn.assmblr" raster display software originally
designed by Frank Crow. "twixt" interactive 3-D
event driven animation system was developed by
Julian Gomez. Texture mapping display algorithm
written by Paul MacDougal. Special purpose
"path.walker", "change.shape.attach" and bubble
flight programs by Douglas Kingsbury. Skeleton
animation system by David Zeltzer.

Summary statement:

Trash is the story of a garbage can trying to get
some sleep in a large city. The soundtrack is
important for introducing elements into the story.
Mood and environment were important in making
design decisions.

Snoot & Muttly is an experimental piece that
explores 3-D computer generated character
animation. The portrayal of characters with con-
vincing personalities, attitudes and motivations
is essential to the animation.

Chimera represents research in complex character
movement within a story.

The Skeleton Animation System sequence shows
adaptive human locomotion over level and uneven
surfaces. The Skeleton Animation System makes
use of information about the scene and feedback
from the figure to control the motion of the human
skeleton as it moves.

Omnibus SIGGRAPH '84 Presentation**Contact:**

Cindy Cosenzo
Omnibus Computer Graphics Inc.
2180 Yonge St., Main floor
Toronto, Ontario M4T 2T1 CANADA
(416) 489-6020

Credits:

Omnibus Computer Graphics Inc.

Produced at:

Omnibus Computer Graphics Inc., Toronto, Ontario,
Canada 1984

Format:

2:53; 1"; sound

Summary statement:

This tape represents some of the work Omnibus
has done this past year. It utilizes the company's
unique combination of creative people and the
latest imaging system technologies. The company
has also met SIGGRAPH's "challenge" to con-
tributors and has included its dynamic animation
of the SIGGRAPH logo.

Pacific Data Images Demo '84**Contact:**

Shari Folz
Pacific Data Images
550 Weddell Dr., Suite 3
Sunnyvale, California 94089
(408) 745-6755

Credits:

Animators: Carl Rosendahl, Richard Chuang,
Glenn Entis, Don Venhaus, Thaddeus Beier,
Adam Chin

"NBC Fall Promotion", "Entertainment Tonight",
"Stars", "Australia Channel 9", and "NBC
Decision '84" produced for Marks Communications
Inc.; Creative director: Harry Marks

"Joust" produced for Doyle, Dane, Bernbach, New
York. Client: Atari Inc.; Creative directors: Drew
Takahashi, Colossal Pictures

"Olympic Opening", "Los Angeles Olympic Patch"
and "Olympic Trials Opening" produced for
ABC Sports

"Fantastico" produced for Globo Television, Brazil;
Creative director: Hans Donner

"Mets" produced for SjoCom Inc.; Client: WOR-TV;
Creative director: Karl Sjodahl;

"WNEW" produced for California Film; Creative
director: Wendy Vanguard

Produced at:

Pacific Data Images, Sunnyvale, California 1984

Format:

6:10; 3/4"; sound

Hardware:

Ridge 32 computers, Raster Technologies 24-bit
frame buffers, IMI 500

Software

In-house proprietary 3-D animation system

Summary statement:

Pacific Data Images produces high quality 3-D shaded computer animation for the broadcast market. This reel is a sampler of PDI work, and includes experimental animation as well as some of the most significant commercial projects from the past year.

Portal**Contact:**

Daniel Ackerman
2175 Mason Rd.
Hood River, Oregon 97031
(503) 386-4826

Credits:

Created by: Daniel M. Ackerman
Music: Drew Neumann, Eric Rasmussen
Voice samples of Vivian Miller
Motion control computer: Geoff Fennell

Produced at:

California Institute of the Arts, Valencia, California 1984

Format:

5:00; 16mm; sound

Software:

Specially developed by the artist

Technical notes:

Special anti-aliasing techniques were developed. Animation was achieved through cycles on an optical printer. Music was created using PCM storage from an eight channel mix of Jupiter-6 and memory Moog keyboards.

Summary statement:

If DNA is the stuff that souls are made of, then there must be a door through their structure to all eternity and an understanding of a time continuum.

Puzzle**Contact:**

Gray Lorig
Rensselaer Polytechnic Institute
Center for Interactive Computer Graphics CC121
Troy, New York 12181
(518) 266-6751

Credits:

Gray Lorig, Sharon Gruneisen, Patricia Search, Phillip Getto

Produced at:

Rensselaer Polytechnic Institute Center for Interactive Computer Graphics, Troy, New York 1984

Format:

1:05; 16mm; silent

Hardware:

IBM 4341, IBM 3081, DG MV4000, Adage RDS 3000, Raster Technologies 1/25, Dunn Instruments 621

Software:

Barr-Edwards Ray Tracer

Technical notes:

This film was produced using ray tracing. The geometry was constructed from superquadrics.

Ray Tracing: A Silent Movie & Some Slides**Contact:**

Michael Sweeney or David Forsey
Computer Graphics Laboratory
University of Waterloo
Waterloo, Ontario N2L 3G1 CANADA
(519) 884-5420

Credits:

Michael Sweeney, David Forsey

Produced at:

The University of Waterloo, Computer Graphics Laboratory, Waterloo, Ontario, Canada 1984

Format:

4:30; 3/4"; sound

Hardware:

VAX 11/780, Genisco frame buffer, Ampex frame store

Software:

Images are ray traced by software produced by Michael Sweeney. The text was prepared with a program by David Forsey. Doris Kochanek's spline interpolation was used for the 'tweening.

Technical notes:

The ray tracing program used is capable of rendering texture mapped fractals (the mountains in the animated sequence) and free-form B-spline surfaces (the two central columns of the sequence).

Summary statement:

This presents a series of stills, in the old-time tradition, explaining ray tracing, and ends with 30 seconds of animation. The animated sequence is a flight through a synthetic lake scene.

Seasons**Contact:**

Joette Spinelli
Videograf
144 West 27th St.
New York, New York 10001
(212) 242-7871

Credits

Producers: Noyes & Laybourne Enterprises, Inc.
Art director/director: Eli Noyes
Artist/ animator: Joette Spinelli
Music: Derek Huntington
Copyright ©1983 Children's Television Workshop

Produced at:

Videograf, New York, New York 1984

Format:

1:35; 1"; sound

Hardware:

Via Video System One

Software:

VAE (Via Video animation editor)

Technical notes:

Seasons: 28 scenes were produced in about 50 hours, mastered to 1", with 4 hours of A/B roll post-production.

Summary statement:

Seasons, produced for Children's Television Workshop's Sesame Street, animates nature's yearly cycle. Original concept and design were adapted for computer graphics by Videograf.

Skin Matrix S**Contact:**

Ed Emshwiller
Film/Video
California Institute of the Arts
24700 McBean Parkway
Valencia, California 91355
(805) 255-1050 ext. 2432

Credits:

Video, computer graphics and music:
Ed Emshwiller
CMX editor: Garth Spruiell

Produced at:

California Institute of the Arts,
Valencia, California 1984

Format:

7:20; 3/4"; sound

Hardware:

Bally arcade (\$50 at a discount store with 4K RAM)

Software:

BASIC.EMSHWILLER

Technical notes:

The computer provided moving keys to combine video images in various ways

Summary statement:

Energy leaves traces in many forms: organic, inorganic, electronic, visual, audible. This videotape is a tapestry of such traces, organized to express aspects of the texture of our world.

Sound into Graphics**Contact:**

Patrick E. Kane
916 W. Daniel
Champaign, Illinois 61820
(217) 352-1930

Credits:

James Bozek, Patrick E. Kane, Van Warren

Produced at:

University of Illinois - Urbana-Champaign and
University of Utah Graphics Lab 1984

Format

1:45; 16mm; sound

Hardware:

Two VAX 11/780's, VAX 11/750, PDP 11/60,
24-bit Grinnell frame buffer, Matrix camera

Software:

Special graphics tools written in C under UNIX,
IEEE signal processing software.

Summary statement:

Sound was used to generate computer graphics images. Music of interest was digitized at 40 KHz and the discrete samples converted to characteristic frequency values via DFFT for each 1/24-th of a second of "action". The DFFT values were mapped onto an 8 x 12 grid, polygons constructed, and then rendered via scan conversion.

Star Rider**Contact:**

Corya Kennedy
Computer Creations, Inc.
1657 N. Commerce Dr., Suite 1B
South Bend, Indiana 46628
(219) 233-1020

Credits:

Game design: Python Anghelo
Animation: Eric Brown
Software: Tom Klimek, Herman Towles

Produced at:

Computer Creations, South Bend, Indiana 1984

Format:

4:35; 1"; sound

Hardware:

DEC PDP 11/50, VAX 11/750, E&S Multi Picture System, Adage/Ikonas RDS-3000, Ampex HS 100/200, AVR-1, Sony BVH-2500

Software:

VideoCel animation system

Technical notes:

Original video was compressed 2:1 and later expanded by the game electronics to allow roaming through the image. A simultaneous rear view mirror is also included. Coded data recorded on the disk allows game placement of adversaries. Twenty minutes of animation was completed in six months.

Summary statement:

This tape contains excerpts from backgrounds for an arcade video game produced by Williams Electronics Inc. The player races through surrealistic worlds, competing against game generated adversaries.

Still Life (Etude-1)**Contact:**

Eihachiro Nakamae
Hiroshima University
Electric Machinery Laboratory
Higashihiroshima 724 JAPAN
(0824) 22-7111 ext. 3445

Credits:

Director: Eihachiro Nakamae
Programmers: T. Nishita, Y. Satoh, K. Tatamura
Music: T. Ohbayashi

Produced at:

Hiroshima University, Electric Machinery Laboratory,
Higashihiroshima, Japan 1984

Format:

5:05; 16mm; sound

Hardware:

TOSBAC Data System 600 computer, GRAPHICA M 508 display

Software

Programs were developed in-house, and are written in FORTRAN

Technical notes:

This film demonstrates the effects produced by a distributed light source algorithm (as compared to a point source algorithm). The still life objects are lit with point sources and linear sources; a computer room is illuminated with area sources.

The Sudanese Mobius Band**Contact:**

Daniel Asimov
Computer Science Department
University of California, Berkeley
Berkeley, California 94720
(415) 642-1024

Credits:

Created by: Dan Asimov, Doug Lerner
Music: Simon Salz
Opticals: John Blunden
Mentor: Nelson Max

Produced at:

Lawrence Livermore National Laboratory,
Livermore, California 1984

Format:

1:00; 16mm; sound

Hardware:

Cray 1, Dicomed film recorder, Oxberry optical printer

Software:

FORTRAN rendering software was designed and implemented by Dan Asimov and Doug Lerner

Technical notes:

The surface is implicitly defined by two equations,

$$w(x^2 - y^2) = 2xyz$$

$$x^2 + y^2 + z^2 + w^2 = 1$$

plus the inequality,

$$(x^2 - y^2)z > 0.$$

This is stereographically projected to 3-space (ignoring the point at infinity).

Summary statement:

The surface depicted is the most symmetrical Mobius band possible, and it lives in 4-D space. To view it, it is first projected into 3-space, where it extends infinitely far, and has a perfectly circular edge.

Tantra '84**Contact:**

Ko Nakajima
2-29-9-607 Minamiaoyama
Minato-ku, Tokyo 107 JAPAN
(03) 408-5749

Credits:

Director: Ko Nakajima
Music: Tsutomu Yamashita
with Osaka University, Faculty of Technology

Produced at:

Asahi Broadcasting Corporation, Osaka, Japan 1984

Format:

3:30; 1"; sound

Hardware:

LINKS-1

Software:

Ray tracing software, Metaball

Technical notes:

LINKS-1 data processed through ADO, DBE and Scanimate

Summary statement:

This video illustrates esoteric Buddhism. The author/artist is attempting to express the inner cosmos of human bodies.

Terms of Entrapment**Contact:**

Arthur J. Olson, Ph.D.
Molecular Biology MB3
Research Institute of Scripps Clinic
10666 N. Torrey Pines Rd.
La Jolla, California 92037
(619) 457-9702

Credits:

Written, directed and produced by Arthur J. Olson, John A. Tainer, Elizabeth D. Getzoff

Produced at:

The Research Institute of Scripps Clinic,
La Jolla, California 1984

Format:

2:00; 16mm; silent (audio cassette)

Hardware:

E&S Multi Picture System, DEC VAX 11/750

Software:

GRAMPS graphics language and interface developed by T.J. O'Donnell and A.J. Olson. GRANNY molecular modeling system by M.L. Connolly and A.J. Olson.

Technical notes:

Filmed directly off the E&S color monitor using a Mitchell 16mm animation camera. All animation was done using GRAMPS.

Summary statement:

This film details the graphics research done on the structure and function of superoxide dismutase, an enzyme superoxide that scavenges the harmful by-product of oxygen metabolism before it can do damage to the organism.

Vertigo SIGGRAPH '84 Presentation**Contact:**

Rodian Paul
Vertigo Computer Imagery Inc.
#221 - 119 West Pender St.
Vancouver, British Columbia V6B 1S5 CANADA
(604) 682-0966

Credits:

Animator: Matthew Arrott
Director R&E: Dave Gordon
Cameraman: Allen Jones
Senior animator: Rodian Paul
Soundtrack: Jean Piché

Produced at:

Vertigo Computer Imagery Inc., Vancouver,
British Columbia, Canada 1984

Format:

3:15; 1"; sound

Hardware:

VAX 11/780, Ampex VPR 80, AED 767, Digital Graphics CAT 1633 frame buffers

Software:

VQUSP quadric surface modeling and rendering package

Technical notes:

Images were created at a resolution of 640 x 485 and recorded directly to videotape.

Summary statement:

Vertigo demonstrates an alternative style in computer imagery and mixed media.

Video Wallpaper I**Contact:**

Dean Winkler
VCA Teletronics
231 East 55th St.
New York, New York 10022
(212) 355-1600

Credits:

Video by: Tom DeWitt, Bill Etra, John Sanborn, Vibeke Sorensen, Dean Winkler

Produced at:

VCA Teletronics, New York, New York 1984

Format:

3:00; 1"; sound

Hardware:

Teletronics' Edit C

Software:

Teletronics' Edit C

Technical notes:

After a basic color sequence was established, the wallpaper was built in layers. Each layer was created in real time with the participants "jamming" with various control functions. While layering, digital image processing was added to trail and blend images together.

Summary statement:

Video Wallpaper I was commissioned by Teletronics, a company that distributes video to rock and roll nightclubs. It is designed to be part of an environment, and works best when accompanied by music.

Visual Image Presentation (VIP)**Contact:**

Teresa Braeuer
Acme Graphics
7141 Envoy Court
Dallas, Texas 75247
(214) 688-0303

Format:

3:00; 1"; sound

Hardware:

PDP 11/60 CPM, Gould DeAnza IP-5532, frame buffer, Ampex ESS-2 frame store

Software:

Acme System II custom FORTRAN 4P software

Wag the Flag**Contact:**

Charles Kesler
Southern Software
2407 East Third St.
Greenville, North Carolina 27834
(919) 757-2477 / 2471

Credits:

Created by: Charles Kesler, David Balch
Music composed by: Robert Watson
Music recorded by: Richard Royall

Produced at:

East Carolina University School of Medicine,
Center for Medical Communication,
Greenville, North Carolina 1984

Format:

5:15; 3/4"; sound

Hardware:

Sandin Image Processor, Datamax UV-1,
Video Media Z600 C editor, Sony 5850 videotape
recorders, Grass Valley 1600-1L SEG

Software:

Southern Software's paint tools and interpolation
program, written in ZGRASS

Technical notes:

Video source material has been edited and color
processed through a Sandin Analog Image
Processor. Computer graphics were generated on a
Datamax UV-1 and keyed over video using
a standard TV special effects generator. Compressed
frame inserts were actually kinescopes: TV monitor
wiped into the video using a border wipe effect.

We Are Born Of Stars (preliminary scenes)**Contact:**

Koji Ichihashi
Toyo LINKS Corporation
New Shinsaka Building
8-10-22 Akasaka
Minato-ku, Tokyo 107 JAPAN
(03) 423-1681

Credits:

Graphics programmers: Hiroaki Kobayashi,
Doug Lerner, Nelson Max
Simulation programmers: Funio Hirata,
Masao Takakuwa, Doug Lerner
Systems programmers: Kenichi Kameda,
Hiroshi Ohishi, Takamitsu Okada
Technical manager: Koji Ichihashi

Produced at:

Toyo LINKS Corporation, Fujitsu Limited,
Toyko, Japan 1984

Format:

1:15; 35mm; silent

Hardware:

Fujitsu FACOM M-380, Dicomed D48S

Technical notes:

This film uses both vector and raster motion-blur
algorithms. The first scene is distorted for
Omnimax projection.

Summary statement:

The preliminary scenes included are from the film
We Are Born Of Stars, being prepared in
Omnimax red-blue stereo for the Fujitsu pavillion
at Expo '85 in Tsukuba, Japan.

Whispers in a Plane of Light**Contact:**

Jo Ann Gillerman
Viper Optics
950 61st St
Oakland, California 94608
(415) 654-2880

Credits:

Video: Jo Ann Gillerman
Sound: Jean Piché
Camera: Jim Whiteaker
Model: Gretchen Bright
Computer graphics done on an Aurora Videographics
System, TBC supplied by Borman & Associates, Inc.

Format:

9:30; 3/4"; sound

Hardware:

Sandin image processor for analog switching and
mixing, Fairlight sound synthesizer, Aurora
Videographics System for digital computer graphics

Technical notes:

This is the tape resulting from a live, collaborative
video/music performance. The Fairlight provided
several control voltages that were directly patched
to the several video input images being mixed/
keyed on the analog video processor.

Summary statement:

A live video/music collaboration, this performance
has been performed at DIGICON '83 in Vancouver,
British Columbia; CADRE '84 in Santa Clara,
California; and, in Oakland, California in 1984.
"It is an exciting, very sensual performance" . . .
Creative Computing, April 1984 issue

Wonder Works**Contact:**

Art Durinski
Omnibus Computer Graphics Inc.
c/o Information International Inc.
5933 Slauson Ave.
Culver City, California 90230
(213) 391-7192

Credits:

Creative director: Art Durinski
Animator: Harold Backman
Design/image creation: Michiko Suzuki
Produced for WQED (PBS), Pittsburgh, Pennsylvania

Produced at:

Omnibus Computer Graphics Inc.,
Los Angeles, California 1984

Format:

0:27; 35mm; sound

Hardware:

Foonly F1, III PFR programmable film recorder

Software:

TRANEW shading software, ASAS animation
software

Summary statement:

This piece is an opening title for a PBS series of
26 episodes titled Wonder Works, to begin airing
September 1984

9600 Bauds**Contact:**

Monique Nahas
24 rue Théodore Honoré
Nogent sur Marne 94130 FRANCE
(1) 875-23-47

Credits:

Hervé Huitrec, Monique Nahas, Michel Bret

Produced at:

University of Paris, Paris, France 1984

Format:

5:00; 16mm; sound

Hardware:

VAX 780, Raster Technologies (without DMA)

Software:

3-D animation done using Nahas and Huitrec's
system RODIN. Characters and pseudo 3-D done
with Bret's ANACOL software.

Summary statement:

This film demonstrates the relationship between
a head and a body. Note, there are only 8 images
per second, because it was made at "9600 baud".

Performances

Eye in the Village

Electronic music soundtrack

Contact:

Tom Seufert
Visual Music Productions
5443 Geyser Ave.
Tarzana, CA 91356
(818) 344-5692

Credits:

Composers, engineers, producers, musicians and vocalists: Chris Desmond and Tom Seufert

Recorded at:

Redwing Studios in Tarzana, CA, expressly for the SIGGRAPH '84 electronic theater 1984

Format:

1/4" 15ips half track

Hardware:

Roland MSQ-700 digital keyboard controller, Linn drum, Roland JP-6, JX3-P, Juno 106, Yamaha DX-7, Wave PP62.3, Roland guitar synthesizer GR707, MC1 24 track trident console, Roland SDE 1000 and SDE 2000 digital delays, Lexicon 200 digital reverb

Summary statement:

Eye in the Village is a computer assisted technotribal band that creates visual music and music for visuals.

Laser Fantasy

Real time laser performance

Contact:

Floyd Rollefstad
Laser Fantasy Productions Inc.
2799 152nd Ave. NE
Redmond, WA 98052
(206) 881-5356

Credits:

Floyd Rollefstad, Steve Heminover, Bob Mueller

Produced at:

SIGGRAPH '84 electronic theater

Format:

4:00; live, digital laser performance

Summary statement:

The laser system for SIGGRAPH '84 consists of two parts. The electronic imaging half consists of two independent 68000 processors (host and display) which interact with the user, manipulate and send data to the optical half. The optical half consists of a 4 watt krypton laser, color and intensity optical elements, and XY galvanometric scanning devices.

The images generated and projected by the system are in real time. They are created by scanning the laser beam rapidly enough on the screen, such that the termination of the beam on the screen, a dot of light, appears to be a line due to persistence of vision. To create the cohesive presentation at SIGGRAPH '84, each "frame" of imagery (X, Y, Z and color coordinates) was conceived, created and stored in its proper sequence in advance.

Also being demonstrated is Laser Fantasy's latest development, laser video, where the laser beam is deflected at very high speeds in either the standard (15.75 KHz raster) or the high speed vector mode. These images can be processed like standard video. Laser video has the attractive capability of projecting extremely large displays (sometimes miles across) on buildings, clouds, cliffs, mountains, etc.

Technological Feets

Real time dance performance

Contact:

Ed Tannenbaum
Raster Rsrch., Inc.
P.O. Box 92
Crockett, CA 94525
(415) 787-1567

Credits:

Dance: Marci Javril
Image processing: Ed Tannenbaum
Technical assistance: Richard Green, Jeff Schier

Produced at:

SIGGRAPH '84 electronic theater 1984

Format:

5:00; live dance performance

Hardware:

Custom designed and built frame buffers with integral high speed hardware support functions.

Software:

Custom software by Ed Tannenbaum, programmed in FORTH and assembly language.

Summary statement:

A live, interactive, computer assisted performance. A dancer performs in front of a camera to a pre-recorded sound track. Her digitized image is processed in real time and simultaneously displayed on a video projector. The image processor is played like a musical instrument.

ZGRASS imaging

Real time computer animation

Contact:

Sally Rosenthal
600 N. McClurg Court, Suite 2712A
Chicago, Illinois 60611
(312) 787-0373

Credits:

David Balch, Lisa Fremont, John Friedman, Johnie Hugh Horn, Charlie Kesler, Doris Kochanek, Paul Lempke, David Morris, Lucy Petrovic, Dana Plepys, Sally Rosenthal, Kathy Tanaka, Jane Veeder

Produced at:

SIGGRAPH '84 electronic theater 1984

Hardware:

ZGRASS UV-1 computer

Software:

ZGRASS

Summary statement:

Creative computer artists joined forces to design and implement a real time information system, to display titles, credits, and variations of the SIGGRAPH logo during the electronic theater presentations.

Preshow organ entertainment

The History of the Cinema Organ

The cinema organ has its origins in the mechanical organs acquired by the French traveling showmen of the 1890's. The first purpose-built cinema organ was designed by Robert Hope-Jones, a native of Liverpool, who joined the Wurlitzer Co. of North Tonawanda, New York, in 1910 and killed himself four years later after his employers, exasperated at the expense incurred by his constant improvements in design, locked him out of the factory on full salary.

The cinema organ was widely used in the United States from approximately 1918 until the development of motion picture soundtracks in the 1920's; it was played as accompaniment to silent movies. "Wind in the Willows," recorded in 1930 by Jack Hylton & His Orchestra and used as a theme for our evening recitals, is a good example of 1920's shmaltz.

The Minneapolis Auditorium Organ

One of the ten finest organs of its day, the Voice of Minneapolis, or Mighty Kimball, is actually an extremely complex 1928 early computer. Its mechanical switching system, used to connect its keyboards to its pipes, is emulated in modern pipe organs with microcircuits.

The Kimball boasts two consoles: concert and cinema. The former has five manuals, or keyboards; the latter has four. The concert console lets the organist play the entire organ except for a few theatrical effects; these are played with the cinema console.

The auditorium organ contains over 10,000 handmade pipes. Sizes range from 34 foot wooden pipes weighing one ton each (into which a man can crawl) to 6 inch metal pipes weighing 2 ounces each. The pipes are placed in seven huge chambers on either side of the stage. These chambers are 17 to 52 feet high, and occupy floor space equivalent to three six-room houses.

A rank is a set of pipes, and the Kimball has between 61 and 97 pipes per rank. A stop tab turns on a rank that has been voiced to a particular tone color; i.e., the ranks can be set to imitate orchestral instrument sounds, such as an English horn, saxophone, flute, violin, etc. The cinema console has a total of 250 stops, each producing a different tone color. The keyboard keys play different ranges within the tone color. Using the keys and foot pedals, an organist can actually span 9 octaves simultaneously.

This pipe organ uses traditional switching techniques to connect specific ranks with corresponding key switches. The keyboards are wired in a parallel fashion and use mechanical gang switches to perform and and or functions. A mechanical random access memory stores pre-specified stop combinations to facilitate the rapid change in tone color.

Three hundred miles of wire carry electrical information throughout the system. Each keyboard key operates a relay . . . that operates little magnets . . . that pulls a tiny armature (the size of a dime) . . . that exhausts air out of a leather pouch, which then deflates. This pouch is inside a wind chest. Inflated, it blocks an opening into the pipe; deflated, the air in the wind chest forces its way out of the hole and makes sound.

Special pipework voiced on high wind pressure is used to fill the vast interior of the auditorium with sound. Wind pressure to the pipes is provided by a 60 horsepower blower, the size of a 12 passenger van. This is one of the largest blowers ever installed for such a purpose. Wind pressure ranges from 7-1/2 inches to 30 inches. In fact, the omnipresent sound of the organ is equivalent to 25 brass bands.

Modern pipe organs use microcircuits to perform the logic functions that connect the keyboards to the pipes. Keyboard information is loaded in parallel into a shift register and then shifted out serially to logic circuits. This data, plus information from the stop switches, determine what pipes are to be enabled. The information is then sent to other shift registers where it plays the pipes.

This beautiful treasure is constructed of pine, maple, spruce, chestnut, ebony and mahogany. Additional materials include copper, brass, tin, lead, zinc, steel, iron, leather, felt, fiber, rubber, ivory and plastic. Built for \$128,591.00, it is valued at well over \$2 million today. It is only fitting that this high tech instrument, used to entertain audiences of the silent cinema, be used to herald the era of the electronic theater.

(Description of the Minneapolis Auditorium Organ provided by Mike Rider, Minneapolis organ builder, with assistance from Mark Weber, principal research scientist at Honeywell.)

Pre-show organ recitals by Garth Hudson.

SIGGRAPH '84 A/V notes

A/V is a growing obsession to members of the SIGGRAPH '84 A/V crew. We believe that 20th century aural and visual technologies are keys to information sharing → education → change → evolution into the 21st century.

SIGGRAPH is unique in its support of this notion and consequently enjoys extraordinary qualitative growth and a reputation for educational excellence. Dedicated to continuous research and experimentation with aural/visual technologies and presentation methods, SIGGRAPH has claim to the most refined displays of the sharpest, highest-possible-quality computer images anywhere.

Our A/V crew is a group of hand-picked media artists and other practicing professional perfectionists. Professionally managed by Phil Morton (owner/operator—Video Research Consultants (VRC), Chicago), the crew is deeply concerned with both environmental engineering and aural/visual integrity.

We enjoy the acronym RAVE, which codifies our goal to create and implement Refined Aural Visual Environments in which ideas can be heard and seen, and masses of people can interactively cross-communicate. Fine artists and refined engineers are crucial in order to achieve this goal; their subjective motivation is a desire for visual perfection.

Attention is given to the smallest details when Mark Fausner (engineer/operator—VRC) draws the maps and A/V diagrams for each SIGGRAPH environment. This process begins with a fact-gathering visit to each site, where its architectural layout is photographed and measured. These facts are technologized in engineering drawings, using largest possible visual displays as the prime aesthetic bias. We assume SIGGRAPH attendees want to see and hear maximum magnified detail of computer graphical materials. Seating is determined by optimal sight lines to the screens, guided by a maximum viewing angle of 30 degrees.

The maps are revised every time there is a change in any presentation, right up to the beginning of the conference. Next year one of our goals is to bring all of SIGGRAPH's engineering efforts into a CAD system.

For the first time, the SIGGRAPH evening shows incorporate live performance. The impact of this on A/V is a new orientation to staging, lighting and audio; "live" is a different A/V beast than prerecorded tape or film. Doris Kochanek (National Film Board of Canada, Montreal) is the electronic theater A/V liaison, responsible for technical communication between the electronic theater committee and SIGGRAPH A/V. In the arena, Jim Fuller (Audio Visual and Film Group, Inc., Minneapolis) is supervising lighting and audio, and Hal Wagner (I.A.T.S.E., Boston) is supervising slide and film projection.

The major pieces of equipment in the arena include:

- 1 General Electric PJ-5055 super-bright light-valve video projector
- 2 Ampex VPR-80 1-inch reel-to-reel video player/recorders
- 1 Harris 632 frame synchronizer/noise reducer with digital image positioner and compressor
- 1 Kinoton FP-20 35mm cinemascope and regular film projector
- 2 Kinoton FP-16 16mm film projectors
- 2 Bergen 35mm slide projectors (800 watt)
- 1 Rainbow laser projection system (4 watt argon krypton laser)
- 1 LGRASS laser graphics system (CPU's: Z-80, MC-68010)
- 2 ZGRASS computer animation systems

We would like to thank General Electric, Electronic Systems Products, Inc., and Singer-Telex for their generous cooperation in trading out exhibit space for highest-possible-quality A/V equipment.

Refinement through research is the SIGGRAPH lifestyle. Attendee feedback paves our future path. Your comments are welcome at either of the addresses below.

We feel fortunate to be associated with the highest quality A/Vers and the highest quality computer graphics conference in the world. Thank you Dick Mueller, Dick Weinberg, Tom DeFanti, Mark Fausner, Harland Snodgrass, Cindy Neal, Doris Kochanek.

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SIGGRAPH '84 conference co-chairs

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Control Data Corporation

Richard A. Weinberg,
Fifth Generation Graphics, Inc.

SIGGRAPH '84 electronic theater

General committee

Maxine D. Brown, Maxine Brown Associates
Doris Kochanek, National Film Board of Canada
Nelson Max, Lawrence Livermore National
Laboratory

Jury committee

Loren Carpenter, Lucasfilm Ltd.
Louise Etra, consultant/SIGGRAPH '85
art show chair
Ken Knowlton, Via Video, Inc.

with assistance from
Rachel Carpenter

Performance committee

Ed Arroyo, Second Genesis
Joan Collins, Laser Media
Art Durinski, Omnibus Computer Graphics
Ed Emshwiller, California Institute of the Arts
Denise Gallant, Synopsis Video
Ron Hays, Ron Hays Music-Image
Andy Rosen, Ruxton Ltd.
James Seligman, Videowave
Tom Seufert, Visual Music Productions
Peter Sorensen, Second Genesis
Vibeke Sorensen, Art Center College of Design

Credit

We wish to thank the following companies for
donating the use of their facilities for jury and
performance committee meetings.

General Electronics Systems, Inc.,
Berkeley, California
Lucasfilm Ltd., San Rafael, California
Redwing Studios, Tarzana, California
Superior Video Services, North Hollywood, California

Back Cover

1

Bio-Sensor
Takashi Fukumoto
Toyo LINKS Corp., Japan
Hitoshi Nishimura
Osaka University, Japan

3

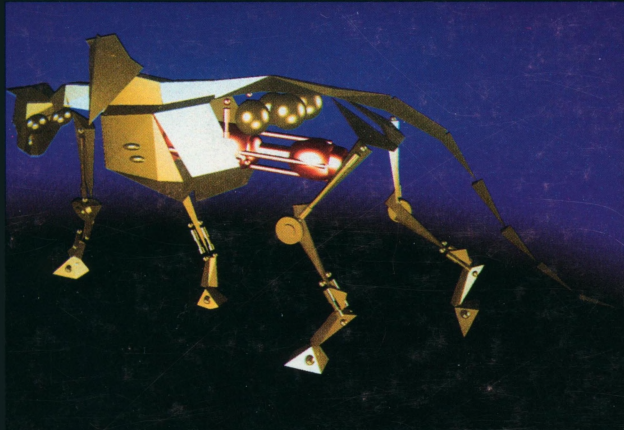
Technological Feets
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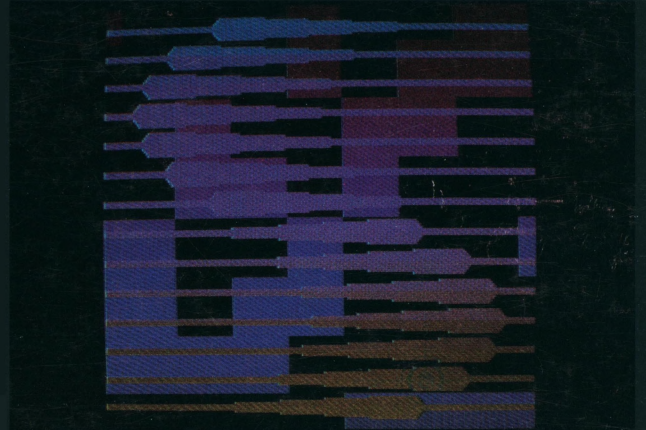
Logo Animation
Doris Kochanek
National Film Board of Canada
Montreal, Quebec, Canada

4

Refracted Pyramids
Shaun Ho/Scott Dyer/Jeff Light
Cranston/Csuri Productions
Columbus, OH



1



2



3



4

The Eleventh Annual Conference on Computer Graphics and Interactive Techniques

Sponsored by the Association for Computing Machinery's Special Interest Group on Computer Graphics in cooperation with the IEEE Technical Committee on Computer Graphics, Eurographics, the Minneapolis College of Art and Design, the University of Minnesota, the Science Museum of Minnesota and the Institute for Media Arts.

