ACM SIGGRAPH 94
21st International Conference
on Computer Graphics
and Interactive Techniques

Conference
24-29 July 1994

Exhibition
26-28 July 1994

SIGGRAPH 94
Program and Buyer's Guide

Orange County Convention Center
Orlando, Florida

Sponsored by the Association for Computing Machinery's Special Interest Group on Computer Graphics

The Association for Computing Machinery
1515 Broadway
New York, NY 10036 USA

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SIGGRAPH 94 Program and Buyer's Guide

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Welcome to the week we've been waiting for all year long: SIGGRAPH 94!

The SIGGRAPH conference has been special for me since I attended my first conference in 1981. It's our community's annual reunion, where we gather from all over the world after 12 action-packed months of thinking, investigating, producing, teaching, learning, creating, and exploring. The annual conference is the culmination of all these efforts. This is where we do what we do best:

- *Exchange ideas and experiences about new concepts and theories.*
- *Establish new benchmarks for technologies of the future.*
- *Form new alliances to take on new challenges of common interest.*
- *Argue about ideas, approaches, techniques, and results.*
- *Celebrate the finest work in all aspects of computer graphics and interactive techniques.*
- *Talk all night.*
- *Party.*

SIGGRAPH 94 is designed to help us do all that, and more. If you're a SIGGRAPH veteran, we have all the forums and events that have always been so important to your work in this fast-evolving field. If you're a SIGGRAPH newcomer, I hope you're prepared for an amazing interdisciplinary adventure in the latest computer graphics technologies.

As you might imagine, this year I have been looking forward to the annual SIGGRAPH conference more than ever before. Over the past 18 months, I have had a close-up view of SIGGRAPH 94's growth from a few preliminary, speculative ideas to a complex, massively parallel series of presentations, displays, performances, showings, and environments that, taken all together, comprise the state of the art of computer graphics and interactive techniques.

The credit for making SIGGRAPH 94 the exciting reality it has become goes to the SIGGRAPH 94 contributors and committee, who served with such great dedication, patience, imagination, intelligence, and good humor. When you see the committee members here in Orlando this week, I hope you'll join me in expressing the gratitude all of us feel for their many long hours and inspired ideas on the way to completing a job well done.

Now, after months of preparation, we're ready to experience SIGGRAPH 94. Thanks for joining us!

Dino Schweitzer
SIGGRAPH 94 Chair

The Tradition and Vision

The unique blend of inspiration and intellectual challenge, fun and fascination, excitement and exploration. The next redefinition of technologies and applications. As SIGGRAPH 94 leads the computer graphics industry toward the 21st century.

SIGGRAPH 94 focuses on the future with a special emphasis on computer graphics and interactive techniques applied to four leading-edge areas:

- **Personal technology** – HDTV; personal digital applications; the merger of computer and communications technologies.
- **Digital media** – multimedia products, technologies, and applications; advanced communications techniques.
- **Scientific computing** – scientific visualization; high-performance computing and communications.
- **Virtual reality** – experiential simulations for research and entertainment.

HIGHLIGHTS

Special Sessions

A behind-the-scenes look at special-venue theaters – the "rides" that create virtual adventures. And a review of the ideas and projects designed to deliver interactive in-home entertainment.

Technical Sketches

Surprising inspirations for the next generation of computer graphics and interactive techniques.

VROOM

Collaborative, immersive virtual worlds generated by massive scientific and engineering datasets.

Electronic Theater

The world's first stereoscopic, high-definition, audience-participation computer game.

Music Gallery

In response to an experimental call for music, SIGGRAPH 94 received submissions from composers throughout the world. Excerpts from their works are playing in the atrium area near Hall E.

Exhibition

The first sold-out exhibition floor in SIGGRAPH history.

SIGGRAPH Bowl 2

It's back!

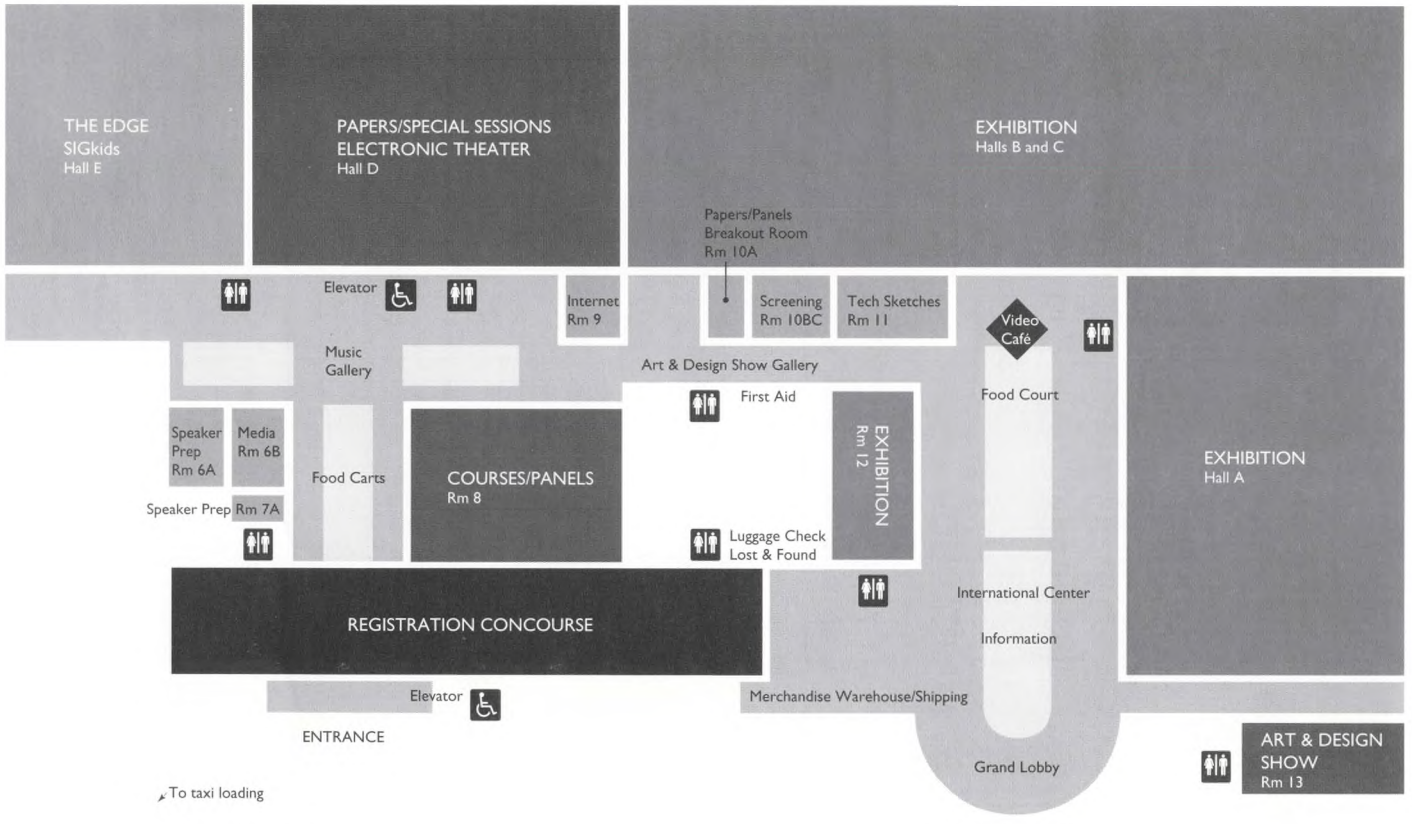
The Edge

Where imaginations descend to the ocean's depths and soar beyond the galaxy.

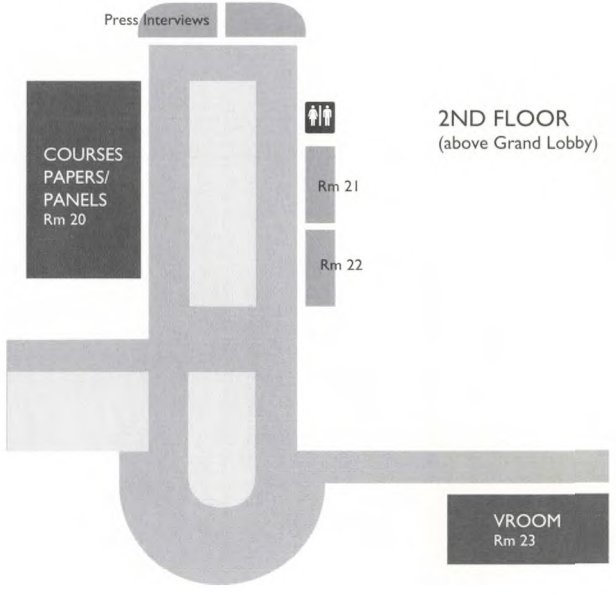
Conference at a Glance

	SUN **24** JULY	MON **25** JULY	TUE **26** JULY	WED **27** JULY	THU **28** JULY	FRI **29** JULY
REGISTRATION / MERCHANDISE Registration Concourse Orange County Convention Center	noon to 10 pm	7:30 am to 7 pm	7:30 am to 7 pm	7:30 am to 6 pm	8 am to 6 pm	9 am to 1 pm
EXHIBITION Halls A, B, C and Room 12 Orange County Convention Center			10 am to 6 pm	10 am to 6 pm	10 am to 3:30 pm	
COURSES (full- and half-day) See Conference Locator for course locations		8:30 am to noon 1:30 pm to 5 pm	8:30 am to noon 1:30 pm to 5 pm	8:30 am to noon 1:30 pm to 5 pm		
LABS (half-day) See Conference Locator for course locations		8:30 am to noon 1:30 pm to 5 pm	8:30 am to noon 1:30 pm to 5 pm	8:30 am to noon 1:30 pm to 5 pm	8:30 am to noon 1:30 pm to 5 pm	
PAPERS Hall D and Room 20 Orange County Convention Center				10:15 am to 5:15 pm	8:15 am to 5:15 pm	8:15 am to 5:15 pm
TECHNICAL SKETCHES Room 11 Orange County Convention Center				1:30 pm to 2:30 pm	10:15 am to 3 pm	10:15 am to 3:15 pm
PANELS Rooms 8 and 20 Orange County Convention Center				10:15 am to 5:15 pm	8:15 am to 5:15 pm	8:15 am to 5:15 pm
ART AND DESIGN SHOW Room 13 Orange County Convention Center	5 pm to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 1 pm
THE EDGE Hall E Orange County Convention Center	5 pm to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 1 pm
VROOM Room 23 Orange County Convention Center		9 am to 9 pm	9 am to 9 pm	9 am to 9 pm	9 am to 3:30 pm	
ELECTRONIC THEATER Hall D Orange County Convention Center			7:30 pm to 9:30 pm	7:30 pm to 9:30 pm	7:30 pm to 9:30 pm	
SCREENING ROOM Room 10BC Orange County Convention Center	5 pm to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 1 pm
SIGKIDS Hall E Orange County Convention Center Attendees' children are invited to register for SIGkids workshops, offered Tuesday through Thursday only. Workshop attendance is limited.	5 pm to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 7 pm	9 am to 1 pm
FUNDAMENTALS SEMINAR Room 8CDGH Orange County Convention Center	2 pm to 5 pm					
KEYNOTE SESSION Hall D Orange County Convention Center				8:30 am to 10 am		
SPECIAL SESSIONS Hall D Orange County Convention Center			noon to 1:30 pm		noon to 1:15 pm	noon to 1:30 pm
RECEPTIONS	Welcome 5 pm to 7 pm Hall E	Course 7 pm to midnight Disney-MGM Studios			Papers/Panels 7 pm to 10 pm Sea World	

Conference Map



MAIN FLOOR



2ND FLOOR
(above Grand Lobby)

Conference Management Office
(second floor above
Registration Concourse)

Special Conference Events

SUNDAY, 24 JULY

FUNDAMENTALS SEMINAR

Open and free of charge to all SIGGRAPH 94 badged attendees and exhibitors.

Room 8CDGH, 2 pm to 5 pm

The language spoken at SIGGRAPH can seem foreign to first-time conference attendees. This seminar takes the guesswork out of computer graphics terms by explaining the concepts behind the terminology. The fundamentals of computer graphics hardware, software, and related application areas are presented in a way that is as non-technical as possible. The speakers relate the terms to examples and presentations seen at SIGGRAPH 94.

ORGANIZER
Wayne E. Carlson
The Ohio State University

LECTURERS
Michael J. Bailey
San Diego Supercomputer Center

Judith R. Brown
University of Iowa

TUESDAY, 26 JULY

SPECIAL SESSION

Open and free of charge to all SIGGRAPH 94 badged attendees and exhibitors.

Special Venue Theaters
Hall D, noon to 1:30 pm

In this Special Session, the creative forces behind the most innovative ride-films and attractions present their visions, ideas, and key considerations involved in developing a major attraction. The speakers and their organizations are leading the phenomenal worldwide growth in this new form of entertainment. Speakers include:

Douglas Trumbull, Vice Chairman of Imax Corporation, a visionary filmmaker, entrepreneur, and creator of adventure rides such as "Back to the Future – The Ride" and "Secrets of Luxor Temple."

Bran Ferren, Senior Vice President, Creative Technology for Disney Imagineering, is an award-winning designer, filmmaker, and technologist. He develops and applies new technology for Disney Theme Parks and other Disney venues.

Bob Ward, Senior Vice President, Design and Planning for MCA Recreation Services Group, is a key member of the creative team that conceptualized and designed Universal Studios Florida.

ORGANIZERS
Clark Dodsworth
Osage Associates

Randy Nickel
Technology Marketing Consulting
SIGGRAPH 94 Marketing Chair

WEDNESDAY, 27 JULY

KEYNOTE SESSION

Open and free of charge to all SIGGRAPH 94 badged attendees and exhibitors.

Hall D, 8:30 am to 10 am

Welcome
SIGGRAPH 94 Chair Dino Schweitzer welcomes all attendees.

State of SIGGRAPH
Remarks by ACM SIGGRAPH Chair Mary Whitton.

The 1994 Computer Graphics Achievement Award
Presented by Bertram Herzog, SIGGRAPH Awards Chair.

The 1994 Computer Graphics Achievement Award for significant recent contributions in computer graphics is presented to:

Ken Torrance
Cornell University

PREVIOUS RECIPIENTS:

1993, Pat Hanrahan
1992, Henry Fuchs
1991, James T. Kajiya
1990, Richard Shoup and Alvy Ray Smith
1989, John E. Warnock
1988, Alan H. Barr
1987, Robert L. Cook
1986, Turner Whitted
1985, Loren Carpenter
1984, James H. Clark
1983, James F. Blinn

Keynote Address

Frederick Phillips Brooks, Jr.
University of North Carolina, Chapel Hill

Frederick Brooks studied physics at Duke University and received his PhD in computer science from Harvard University, where he was a thesis student of Howard Aiken, inventor of the early Harvard computers.

From 1956 to 1965, Brooks was at IBM in Poughkeepsie and Yorktown, New York. He was an architect of the Stretch and Harvest computers, project manager in charge of hardware development for the IBM System/360 family of computers and then of the OS/360 software. In 1985, he and two colleagues received the National Medal of Technology for their work at IBM.

In 1964, he moved to Chapel Hill to establish the Department of Computer Science at the University of North Carolina, which he chaired for 20 years. He is currently Kenan Professor of Computer Science. His principal research is in real-time, 3D computer graphics – "virtual reality."

He is a winner of the John von Neumann Medal of the Institute of Electrical and Electronics Engineers and many other high honors in computer science and engineering, including the ACM Distinguished Service Award. He has served on the National Science Board and the Defense Science Board. He is a member of the National Academy of Engineering, a foreign member of the Royal Netherlands Academy of Arts and Sciences, and a Fellow of the American Academy of Arts and Sciences.

Award
The Allen Newell Award of the Association for Computing Machinery is presented to Frederick Phillips Brooks, Jr. for career contributions of outstanding breadth and interdisciplinary significance. The award, named in honor of one of the great computer graphics pioneers and a co-founder of the fields of artificial intelligence and cognitive science, confers a $10,000 prize.

THURSDAY, 28 JULY

SPECIAL SESSION

Open and free of charge to all SIGGRAPH 94 badged attendees and exhibitors.

In-Home Interactive Technologies

Hall D, noon to 1:15 pm

In this session, speakers discuss the technologies and projects that will deliver new interactive services for in-home education and entertainment. Speakers review developments and projects currently underway, discuss what we've learned so far, and present their views of how these new technologies may impact all of us in the future.

T-SHIRT CONTEST

The winners of the annual SIGGRAPH t-shirt contest are announced at the Papers/Panels reception on Thursday. Prizes will be awarded. For information, contact:

Jock Mackinlay
Xerox PARC
+1.415.812.4777 fax
Mackinlay.parc@Xerox.com

Entry information is available in the Conference Management Office on the second floor of the Orange County Convention Center, above Registration.

FRIDAY, 29 JULY

SPECIAL SESSION

Open and free of charge to all SIGGRAPH 94 badged attendees and exhibitors.

SIGGRAPH Bowl 2

Hall D, noon to 1:30 pm

SIGGRAPH Bowl 2 builds on the tradition established by SIGGRAPH Bowl I at SIGGRAPH 90 to spotlight the most enthusiastic, dedicated, and determined of the SIGGRAPH graphics gurus.

In a format loosely based on College Bowl, invited teams representing leading universities, companies, and research centers test their knowledge of SIGGRAPH, computer graphics, and interactive techniques. Participants are challenged to identify quotes from important SIGGRAPH papers of the past and recognize images and animations from earlier years. Some questions will probe more trivial topics related to SIGGRAPH events, trends, personalities, and matters of historical interest within the SIGGRAPH organization and the computer graphics community.

Don't miss this entertaining and fascinating challenge. Whether you are a veteran who has been attending SIGGRAPH or reading the *Conference Proceedings* for many years, or a newcomer who wants to hear about the "good old days," this is the event for you. It's your opportunity to root for your favorite team and expand your knowledge of SIGGRAPH trivia.

SIGGRAPH Bowl 2
Organizing Committee
James F. Blinn
California Institute of Technology

Brian Blau
Autodesk, Inc.

Kellogg S. Booth
University of British Columbia

Nick England
University of North Carolina at Chapel Hill

Pat Hanrahan
Princeton University

Paul Heckbert
Carnegie Mellon University

Rob Pike
AT&T Bell Laboratories

Thomas Porter
Pixar

SOCIAL FUNCTIONS

Mingle, network, and introduce yourself to the diverse SIGGRAPH crowd: industrial leaders, software pioneers, hardware visionaries, academic theorists, and inspirational artists.

Welcome Reception

Hall E
Sunday, 24 July
5 pm to 7 pm

Course Reception

Disney-MGM Studios
Monday, 25 July
7 pm to midnight

Tickets are required for the Course Reception. Course attendees receive a voucher with their registration materials, which does not allow entry to Disney-MGM Studios for the reception. The voucher must be exchanged for an official Disney ticket at the Ticket Exchange Booth in the Orange County Convention Center before 7 pm on Monday.

Course Reception tickets provide early entry to Disney-MGM Studios from 6 pm and are good through midnight Monday, 25 July 1994. At 10 pm, a park announcement will ask other visitors to leave. Course Reception attendees should feel free to remain as special guests of Disney-MGM.

Official SIGGRAPH 94 transportation from the Orange County Convention Center to Disney-MGM Studios begins at 7 pm. Buses start running from the SIGGRAPH 94 hotels at 7:30 pm. Return transportation to conference hotels is available until 12:30 am.

Papers/Panels Reception

Sea World
Thursday, 28 July
7 pm to 10 pm
Includes a private Shamu "Night Magic" show for Papers/Panels Reception attendees only.

Tickets are required for the Papers/Panels Reception. Papers/Panels attendees receive a voucher with their registration materials, which does not allow entry to Sea World for the reception. The voucher must be exchanged for an official Sea World ticket at the Ticket Exchange Booth in the Orange County Convention Center before 6 pm on Thursday.

Papers/Panels Reception tickets provide early entry to Sea World at 5 pm and are good through 10 pm Thursday, 28 July 1994. Official SIGGRAPH 94 transportation from the Orange County Convention Center to Sea World begins at 6:30 pm. Return transportation to conference hotels is available until 10:30 pm.

Art and Design Show

Room 13
Sunday, 5 pm to 7 pm
Monday-Thursday, 9 am to 7 pm
Friday, 9 am to 1 pm

The world's leading exhibit of creativity inspired by the interaction of technology and esthetic expression extends the boundaries of imagination in a broad range of formats: animation, interactive media, 2D and 3D display, design, and alternative media. The Art and Design Show is documented in the SIGGRAPH 94 *Visual Proceedings*, the Multimedia CD-ROM, and the Art and Design Show Slide Set.

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Jane Flint DeKoven
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Tomorrowland: Anamorphic Landscape Studies (Text cut-up)

Tomorrowland: Anamorphic Landscape Studies (Moonscapes)

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Postquake LA: Still Life #1

Postquake LA: Still Life #2

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Blue Madonna

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Special thanks to the following companies and organizations who donated services and equipment to the Art and Design Show:

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Rochester Institute of Technology

Silicon Graphics, Inc.

Electronic Theater

Hall D
Tuesday-Thursday
7:30 pm to 9:30 pm

The Electronic Theater presents the most exciting and innovative computer animations created during the previous year. This international collection spans the broadest possible spectrum, from art to science, and education to entertainment.

For SIGGRAPH 94, audience participation returns with the latest generation of Loren Carpenter's CINEMATRIX Interactive Entertainment System. The Electronic Theater audience plays the world's first stereoscopic high-definition computer game.

Electronic Theater tickets are included with Conference, Courses, and Papers/Panels Passports. Badged attendees can purchase up to four Electronic Theater tickets (subject to availability) at SIGGRAPH 94 on-site registration, beginning at noon Sunday, 24 July.

Additional computer animations are shown Sunday through Friday in the Screening Room:

Room 10BC

Sunday	5pm to 7 pm
Monday-Thursday	9 am to 7 pm
Friday	9 am to 1 pm

The Electronic Theater and Screening Room are documented in the SIGGRAPH 94 *Visual Proceedings* and the SIGGRAPH Video Review.

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Real-Time Volume Rendering of Downbursts

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Virtual Reality in Computational Neuroscience

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Visualization of Stratospheric Ozone and Atmospheric Dynamics

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ELECTRONIC THEATER ACKNOWLEDGEMENTS

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RFX, Inc.

Industrial Light & Magic

Crawford Post

DESIGN efx

Walt Disney Company/Feature Animation

SIGGRAPH Video Review

Electronic Visualization Laboratory, University of Illinois at Chicago

Savannah College of Art and Design

Prix Ars Electronica

big Research

VROOM

Room 23
Monday-Wednesday 9 am to 9 pm
Thursday 9 am to 3:30 pm

VROOM, the Virtual Reality Room, demonstrates the current use and future direction of scientific visualization. Become smaller than an atom or larger than the universe. Stand in the middle of a thunderstorm or travel through the human body. In VROOM's collaborative virtual worlds, SIGGRAPH 94 attendees experience full 3D immersion in massive scientific and engineering datasets and see how they can be used interactively for practical problem solving.

VROOM consists of three CAVEs, a BOOM ROOM, a LEARN MORE area that contains workstations running NCSA/Mosaic-based documentation of VROOM's virtual reality applications, and a MACHINE FARM that contains the computer hardware that drives the CAVEs.

Each CAVE runs a specific application at a specific day and time. BOOM ROOM applications run continuously. Consult the SIGGRAPH 94 Conference Locator for the VROOM schedule of events. VROOM is documented in the SIGGRAPH 94 *Visual Proceedings* and on the Internet using NCSA/Mosaic.

CAVE Access

SIGGRAPH 94 attendees who purchase a Conference, Courses, or Papers/Panels Passport receive a VROOM voucher in their registration packet. This voucher must be exchanged for a CAVE ticket for a specific application on a specific day at a specific time. The VROOM Ticket Exchange Booth, located on the second floor to the left of the escalator, distributes tickets for the following day, so attendees who exchange vouchers on Sunday receive Monday tickets, and so on.

The VROOM Ticket Exchange Booth is open during registration hours. Please visit it early in the day and have several alternate choices of applications you want to see in case your first choice is sold out.

Each application runs for two hours. Your VROOM ticket indicates a specific time within those two hours when you are expected to appear at VROOM's CAVE passenger area. For example, if an application is demonstrated from 9 to 11 am, your ticket may say 10:15 am. Each CAVE experience lasts 15 minutes: 10 minutes of preparation time and five minutes inside the actual CAVE.

- **Tickets are available on a first-come, first-served basis. We cannot guarantee that you will get a ticket, or that your ticket will be for the application of your choice.**
- **Tickets will not be exchanged.**
- **Tickets are marked for a specific time and day; if you fail to appear at the CAVE passenger area during your designated time slot, your CAVE time will not be rescheduled.**

Exhibits Plus attendees who wish to experience a CAVE application but do not have VROOM tickets may wait in one of two lines outside the VROOM entrance.

- **The CAVE Standby line allows access to a CAVE when a ticketed attendee fails to appear for an allotted time.**
- **The CAVE Peanut Gallery line allows access to a restricted area in the back of one of the CAVE rooms, so observers can get a general understanding of the environment and observe attendees having a virtual experience inside the CAVE. This line is recommended for those who have limited free time; we assume it will move faster than the standby line.**

Additional information about the CAVEs:

- **Attendees should have their hands free while in the CAVE so they can easily exchange 3D glasses and move around for tracking purposes. We have a table in the back of each CAVE room where packages can be placed, but we are not responsible for any lost or stolen articles. Please check valuables at the SIGGRAPH 94 Luggage Check/Check Room in the Grand Lobby near Room 12D before your scheduled CAVE time.**
- **Because the CAVE is a research and development project, equipment failures may occur. The result is usually a minor, slightly inconvenient delay. In the unlikely event that there are major technical problems, we will try to honor all CAVE tickets and reschedule attendees. However, we reserve the right to cancel tickets for specific time slots.**

BOOM ROOM Access

The BOOM ROOM is open to all attendees and does not require a VROOM voucher or ticket. Look for the BOOM ROOM line outside the VROOM entrance.

LEARN MORE Area

The LEARN MORE area is open to all attendees. It contains workstations running multimedia documentation of all VROOM applications. Some workstations run CAVEviewer, a workstation-based CAVE simulator, so attendees can experience some of the CAVE applications — real-time, interactive, 3D animation with audio — on the desktop.

MACHINE FARM Area

The MACHINE FARM is located on the first floor directly beneath the VROOM area, across the hall from Room 13. The three Silicon Graphic Onyx workstations located there produce the visualizations for the CAVEs. Each Onyx is connected to a backend computer, two Silicon Graphics Challenge computers are connected to two of the Onyxes, and an IBM SP-2 is connected to the third Onyx.

Applications can run in one or two modes: locally on the Onyx/CAVE and/or distributed between the backend computer and the Onyx/CAVE. In local mode, CAVE participants explore precomputed datasets. In distributed computing mode, CAVE participants may "interactively steer" the simulation codes running on either the IBM SP-2 or on the Challenge multi-processor computers. The two Challenges are also connected to each other, creating a Challenge array that is used by some of the applications to achieve greater processing power.

The SIGGRAPH 94 Conference Locator indicates which applications take advantage of the interactive steering capabilities afforded by these backend machines. Attendees who want more information about VROOM are also welcome to talk with the system engineers maintaining the MACHINE FARM equipment.

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DETOUR: Brain Deconstruction Ahead

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This autobiographical account by artist Rita Addison describes perceptual changes she experienced subsequent to her head injury in a car accident. DETOUR uses computer brain models and medical imaging to demonstrate anatomical trauma. In the final section, Addison's pre-accident photographic art is reconfigured to simulate the perceptual damage she sustained.

Interactive Molecular Modeling Using Real-Time Molecular Dynamics Simulations and Virtual Reality Computer Graphics

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Using real-time interactive molecular modeling and molecular dynamics simulations, this project demonstrates the docking of a drug molecule to its molecular receptor. A molecular modeler guides a drug molecule into the active site of a protein, receiving real-time feedback from a molecular dynamics simulation running on an IBM SP parallel computer. The molecular system is displayed and manipulated in the CAVE virtual-reality environment.

Simulation of a Grinding Process in Virtual Reality

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Simulation of a grinding process in the CAVE enables users to better understand and model a commonly used manufacturing process. Real-time interaction between an operator and a "virtual" machine provides new insight into how to interact with the real machine.

Interactive Adaptive Mesh Refinement

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Adaptive mesh refinement/derefinement techniques have been shown to be very successful in reducing the computational and storage requirements for solving many partial differential equations. This project focuses on the Rivara bisection technique, which is suitable for use on unstructured triangular meshes such as those used in finite-element calculations.

Visualization of Casting Process in Foundries

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This application models the pouring of a fluidity spiral used to measure the distance metal can flow in a channel before being stopped by solidification. The gray iron at 1395 degrees C is poured into the mold for two seconds and flows down the spiral arm turning to mush at 1215 degrees C and solidifying at 1150 degrees C. The casting then continues to lose heat to the mold until solidification is complete.

RealEyes: A System for Visualizing Very Large Physical Structures

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Boeing demonstrates some very large, complex CAD models of a Boeing 747 interior and Space Station Freedom. Virtual reality allows engineers to discover and analyze problems using larger CAD models than ever before. The navigation interface is easily learned by novices, and it is much more powerful in the hands of expert users than any screen-based interface known to the Boeing engineers who designed it.

Phase and Amplitude Maps of the Electric Organ Discharge of the Weakly Electric Fish, Apteronotus Leptorhynchus (Brown Ghost)

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The purpose of this fish simulation is to establish an understanding of how emissions are generated by the real fish. Since humans do not have an electric sense, it is difficult to comprehend how fish electric fields "feel." Alternative techniques, such as virtual reality, must be used to acquire some of that sensation. The results will help us understand how this fish uses phase and amplitude information from the electric organ discharge for electrolocation and communication.

Using Virtual Reality for Machine Design

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Caterpillar, Inc. uses virtual reality as a tool for interactively evaluating new machine designs. Using virtual reality, the operator of a virtual machine can test alternative machine designs while driving through a virtual proving ground, or can perform a loading cycle to fill a truck with soil.

Acetylcholinesterase: Nature's Vacuum Cleaner

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This research focuses on the electrostatic forces generated by Acetylcholinesterase, an enzyme that plays a key role in the human nervous system. Neurotransmitter molecules (acetylcholine) are drawn down a long tunnel and into a "reactive-site" cavern deep within the enzyme where they are cleaved into component parts for reuse. By literally voyaging into the enzyme along a route similar to that taken by neurotransmitter molecules, researchers gain a unique vantage point from which to examine the electrostatic field and other computed probes of enzyme activity.

VROOM

Visualization of Climate Data Over the Western United States

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Many climatologists are interested in understanding energy transport in the atmosphere due to wind and precipitation. A thesis currently being investigated is that immersion in a virtual world that models the one in which we live may enable scientists to better understand Earth's dynamic climatic processes. This demonstration represents output from a regional climate model for the western United States. Data from the model are compared with actual measurements to help gauge the validity of the model.

Simulation of Light and Sound Distribution in an Environment

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One application of virtual reality is imitation of the real world. Using virtual reality, the optic and acoustic behaviors of an environment can be experienced directly, and modifications can be evaluated immediately. In this demonstration, light and sound distributions in different room types are simulated. Simulation parameters and room properties can be modified interactively, and the resulting optic and acoustic energy distributions can be visualized.

Virtual Environments for Automotive Design

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Evaluation of early automotive design concepts is usually done by building full-size physical mock-ups, which require time and expense. The virtual mock-up has the potential to replace many early physical prototypes and provide flexibility in altering and viewing the concept, which is not possible with a physical part. This demonstration enables viewers to walk around and sit inside a car made only of light. The viewer is able to change color schemes and move illumination sources around by hand.

Knotted Spheres in the Fourth Dimension

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This project exhibits real-time interaction with knotted spheres (knotted two-manifolds embedded in 4D space). A typical approach to visualizing such a surface is to project it into 3D and view it with 3D lighting, but this omits nearly all of the interesting 4D information about the structure. Instead, this system uses a fast approximation to volume-rendering volume images of projected 4D objects with true 4D lighting and occlusion.

The Onset of Turbulence in a Shear Flow Over a Flat Plate

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Smooth, laminar flow over a flat plate eventually becomes turbulent. The transition to turbulence generally occurs on a scale that is too small and too fast for an observer to appreciate in an empirical experiment. This application lets the user track the development of a turbulent spot (from a numerical simulation) at a size and speed that are comprehensible.

CitySpace

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CitySpace is an educational networking project that invites students to build a virtual city model made up of 3D objects and images from sites around the world. The project is intended for integration into project-based curricula and is designed for self-managing groups of students, mentors, teachers, and resource administrators.

The Virtual Windtunnel

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The Virtual Windtunnel is an application of virtual reality to the visualization of pre-computed simulations of air flow around aircraft. Through a natural 3D display and control interface, the Virtual Windtunnel provides a platform for intuitive and rapid investigation of complex airflows.

Three-Dimensional Terminal Viewer (3DTV)

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3DTV was developed to study the value of real-time 3D visualization of derived weather hazards, such as microbursts, wind gust fronts, and heavy precipitation regions, to the aviation community. It provides a virtual environment that allows users to have a more intuitive understanding of the aviation weather hazard situation within the terminal area, and to promote effective communication between users through a shared and heightened situational awareness.

Scientific Visualization of Gyrofluid Tokamak Turbulence Simulation

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High-performance algorithms for simulating and visualizing 3D plasma turbulence in magnetic fusion experiments have been developed as an aid in the development of more accurate predictive models of plasma transport and the design of future experiments. Virtual reality represents a "next step" in the development of a visualization system already in use by collaborators in the Numerical Tokamak Project.

Sounds from Chaos in Chua's Circuit

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Chua's circuit produces many types of signals, from sine-like periodic patterns to unpredictable noise-like patterns. The unique aspect of the display of this study in virtual space is the simultaneous presentation of control space (manifold) and output phase space of the circuit. As users navigate the manifold surface, they receive immediate feedback by observing the phase display of the signal as well as changing acoustic responses.

The Fluid Universe: Rayleigh-Taylor Instability in Fluid Flow

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This interactive simulation of Rayleigh-Taylor instability shows what happens when a heavier fluid lies on top of a lighter fluid. The gravitational force causes the heavier liquid to form "fluid fingers" that flow down into the lighter liquid, causing mixing and turbulence. There are many astrophysical objects that show this kind of behavior, such as the remnants of giant explosions called supernova and the atmospheres of some stars.

Post-Euclidean Walkabout

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This real-time interactive CAVE application takes you on a visit to the post-Euclidean geometry of Gauss, Riemann, Klein, Poincare, and Thurston. The CAVE becomes a spaceship you can navigate with the wand, as it glides through the phantasmic shapes that populate the 3-sphere.

Stepping Into Alpha Shapes

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Alpha-shape software applied to a finite set of points in 3D space constructs a geometric object with detailed and possibly quite complicated features on the outside and inside. Several graphical interaction techniques, as well as the use of sound synthesis, enable users to explore the elements of the alpha shape with meaningful visual and auditory cues. Alpha shapes have application in geometric modeling, grid generation, protein structure analysis, and medical image analysis.

Virtual Breadcrumbs: A Tracking Tool for Biological Imaging

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Virtual Breadcrumbs is an immersive virtual environment tool for tracking complex biological structures in a volumetric dataset. For example, it tracks chromatin fibers through the nucleus, cytoskeleton fibers through the cytoplasm, and neurons within brain slices from microscopic datasets.

Spacetime Splashes: Catching the Wave of Einstein's Equations

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Einstein's theory of gravity, known as general relativity, is a complex set of nonlinear partial differential equations. In this project, full 3D codes have been developed to solve these equations for the gravitational field. The demonstration shows gravitational waves propagating through spacetime according to Einstein's equations for the gravitational field.

Molecular Recognition in Protein-Protein Association

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The phenomenon of macromolecular recognition is of immense interest in medicine and biotechnology. In this demonstration, the steered encounter of an antibody is simulated using Brownian dynamics, and the trajectories are visualized in a virtual-reality environment to provide an intimate picture of interactions between the antibody and the protein.

The Development of Tornadoes with Storms and Along Gust Fronts

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This demonstration is derived from current investigations of the processes involved in tornado genesis along thunderstorm outflow boundaries. The massively parallel CM-5 and CM-2 supercomputers were used to numerically simulate the local environments that support these tornadoes.

A Walk Through Chesapeake Bay

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This study combines bottom bathymetry, river discharge, hydrographic (temperature and salinity) datasets, and tidal datasets for the Chesapeake Bay, as well as circulation distributions from a numerical circulation model constructed for the Bay. This demonstration enables viewers to "see" and experience the interaction of complex oceanic systems such as circulation and ecosystem dynamics.

3D Hydrodynamic Model of the Heart

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This computational model of the heart treats the heart wall as a set of fibers immersed in fluid and responding to both fluid forces and tension forces. The fluid, in turn, experiences a force field in the neighborhood of the fibers that prevents flow through the gaps in the fiber network, allowing the heart to pump the fluid.

MUSE: Multi-Dimensional, User-Oriented, Synthetic Environment

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MUSE is an open-software environment that provides a new approach to the human-computer interface. Using functional models of human interaction and physical device classes, it permits real-time mapping of user control onto application/system functions (input), and mapping of computer information onto different types of output devices. For VROOM, MUSE is demonstrated in a number of scientific and engineering applications.

Real-Time Graphics Techniques Using IRIS Performer

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These virtual environments demonstrate various techniques in real-time computer graphics using IRIS Performer, a performance-oriented, multiprocessing 3D graphics toolkit. The scenarios include a drive through a town, a walk through a radiosity-solved architectural model, and a demonstration of real-time shadow generation using projected texturing.

Virtual Exploration of a Florida Thunderstorm Using the SciAn Visualization Package

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Raw and analyzed data from a variety of sources, as well as simulation, are used to explore a storm system in central Florida. The purpose of this research is to better understand the relationships among the co-evolving wind, water, and electric fields, with the goal of improving numeric models of storm systems and improving forecasts of precipitation, lightning, tornadoes, and downbursts.

Stepping Into Reality

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This team's current work is focused on embedding real (stair stepper) and computer-generated forces (mechanized and infantry) into a distributed interactive simulation. A virtual environment version of this work produced through stealth imaging is portrayed using the CAVE environment. An individual on the stair stepper can view the virtual environment, move around in it, and interact with other simulation entities by firing a weapon.

Parallel Real-Time Radiosity

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This application demonstrates how parallel architectures are being used to render scenes in real time or close-to-real-time using physically based lighting models (in particular, radiosity). For VROOM, the application visualizes Argonne West's Breeder Reactor model database and other interior room scenes.

VROOM

The Virtual Eye

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This project demonstrates the design of an anatomically realistic computer model of a human eye in a virtual environment. Users are able to explore and interact with the eye's components to discover their characteristics.

JASON Interactive Mapper

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The JASON is an underwater remotely operated vehicle operated by the Woods Hole Oceanographic Institute. This virtual-reality demonstration re-enacts the exploration of hydrothermal vents in the Guaymas Basin near Baja California. CAVE participants watch the JASON as it collects bathymetry data, temperature data, and high-resolution still images, and transmits a "live feed" from its video cameras (pre-recorded, in this case, for presentation purposes).

Evolution of Behavior in a Simulated Environment

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This application enables CAVE users to view and interact with the behavior of various animats, virtual animals that exhibit behaviors similar to those of natural animals, such as predators, scavengers, or gatherers. The user interacts with the animats by giving distinct behaviors rewards or penalties that affect the life of the animat and its future generations.

Getting Physical in Four Dimensions

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The goal of this application is to provide a more intuitive understanding of hyperspace. It enables users to physically interact with objects in four dimensions.

Virtual Director

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Virtual Director provides a user-friendly, virtual-reality method to control camera motion for instant playback or animation recording. The Virtual Director shown in VROOM is a camera motion-control application using the CAVE to control and play back users' input in real time.

Topological Surface Deformation

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This program uses free-form deformations to study the topology of mathematical surfaces. Several deformations are demonstrated, including the claim of topologists that a donut (torus) and a coffee cup are topologically equivalent. Virtual reality encourages users to see shapes from a new perspective – from the inside, looking out – and to explore and manipulate complex surfaces in order to better understand them.

Virtual Reality for Parallel Computer System Performance Analysis

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Because massively parallel systems contain hundreds or thousands of processors, each potentially with 5-10 dynamic performance metrics drawn from multiple system levels, the performance data occupy a very sparsely populated, high-dimensional space. Not only does virtual reality allow one to quickly grasp the relationships among large numbers of performance metrics, but by enabling a participant to interact with a performance data source in the system or application code, it also allows one to intuitively understand system or application performance.

Computational Modeling for Crash-Worthiness of Electric Vehicles Using Nonlinear Finite Element Methods

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This project uses transient nonlinear finite element analysis to model the crash-worthiness of a vehicle modified from gasoline to electric power.

The SIGGRAPH 94 Daily Weather Forecast

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This project demonstrates the current two-day forecast of Florida weather, made with the UW-NMS modeling system and visualized using the VIS-5D software. Virtual reality is used to present the high spatial and temporal resolution of numerical weather forecasts.

The SANDBOX: Scientists Accessing Necessary Data Based On eXperimentation

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This prototype of the SANDBOX allows an investigator to access parts of NASA's FIFE scientific database, which contains data from ground experiments, airborne instruments, and satellite photographs for developing ways to measure surface climatology from satellite information. Using the SANDBOX, an investigator places virtual instruments into a virtual re-enactment of the original experiment and collects data from the scientific database in much the same way that the original data were collected.

VROOM ACKNOWLEDGEMENTS

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StereoGraphics Corporation
Video Authoring Systems Group, Inc.
Xyplex, Inc.

SIGkids

Hall E
Sunday, 5 pm to 7 pm
Monday-Thursday, 9 am to 7 pm
Friday, 9 am to 1 pm

A magical place where kids can experience the latest interactive technologies; video and animation production; computer graphics tools for art, design, and music production; mathematics; and science.

SIGkids offers innovative workshops Tuesday through Thursday, 9 am to noon and 1 pm to 4 pm. Registration for SIGkids workshops is limited, but children can register on a first-come, first-served basis at the SIGkids registration area outside Hall E. SIGkids is documented in the SIGGRAPH 94 *Visual Proceedings*.

CHAIR
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Evans High School
CyberCreations, Inc.

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Construction of reality as a route to higher abstraction. SIGkids build future cities on Sim City 2000; animations on Macromedia Director, MacroModel, Swivel 3D, and Man Pro; and construct working models with Lego Dacta Control Lab.

Autodesk

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Autodesk software is really all about designing – about the imagination, skills, and technology it takes to turn your ideas into reality. When kids join the Autodesk/SIGkids "PROJECT 94" team, they explore where they can go with drawing, modeling, animation, and visualization. They use the same computer graphics software that Autodesk supplies to architects, engineers, and other design professionals around the world.

Technology & Communication: A Time-Travel Experiment

Christopher Haupt
Steven Jacobs
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With Kid's Studio, SIGkids use illustration, writing, sound recording, and existing images (both stock and photo CD) to convey their ideas about a time-travel experiment. The pages can be printed or viewed as slide shows or QuickTime movies with an assortment of transitions and effects.

The Assembly Room

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David Levinson
Dan O'Leary
Swami
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Participants actually build a computer from circuit board up and understand what each part does. The satisfaction is in the final test, when students learn if it all works as planned.

Nick Days

Vicki Bowlin
Craig Hibbard
Wayne Spoor
Joe Mandia
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SIGkids learn how "Nick Days" are created. With the help of Nickelodeon animators, they also learn to scan existing artwork, work from a storyboard, and create a 14-second animation with audio in Macromedia Director on a Macintosh Quadra.

TeleCommunity Project

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The TeleCommunity Project fosters creative relationships, dialogue, and collaboration among young people around the world through a virtual studio experience. SIGkids in Jerusalem, several cities in the U.S. and abroad, and Orlando share art, ideas, and impressions through telecommunications and collaborative network art processes.

SIGkids

GeoMedia 2

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Carmelo F. Ferrigno
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U.S. Geological Survey

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After experiencing GeoMedia 2, SIGkids work with artists and designers to explore ways to portray natural hazards such as volcanoes, earthquakes, and floods. Together, they create scripts, images, animations, and sounds, and incorporate them in a multimedia system.

Zimgraphics Teaches Children Multimedia

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Kids use the computer to record their voices, create animations, paint pictures, and create their own personalized storybooks, which they take with them to show friends and family what they did at SIGGRAPH 94.

The Circus Project

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In this on-going project, French SIGkids have begun a storyboard, script, and animation on a circus theme. At SIGGRAPH 94, new SIGkids add fresh ideas, animations, and music to create a worldwide circus masterpiece.

Modeling Natural Shapes with Fractal Geometry

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SIGkids learn how fractal and finite automatic methods can be used to model natural shapes. They write graphics programs on PCs and use existing software on high-speed workstations to create 3D plant and flower models. Participants should have advanced programming experience.

3D Rotoscope: Interactive Live Action 3D Animation

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Larry Mitchell
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SIGkids discover how high school students working with a multimedia professional have created 3D animations using Light Wave on the Video Toaster. Then they use the same technologies to create their own 3D animations.

Designing Downtown Dataville

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SIGkids use hypermedia software to design the main street of an imaginary interactive town called Dataville and bring it to life with computer drawings, digitized speech and sound, and written words to create one continuous electronic street for wandering and exploring.

Visual Programming with MIDI

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SIGkids experience music, sound, and visual programming with MIDI synthesizers and other MIDI control devices that may extend the definition of multimedia beyond the computer screen.

Fractal Design Dabbler

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Fractal Design, always on the cutting edge, has top-secret plans for SIGkids. Don't miss this, if you want to paint, draw, or manipulate images with Fractal Design Dabbler. Caution: this is probably too cool for adults.

CALIGARI true Space

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SIGkids can design and build virtual environments with true Space. One idea is to build the world as they would like it to be 100 years from now. They will be able to create the world, draw, paint, and animate in 3D wireframe or render a 3D world scene.

CYBER PARK

Interactive Language Training

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SIGkids field test a new interactive computer-assisted language training software package called "Padro and Friends" ("Padro y sus amigos"). It was developed to assist second-language learning at the elementary level. The courseware consists of "talking" cartoon characters, who take students through various comic-book-style adventures.

Hypertouch

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SIGkids experience a highly interactive game involving touch, sound, and images. Connecting the slight flow of current in human bodies creates images and sounds. The system functions as long as the current flows, no matter how many people are using it. It enables users to dance in unison as they produce music.

Virtual Worlds

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Marj Bisiar
Becky Underwood
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SIGkids join young virtual-world creators and their instructors, enter and alter their virtual worlds, and learn to create an original world. Older students (14-18) manipulate objects in an x-y-z world using glasses, gloves, and joysticks. Younger SIGkids enjoy the ease of designing and walking through virtual worlds on the Macintosh.

Train to Travel

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Train to Travel combines multimedia and virtual environment technologies in a simulated travel experience. At landmarks along the path, visual and auditory cues prompt the traveler to make appropriate decisions about how to reach the trip's destination. This system was originally developed as a safe way to teach persons with disabilities how to use public transit.

Technology Training for the Future

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Paula Nowell
Andrew Brown
and Students
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SIGkids explore the Internet, animation, interactive multimedia, designing environments, student-created games, and much more in this showcase of work from three programs at Edgewater High School, Orlando: multimedia productions, CD-ROM production, and emerging computer technologies.

3D Modeling

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SIGkids sculpt in clay, then digitize their 3D model data into a computer at one of several modeling stations. The models are printed, displayed, and made available for import into other systems that are assembling computer animations.

The Music Machine

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Jim Myrick
Lisda Van Cleef
Big Top Productions
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Big Top Productions invites SIGkids to join their fun-loving troupe in a dynamic, interactive music experience. Operating on a network of multiple computers, participants use mice to simultaneously create and revise rhythms, melodies, and lyrics and sync them with an array of scintillating visual effects. After a brief explanation, SIGkids are given uninhibited freedom to write their own original music. No prior musical education is required.

English Discoveries

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English Discoveries is multimedia magic. Participants discover a new language as they travel around the world speaking, listening, reading, and writing English. They can choose what to learn and how to learn it, watch animations, or video clips, and even record and listen to their own voices.

Cyberlab 7

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Claudia Lamero
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Cyberlab 7 demystifies a key problem for today's young people: how to create an exciting career in computer media. Through teleconferencing, SIGkids converse with leading-edge graphic artists, game creators, and VR designers in San Francisco and create a unique video database of new media careers. This work-in-progress will be expanded after SIGGRAPH 94 and shared with other young people to help them discover paths to creative new media work in the global village.

Labyrinth: Library of Congress Visualization Project

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Labyrinth is a revolutionary networking technology that enables Internet users to visualize its huge collections of data as three-dimensional spaces. This demonstration invites SIGkids to explore the network using these specially developed, and soon to be commercially available, tools.

SIGkids Art Show

Rie Takaba
Michael Vlasek
Malissa Booczko
Julie Brocco
Chris Flynn
Joshua Jones
Stephen Loray Diamond
Jeremy Bell
Michelle Gochenour
Julie Bergstron
Teacher: Lorelei Jones
Homewood-Flossmoor High School

Satoshi Ide
Takashi Okamoto
Megumi Kusaka
Sachiko Nakaguchi
Nami Katakura
Michiko Haruta
Teacher: Ayumi Miyai
Computer Graphics Arts Society

Carolyn Stana
Lauren Stana
Parent: Jim Stana
Conway Middle School
Deerwood Elementary School

Sandra Rios
Alexsandra Yatsushkevech
Johanna Jimenez
John Rivera
Jonathan Vega
Mariel Jimenez
Julianna Rolon
Luis Orta
Vincent Phouangphanh
Nelson Rivera
Teacher: Stephen Jacobs
Rochester Elementary School
Henry W. Longfellow School

Matthew Raymond
Klindt Whaley
Nathan Willis
Damen Richards
Teacher: Susan Preston
Mainland High School

Oliver Zeller
Marc Munday
Wandjina Glasheen-Brown
Shaka Brookes
Phaedra Delamarter
Teacher: Scott Lang
United Nations International School

Erick Foster
Todd Steinemann
David Griggs
Jason Klein
Mat Gonzales
Ian Hodges
Jennifer Revis
Elijah Shipley
Glenn Cerulli
Damon Burch
Andy Baker
Jennifer Henson
Carl Bazelais
Colene Korthals
Jean Louis Nguyen
Marta Rivera
Teachers: Marsha Vandivort, Chris Carey
Edgewater High School

Alycia Jay Shedd
Culdesac Elementary School

Daniel Halsey
Amanda Davis
Nathan Walker
Rob Knight
Teacher: Debi Barrett-Hayes
Florida State University School

David Bench
Matthew Malloy
Michael Steinert
Bao Le Nguyen
Christie Reque
Teachers: Nancy Ingle, Sherry Peters
Evans High School

Elizabeth Ramirez
Allen Goris
Edward Gonzalez
Alexandro Cortez
Jennifer Sandrez
Teacher: Dina Schlesinger
Nathan Straus Public School 140

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Eric White, Binary Arts
Vicki Bowlin, Nickelodeon Studios Florida
Ruth Scovill
Scott Davis
Scott Webb
Joel Krasnove
Laurie Wahrenberger
Cindy Peecher
Craig Hibbard
Karen Giannone
Chris Drake and many more Nick artists
Panasonic
Larry Finch, Canon U.S.A., Inc.
Keri Collett, Hewlett-Packard Company
Darrell Wise, Fractal Design
Rick Denny, CALIGARI true Space
Laura London, Autodesk, Inc.
Orange County Public Schools
Edward Walsh, American Art Clay Co.
Percy Maynard, ARTsystems of Florida
Florida Art Education Association
Judy Sachter, IBM Corporation
Robert Smith, Jr., Cartoonist
Derrick Worbertson, Video Bits
Larry Mitchell, Metrolight Studios, Orlando
David Cox, Apple Computer, Inc.
Dick Mueller and Mark Feryereisen, Wayzata Lions Club
Intelligent Machines Computer Center Inc.

The Bridge

Hall E
Sunday, 5 pm to 7 pm
Monday-Thursday, 9 am to 7 pm
Friday, 9 am to 1 pm

The Bridge is a unique section shared by SIGkids and The Edge at SIGGRAPH 94. It comprises two types of exhibits: those designed for kids and those designed by kids.

Cybersurf – VR Game Creation

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Cybersurf is a virtual reality interactive game developed by high school students working with undergraduate student mentors (Toy Scouts) from the University of Central Florida's Institute for Simulation and Training. After sharing the Cybersurf experience, mentors will work with students to create and produce VR game ideas.

Triangle Tiling

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Triangle Tiling is a collaboration between the University of Minnesota Geometry Center and the Science Museum of Minnesota. Through interactive graphics, it allows visitors to explore the connections between symmetry groups, tiling, the Platonic and Archimedean solids, and non-Euclidean geometry.

The "Toy Scout" Arcade

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A series of interactive games, developed by the "Toy Scouts," explores the use of full-body motion in virtual environments instead of more passive 2D game interfaces.

The Personal Communicator

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Funded by the U. S. Department of Education, the Personal Communicator is designed to expand the opportunities for deaf children to become active participants in classroom discussions and casual conversation.

Virtual Cell Biology

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This experimental virtual world for teaching cell biology at The Computer Museum in Boston is part of a project to test whether immersion in a virtual world makes a measurable difference in how well people learn scientific information. The user brings a child to life by building a neuron, a muscle cell, and an intestinal cell.

The Edge

Hall E
Sunday, 5 pm to 7 pm
Monday-Thursday, 9 am to 7 pm
Friday, 9 am to 1 pm

Explore The Edge, SIGGRAPH 94's virtual playground, where technology meets the human spirit. On The Edge, minds soar, visions are created, new interactions emerge, and collaborations are born. The Edge challenges established modes of thinking, applies significant new tools to a wide range of activities and disciplines, and inspires the next generation of ideas. Through hands-on exhibits, full-body immersive experiences, multi-sensory simulations, and interactive journeys. The Edge dares you to think without limits. The Edge is documented in the SIGGRAPH 94 *Visual Proceedings*.

CO-CHAIRS
Jacquelyn Ford Morie
University of Central Florida

Christopher Stapleton
Jack Rouse Associates

ADMINISTRATIVE ASSISTANT
Anne Richardson

COMMITTEE
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Warren Robinett
Virtual Reality Games, Inc.

Chitra Shriram
XAOS, Inc.

Susan Stearman
Independent Consultant

Dale Tesmond
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Eric White
Binary Arts

A-Volve
A real-time interactive environment

Christa Sommerer & Laurent Mignonneau
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Beckman Institute, Drawer 25
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A-Volve is an interactive environment where visitors interact with virtual organisms in the real space of a water-filled glass pool. Using a sensor pencil, they draw the profile and shape of any possible form onto a monitor screen and create three-dimensional organisms. The organisms are simultaneously transferred and displayed as three-dimensional creatures in the water of the pool, where they are immediately "alive." They move and swim, and they can be modified in real time.

ARCHiTEXTURE by SUPREME PARTiCLES 1994

Michael Saup
SUPREME PARTiCLES
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ARCHiTEXTURE is an interactive image/sound/room installation using real-time image and sound processing. Through the architectural and technological setup, the viewer is confronted with a computer-generated "plasmatic being." Both visual and acoustic perception are stimulated.

SMDK: Simulation-Space Mosaic of Mobile Data Sounds

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Knowbotic Research
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This interactive environment consists of a database containing sounds from all over the world. Based on their characteristics and simple artificial-life rules, the sounds become mobile elements (agents) and form a self-organizing system comparable to a simple cultural community.

CyberFin

David Cole
AquaThought Foundation
22321 Susana Avenue
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+1.310.533.0274
+1.310.533.1727 fax
70515.1161@compuserve.com

CyberFin transports the user's point of perception into an underwater location populated with friendly and inquisitive dolphins. State-of-the-art virtual reality and neurotechnology are employed to create an engaging location-based-entertainment attraction.

MindSet: Neurological Man/Machine Interfacing, An Emergent Technology From Human-Dolphin Interaction Research

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MindSet is a low-cost neuro-mapping electroencephalograph that makes advanced EEG research accessible. Designed for research and clinical use, it incorporates the latest EEG signal analysis processes and a complete suite of standard neurological protocols. It accommodates the novice user as well, with an easy-to-use interface and a hyperlinked neurological anatomy database.

Human/Dolphin Virtual Reality World Concept

Paras Kaul
Human Performance Institute
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This project is a vision of a world where humans can experience a visual and auditory perceptive space with a dolphin. An extension of this research is the design of environmental systems that support experiential interaction with information systems to monitor and promote good health.

The Edge

Waxweb

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Waxweb, based on David Blair's electronic feature "Wax or the discovery of television among the bees" (85:00, 1991), is a large constructive hypertext that has been converted to MOO-space (Object-Oriented MUDs): a suitable environment for full, simple hypertext reading and writing plus the ability to view and add stills, audio, and video by a connection to NCSA/Mosaic.

Turbulence: An Interactive Installation Exploring Artificial Life

Jon McCormack
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+61.3.481.7691 phone/fax
jonmc@bruce.cs.monash.edu.au

Turbulence is a menagerie of computer-synthesised forms based on the new science and philosophies of artificial life. The work looks at poetic relationships between logic and purpose, and their relation to fundamental arguments about vitalism, destiny, and human consciousness.

RENGA (Linked Images)

Toshihiro Anzai
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+81.3.3986.7821
+81.3.3559.4914 fax

Machiko Kusahara
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kusahara@t_kougei.ac.jp

Cyberspace is often mentioned in terms of the gradual loss of our senses of time and distance. It may cause a loss of identity, but it could also serve as an opportunity to encounter our more natural and familiar self-image. RENGA (Linked Images), is an experiment in the acceleration of these possibilities within digital technology.

IDEA-ON>!: Database of Experience

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+61.3.696.4626 fax
troy@empire.com.au

Idea-ON>! is an electronic database of ideas and experiences, each one contained in a "place" in one of four "new realities," which the user discovers through exploration. Many visual languages are combined, as the database borrows aspects of video games, landscape painting, interactive multimedia, and motion pictures to form a "new language."

Voice Dancers

Myron Krueger
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The premise of this exhibit is that wireless operation and freedom of movement are more than technical issues. They will change the character and quality of possible interactions in virtual worlds.

She Loves It, She Loves It Not: Women and Technology

Christine Tamblyn
San Francisco State University
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This interactive CD-ROM contains text, sound, movie clips, and images about women's use of technology in the past, present, and future. Both the form and the content of the work attempt to demonstrate how women might use and have used technology differently and how technology might adapt to female learning proclivities and female culture.

Softworld 2.1: The Imperial Message

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Softworlds
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Softworld 2.1 is an "anti-war game" inspired by the Kafka parable, "An Imperial Message," which deals with the vast distance between the Emperor and the Individual. The program attempts to extend this sense of scale to present inherent conflicts between the individual and the state and between the unspoken, secret "Law" and its corrupted representation.

Proyecto Xochicalco: A Networked Virtual Environments System Featuring an Ancient Aztec/Mayan Ball Game Played on the Replicated Virtual Site of Xochicalco, Mexico

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spatial@world.std.com

Proyecto Xochicalco enables multiple, simultaneous, networked users to inhabit the accurately reconstructed environment of Xochicalco, the Aztec/Mayan archeological site, play an ancient Aztec/Mayan ball game, and interact with a human guide in the virtual environment.

uniVRsum VRASP: The Virtual Reality Alliance of Students and Professionals

William E. Burton
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bburton@realtech.com

This project is a prototype buffer application program interface that provides smooth transitions between worlds created with different virtual reality toolkits. By resolving such obstacles as communications protocols, VRASP hopes to facilitate human interaction in VR and encourage world builders to allocate more resources and energy to improved design and content.

A Virtual Shopping Mall: Coming soon to the crossroads of the Infobahn

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Shopping is a provocative vehicle. It allows exploration of how middle-class shoppers might interact with virtual reality technology from an architect's viewpoint. The combination of an important cultural pastime with advanced technology reveals how the technology might change our ideas of shopping and spatial perception.

NorthWater World

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ERG Engineering, Inc.
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NorthWater World is a visual and aural triptych of interactive experience, of worlds within worlds, and life within lives. The user's sight, sound, movement, and environment are changed to that of a different being. The intended result is an understanding of the other being that cannot be gained from an outsider's viewpoint.

ROVER - Remote audiO/Video Explorer Robot

D.J. Merrill
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Institute for Simulation and Training
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deej@vsl.ist.ucf.edu
newfield@vsl.ist.ucf.edu

ROVER is mobile video conferencing using a radio-controlled robot in the guise of a well-known piece of hardware. Full video and audio duplexing allow a live conversation to take place between people located at the base site and at the robotic unit.

The Responsive Workbench: A Virtual Working Environment for Architects, Designers, Physicians, and Scientists

Bernd Froehlich
German National Research Center for Computer Science
Department of Scientific Visualization
Schloss Birlinghoven
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bernd@viswiz.gmd.de

The future computer system should use and adapt to the rich human living and working environments. It should be designed to work as a part of a responsive environment. The Responsive Workbench has been designed by an interdisciplinary group as an alternative model to the multimedia and virtual reality systems of the past decade.

PolyShop

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PolyShop combines cutting-edge VR technology with the inspiration of the human spirit and provides a responsive and highly intuitive virtual creation space. Several different demos are shown, including a virtual jigsaw puzzle and the 3D modeling environment, where users are able to create their own worlds.

A Virtual World for an Autonomous Underwater Vehicle

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+1.408.656.2595 fax
brutzman@nps.navy.mil

A networked robot and virtual world makes robotics research and collaboration accessible worldwide. This project presents the frontier of 3D real-time graphics for underwater robotics, ocean exploration, sonar visualization, and worldwide scientific collaboration.

The Edge Observatory: An Airborne Telepresence System

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andrewt@cs.tufts.edu

The Edge Observatory Telepresence System offers its operators the unique ability to visually "teleport" themselves to a remote location in the airspace above The Edge. Suspended by a helium balloon, a small motion-controlled video camera acts as the eye of the operator below, matching angular orientation with the user's head position and feeding the video signal from above back to the operator's head-mounted display.

The Personal Flogistabarium release 1.0 Name of Experience: Waving

Brian V. Park
Flogiston Corporation
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71324.3663@compuserve.com

The purpose of this project is to introduce the concepts of threespace, the integration of cyberspace with realspace and mindspace. This shift from a bipolar reality to a tripolar reality is a significant development in the evolution of man.

Inside/Out Figurative Sculpture

Dan Collins
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iddlc@asuacad

These "digital sculptures" draw upon recent advances in 3D laser digitizing and rapid prototyping technology. They utilize the unique space of the computer to pre-visualize problems of viewer position, time, and three-dimensional montage.

Virtual Photography/ PHSColograms

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(Art)^n Laboratory
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PHSColograms are full-color, 3D hard copy images created directly from digital 3D imagery. They can be created using nearly any software capable of creating 3D images, such as Alias, Wavefront, or AVS, or from digitized real-world photography.

Guerrilla Gallery

Pat Johnson
401 69th Street
Miami Beach, FL 33141
USA
+1.305.237.1761

Guerrilla Gallery is a working atelier that provides a rich interactive experience for works-on-paper artists and the entire SIGGRAPH community. The gallery features a fully equipped imaging studio, in which artists can produce digital prints from their own files.

Desktop Force Display

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In this display, users can feel the rigidity or weight of virtual objects with a compact force-feedback device for desktop use. A six-degree-of-freedom manipulator employs a parallel mechanism to apply reaction forces to the fingers of the operator. The manipulator's handle is supported by three sets of pantographs. With this compact hardware, the operator can feel the physical characteristics of three types of virtual objects: hard surface, elastic surface, and flow.

THE EDGE ACKNOWLEDGEMENTS

Jack Rouse Associates
Nickelodeon Studios Florida
JVC/Hughes
M-Plus Designs, Mark Schoel
Entertainment Technology, Bill Lorenz
Kubota Graphics Corporation
Silicon Graphics, Inc.
Apple Computer, Inc.
Sony Corporation of America
StereoGraphics Corporation
Ascension Technology Corporation
Polhemus Incorporated
Fake Space Labs
N-Vision
Vicki Bowlin
Tim Brock
Nancy Coatta
Terri O. Ducay
Dale Newfield
Karen Tichy
Rob Smith
Diane Stapleton

Special Interest Groups

Special Interest Groups are organized around particular products, topics, or problems. They are excellent forums for SIGGRAPH 94 attendees who share common interests and concerns to get to know each other and exchange ideas.

Special Interest Group meetings are open to all attendees. They are usually informal. At some, general subjects are discussed; others convene around topics related to specific product vendors.

Birds of a Feather meets are called during the conference. They can be scheduled at any time, to discuss any subject. To organize your own impromptu meeting, simply use the sign-up board in the Registration Concourse, where late additions and revisions to the Special Interest Groups and Birds of a Feather schedules are posted.

Birds of a Feather meeting rooms: Conway and Bayhill Suite IV, Peabody Orlando.

These Special Interest Groups have been scheduled for SIGGRAPH 94:

SATURDAY, 23 JULY

SIGGRAPH Professional Chapters (formerly Local Groups) Annual Meeting
4:30 pm to 6:30 pm
Salon 11, Clarion Plaza Hotel
Edward Council
+1.508.872.5522

SUNDAY, 24 JULY

IEEE Computer Graphics and Applications (CG&A) Editorial Board
8 am to 5 pm
Windermere, Peabody Orlando
Mary Johnson
+1.518.276.6754

Wave 94 – Wavefront Users Group
9 am to midnight
See Conference Locator for location
Rhonda Sanders Olson
+1.602.263.3939

SIGGRAPH 94 Late Night Party
9 pm to 4 am
Salon 3, Clarion Plaza Hotel

MONDAY, 25 JULY

Friends of Mi Kyung Kim
9 am to 7 pm
Bayhill Suites IV, Peabody Orlando
Juey Chong Ong
+1.212.222.5236

FLAME/FLINT User Group Meeting
10 am to 5 pm
Yellowtail, Stouffer Orlando Resort
Elizabeth Jones
+1.514.272.0525

Fractal Design – Digital Art Gallery
10 am to 6 pm
Salon 11/12, Clarion Plaza Hotel
Daryl Wise
+1.408.688.5300

VActor (Virtual Actor)
1 pm to 2:30 pm
Fairview, Peabody Orlando
Alan Scrivener
+1.310.602.2860

Massively Parallel Rendering SIG
5:15 pm to 6:30 pm
Salons 13/14, Clarion Plaza Hotel
Patricia Crossno
+1.505.845.7506

Organizing Small Conferences and Workshops
5:30 pm to 6:30 pm
Salons 3/4, Clarion Plaza Hotel
Nick England
+1.919.962.1747

SIGGRAPH 94 Late Night Party
9 pm to 4 am
Salon 3, Clarion Plaza Hotel

TUESDAY, 26 JULY

Friends of Mi Kyung Kim
9 am to 7 pm
Bayhill Suites IV, Peabody Orlando
Juey Chong Ong
+1.212.222.5236

Fractal Design – Digital Art Gallery
10 am to 6 pm
Salon 11/12, Clarion Plaza Hotel
Daryl Wise
+1.408.688.5300

Temporary Art Zone
noon to 1 pm
Salon 13, Clarion Plaza Hotel
Beverly Reiser
+1.510.482.2483

How to Become a SIGGRAPH Volunteer
3 pm to 5 pm
Salon 5, Clarion Plaza Hotel
Mary Whitton
+1.919.460.8351

User Group Meeting – HOOPS
5 pm to 7 pm
Yellowtail, Stouffer Orlando Resort
Philip Gilbert
+1.415.491.8718

Digital Library SIG
5 pm to 7 pm
Salon 3, Clarion Plaza Hotel
Dave Nadeau
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SIGGRAPH 94 Late Night Party
9 pm to 4 am
Salon 3, Clarion Plaza Hotel

WEDNESDAY, 27 JULY

Friends of Mi Kyung Kim
9 am to 7 pm
Bayhill Suites IV, Peabody Orlando
Juey Chong Ong
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VESA Advanced Graphics Interface SIG
9 am to noon
Salon 9, Clarion Plaza Hotel
James Carrington
+1.415.491.2124

Fractal Design – Digital Art Gallery
10 am to 6 pm
Salon 11/12, Clarion Plaza Hotel
Daryl Wise
+1.408.688.5300

Molecular Graphics
1 pm to 2:30 pm
Salon 4, Clarion Plaza Hotel
Michael Pique
+79.554.9775

OpenGL
3:15 pm to 4:30 pm
Salon 13, Clarion Plaza Hotel
Mason Woo
+1.415.390.4205

3D Art Forum International & 3D Artist Magazine
3:30 pm to 7:30 pm
Salon 3/4, Clarion Plaza Hotel
Victor Osaka

ACM SIGGRAPH Online/Network Resource
5 pm to 7 pm
Yellowtail, Stouffer Orlando Resort
Bonnie Mitchell
+1.315.443.1267

Structure of SIGGRAPH Task Force
5:30 pm to 6:30 pm
Windermere, Peabody Orlando
Mary Whitton
+1.919.460.8351

University of North Carolina-Chapel Hill Graphics Reunion
5:30 pm to 7:30 pm
Baltic A/B, Sheraton World Resort
Sherry Palmer
+1.919.962.1740

Silicon Graphics, Inc. International Reception
6 pm to 8 pm
Coconut Room, Peabody Orlando
Deanna Doyon
+1.415.390.1805

Pioneers Reception
6 pm to 9 pm
Salon 13/14, Clarion Plaza Hotel
Sherry Keowen
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SIG WWW (World Wide Web)
7:30 pm to 9:30 pm
Cypress, Peabody Orlando
Yechezkal-Shimon Gutfreund
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SIGGRAPH 94 Late Night Party
9 pm to 4 am
Salon 3, Clarion Plaza Hotel

THURSDAY, 28 JULY

Fractal Design – Digital Art Gallery
10 am to 6 pm
Salon 11/12, Clarion Plaza Hotel
Daryl Wise
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Premo-Presentation Environment for Multimedia Objects
10:15 am to 11:30 am
Cypress, Peabody Orlando
Richard Puk
+1.619.753.9027

Heightfield/Terrain Rendering
10:15 am to noon
Salon 9, Clarion Plaza Hotel
Matt Pharr
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Education Committee Meeting
10:30 am to 11:30 am
Bayhill Suites III-IV,
Peabody Orlando
Scott Owen
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Arts Curriculum Meeting
11:30 am to 12:30 pm
Bayhill Suites III - IV, Peabody Orlando
Barbara Mones-Hattal
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Computer Science Curriculum Meeting
11:30 am to 12:30 pm
Windermere, Peabody Orlando
Cary Laxer
+1.812.877.8429

K-12 Curriculum
11:30 am to 12:30 pm
Sweetwater, Peabody Orlando
Judy Sachter
+1.512.838.3035

SIGGRAPH T-Shirt Contest
noon to 1 pm
Room 11C, OCCC
Jock Mackinley
+1.415.812.4335

VRASP
12:45 pm to 2 pm
Fairview, Peabody Orlando
Karin August
+1.908.463.8787

Genesis' Image Resizing Technology
1 pm to 2 pm
Salon 16, Clarion Plaza Hotel
Robert Hunter
+1.905.470.2742

Explorer User's Group
2 pm to 4 pm
Salon 5, Clarion Plaza Hotel
Carol Curry
+1.415.960.1980

Ray Tracing Roundtable
5:15 pm to 6:45 pm
Salon 14, Clarion Plaza Hotel
Eric Haines
+1.607.257.1381

SIGGRAPH 94 Late Night Party
9 pm to 4 am
Salon 3, Clarion Plaza Hotel

FRIDAY, 29 JULY

AIAA Interactive Computer Graphics T.C.
2 pm to 5 pm
Windermere, Peabody Orlando
David Edwards
+1.203.727.7518

Technical Program at a Glance

SUNDAY, 24 JULY

12 noon | 2 | 5 | 7 | 10 pm

REGISTRATION/MERCHANDISE
noon to 10 pm
Registration Concourse

FUNDAMENTALS SEMINAR
2 pm to 5 pm
Room 8CDGH

ART AND DESIGN SHOW
5 pm to 7 pm
Room 13

THE EDGE
5 pm to 7 pm
Hall E

SCREENING ROOM
5 pm to 7 pm
Room 10BC

SIGKIDS
5 pm to 7 pm
Hall E

WELCOME RECEPTION
5 pm to 7 pm
Hall E

MONDAY, 25 JULY

7:30 am | 8:30 | 9 | 12 | 1:30 | 5 | 7 | 9 | midnight

REGISTRATION/MERCHANDISE
7:30 am to 7 pm
Registration Concourse

COURSES – FULL DAY
8:30 am to 5 pm
5 How to Produce Your Own CD-ROM
8 Procedural Modeling, Texturing, and Rendering Techniques
10 Introduction to Volume Visualization – Imaging Multi-Dimensional Scientific Data
13 New Directions for Fractal Modeling in Computer Graphics
17 Programming Virtual Worlds
18 Fundamentals and Overview of Computer Graphics
19 Introduction to Perception-Based Visualization
23 Computational Representations of Geometry
30 The OpenGL Graphics Interface
See Conference Locator for course locations

COURSES – HALF DAY
8:30 am to noon
15A LAB: Programming PEX with PEXlib – Basic
16 Visualizing Multi-Dimensional Geometry and Applications to Multi-Variate Problems
See Conference Locator for course locations

COURSES – HALF DAY
1:30 pm to 5 pm
7 Digital Illusion: Distributed Interactive Entertainment
15B LAB: Programming PEX with PEXlib – Intermediate
See Conference Locator for course locations

ART AND DESIGN SHOW
9 am to 7 pm
Room 13

THE EDGE
9 am to 7 pm
Hall E

VROOM
9 am to 9 pm
Room 23

SCREENING ROOM
9 am to 7 pm
Room 10BC

SIGKIDS
9 am to 7 pm
Hall E

COURSE RECEPTION
7 pm to midnight
Disney-MGM Studios

TUESDAY, 26 JULY

7:30 am | 8:30 | 9 | 10 | 12 | 1:30 | 5 | 6 | 7 | 7:30 | 9 | 9:30 pm

REGISTRATION/MERCHANDISE
7:30 am to 7 pm
Registration Concourse

EXHIBITION
10 am to 6 pm
Halls A, B, C, and Room 12

COURSES – FULL DAY
8:30 am to 5 pm
1 Animation Tricks
2 Developing Advanced Virtual Reality Applications
3 Computer Vision for Computer Graphics
4 Advanced Techniques for Scientific Visualization
6 Introduction to Video and Audio Compression Techniques
11 Wavelets and Their Applications in Computer Graphics
21 Programming Open Inventor, an Object-Oriented OpenGL Toolkit
22 Modeling Natural Phenomena
28 Advanced Topics in Radiosity
32 An Introduction to Physically Based Modeling
See Conference Locator for course locations

COURSES – HALF DAY
8:30 am to noon
15C LAB: Programming PEX with PHIGS
See Conference Locator for course locations

COURSES – HALF DAY
1:30 pm to 5 pm
15B LAB: Programming PEX with PEXlib – Intermediate
See Conference Locator for course locations

SPECIAL SESSION:
SPECIAL VENUE THEATERS
Noon to 1:30 pm
Hall D

ART AND DESIGN SHOW
9 am to 7 pm
Room 13

ELECTRONIC THEATER
7:30 pm to 9:30 pm
Hall D

THE EDGE
9 am to 7 pm
Hall E

VROOM
9 am to 9 pm
Room 23

SCREENING ROOM
9 am to 7 pm
Room 10BC

SIGKIDS
9 am to 7 pm
Hall E

WEDNESDAY, 27 JULY

7:30 am 8:30 9 10 10:15 12 1:30 2:30 3:15 3:30 5 5:15 6 7 7:30 9 9:30 10 pm

REGISTRATION/MERCHANDISE
7:30 am to 6 pm
Registration Concourse

EXHIBITION
10 am to 6 pm
Halls A, B, C, and Room 12

KEYNOTE SESSION
8:30 am to 10 am
Hall D

COURSES – FULL DAY
8:30 am to 5 pm
9 Character Animation Systems
12 Sound Synchronization and Synthesis for Computer Animation and Virtual Reality
14 Designing Real-Time Graphics for Entertainment
20 Graphic Design for Usable User Interfaces
24 Three-Dimensional Visualization of Medical Data
27 Visualizing and Examining Large Scientific Datasets: A Focus on the Physical and Natural Sciences
See Conference Locator for course locations

COURSES – HALF DAY
8:30 am to noon
26 The Science of Digital Color
31 Taking the Leap: The Profits and Pitfalls of Entrepreneurial Venturing
15D LAB: Programming PEX with PEXlib – Advanced
See Conference Locator for course locations

COURSES – HALF DAY
1:30 pm to 5 pm
25 High-Technology Marketing: Key Concepts for Bringing New Technology to Market
29 Copyright Protection for Software, Graphics and Multimedia
15E LAB: Object-Oriented Graphics Programming in a PEX Environment
See Conference Locator for course locations

TECHNICAL SKETCHES
1:30 pm to 2:30 pm
Applications
Room 11

PAPERS
10:15 am – noon
Dynamics
Hall D

1:30 pm – 3:15 pm
Error Estimation in Image Synthesis
Hall D

3:30 pm – 5:15 pm
Drawing and Painting
Hall D

PANELS
10:15 am – noon
Programmers – Mechanics of the Information Highway
Room 8

1:30 pm – 3:15 pm
Research Frontiers in Virtual Reality
Room 8

3:30 pm – 5:15 pm
Computer Graphics and Economic Transformations
Room 8

ART AND DESIGN SHOW
9 am to 7 pm
Room 13

ELECTRONIC THEATER
7:30 pm to 9:30 pm
Hall D

THE EDGE
9 am to 7 pm
Hall E

VROOM
9 am to 9 pm
Room 23

SCREENING ROOM
9 am to 7 pm
Room 10BC

SIGKIDS
9 am to 7 pm
Hall E

THURSDAY, 28 JULY

8 8:15 8:30 9 10 10:15 11:45 12 1:15 1:30 3:00 3:15 3:30 5 5:15 6 7 7:30 9:30 10 pm

REGISTRATION/MERCHANDISE
8 am to 6 pm
Registration Concourse

EXHIBITION
10 am to 3:30 pm
Halls A, B, C, and Room 12

SPECIAL SESSION: IN-HOME INTERACTIVE TECHNOLOGIES
noon to 1:15 pm
Hall D

COURSES – HALF DAY
8:30 am to noon
15D LAB: Programming PEX with PEXlib – Advanced
See Conference Locator for course locations

COURSES – HALF DAY
1:30 pm to 5 pm
15E LAB: Object-Oriented Graphics Programming in a PEX Environment
See Conference Locator for course locations

TECHNICAL SKETCHES
10:15 am to 11:45 am
The 2D World
Room 11

TECHNICAL SKETCHES
1:30 pm to 3 pm
Rendering and Systems
Room 11

PAPERS
8:15 am to 10 am
2D Imaging
Hall D

10:15 am to noon
Hardware
Hall D

1:30 pm to 3 pm
Images and Interaction
Hall D

3:15 pm to 5:15 pm
Shadows and Shading
Hall D

Curves and Surfaces
Room 20

PANELS
8:15 am to 10 am
Production for the Long Haul
Room 8

Approaches to Teaching Introductory Computer Graphics
Room 20

10:15 am to noon
Exploiting Networks for Visualization and Collaboration – No Network Roadblocks?
Room 8

Optimization – An Emerging Tool in Computer Graphics
Room 20

1:30 pm to 3 pm
Information Visualization – The Next Frontier
Room 8

Art and Technology – Very Large Scale Integration
Room 20

3:15 pm to 5:15 pm
Computer Graphics – Are We Forcing People to Evolve?
Room 8

ART AND DESIGN SHOW
9 am to 7 pm
Room 13

ELECTRONIC THEATER
7:30 pm to 9:30 pm
Hall D

THE EDGE
9 am to 7 pm
Hall E

VROOM
9 am to 3:30 pm
Room 23

SCREENING ROOM
9 am to 7 pm
Room 10BC

SIGKIDS
9 am to 7 pm
Hall E

PAPERS/PANELS RECEPTION
7 pm to 10 pm
Sea World

FRIDAY, 29 JULY

8:15 | 9 | 10 | 10:15 | 11:45 | 12 | 1:00 | 1:30 | 1:45 | 3:15 | 3:30 | 5:15 pm

REGISTRATION/MERCHANDISE
9 am to 1 pm
Registration Concourse

SPECIAL SESSION: SIGGRAPH BOWL 2
Noon to 1:30 pm
Hall D

TECHNICAL SKETCHES
10:15 am to 11:45 am
Shape-making
Room 11

TECHNICAL SKETCHES
1:45 pm to 3:15 pm
Systems and Interaction
Room 11

PAPERS
8:15 am to 10 am
Surface Fitting and Numerical Control
Hall D

10:15 am to 11:45 am
Illumination and Shading
Hall D

1:45 pm to 3:15 pm
Natural Phenomena
Hall D

3:30 pm to 5:15 pm
Animation Systems
Hall D

Rendering Algorithms and Systems
Room 20

PANELS
8:15 am to 10 am
Computer Graphics for Architecture and Design Presentations – Current Work and Trends Outside the U.S.
Room 8

10:15 am to 11:45 am
Why is 3D Interaction So Hard, and What Can We Really Do About It?
Room 8

Computer Technology and the Artistic Process – How the Computer Industry Changes the Form and Function of Art
Room 20

1:45 pm to 3:15 pm
Determinants of Immersivity in Virtual Reality – Graphics vs. Action
Room 8

Reading the Fine Print – What Benchmarks Don't Tell You
Room 20

3:30 pm to 5:15 pm
Is Visualization *Really* Necessary? The Role of Visualization in Science, Engineering, and Medicine
Room 8

ART AND DESIGN SHOW
9 am to 1 pm
Room 13

THE EDGE
9 am to 1 pm
Hall E

SCREENING ROOM
9 am to 1 pm
Room 10BC

SIGKIDS
9 am to 1 pm
Hall E

Courses

Monday – Wednesday

8:30 am to noon
1:30 pm to 5 pm

PEXlib Lab Courses

Monday – Thursday

8:30 am to noon
1:30 pm to 5 pm

See Conference Locator for course locations

Probe the breadth and depth of advanced ideas. Or learn the basics of computer graphics using creative techniques and state-of-the-art technologies. As always, course offerings at SIGGRAPH 94 enlighten, inform, and educate. Courses are documented on the CD-ROM course notes and the printed course notes.

CHAIR
Michael J. Bailey
San Diego Supercomputer Center

ADMINISTRATOR
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COMMITTEE
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GDE Systems

Ed Brabant
Megatek Corporation

Wayne Carlson
The Ohio State University

Rich Ehlers
Evans & Sutherland

Stephan R. Keith
Sterling Software

Nan Schaller
Rochester Institute of Technology

Scott Senften
Shell Development Corporation

NEW IN 94

Please note these important innovations for SIGGRAPH 94 Courses:

- Two registration categories (Conference and Courses Passports) allow attendees access to all SIGGRAPH 94 Courses. Courses seating is not guaranteed, and is available on a first-come, first-served basis. Please be sure to arrive early for the course(s) that you wish to attend.

- Conference and Courses Passports registrants receive all course notes on CD-ROM. Subject to availability, printed course notes can be purchased at SIGGRAPH 94 on-site registration.

- The Orange County Convention Center and conference hotels are offering quick, convenient lunch facilities for all course attendees. SIGGRAPH 94 is not providing lunches.

Courses are categorized in three levels:

- Beginning: no prerequisites for introductory courses, but prior experience with computing or graphics may be helpful.

- Intermediate: attendees should have working knowledge of the subject, based on introductory courses, reading, and practical experience. Intermediate-level courses supply substantial technical content in detail, such as algorithms, techniques, and architectures.

- Advanced: narrow topics covered in substantial technical depth. Presentations may include challenging mathematical concepts and programming examples.

How to Produce Your Own CD-ROM

Course 5

Monday • Full Day

Beginning Level

Course Description

CD-ROM is becoming an extremely significant medium for publishing multimedia and other electronic documents. This course provides all you need to know to prepare, produce, and publish CD-ROMs. Concrete examples and technical challenges are emphasized in demonstrating production of high-end multimedia and conference proceedings.

Who Should Attend

Anyone interested in producing electronic documents, particularly multimedia documents or conference proceedings, on CD-ROM.

Organizer

Steve Cunningham is Professor of Computer Science at California State University Stanislaus and ACM SIGGRAPH Director for Publications. He produced the May 1993 online special issue of *Computer Graphics*, developed and produced the SIGGRAPH 93 proceedings CD-ROM, and is coordinating development of CD-ROM publications for SIGGRAPH 94.

Lecturers

Steve Langer
Disk Manufacturing, Inc.

Judson Rosebush
Judson Rosebush Company

Breck Rowell
Disk Manufacturing, Inc.

Procedural Modeling, Texturing, and Rendering Techniques

Course 8

Monday • Full Day

Advanced Level

Course Description

This course imparts a working knowledge of procedural approaches in modeling, shading, rendering, and animation. The procedural approaches include two-dimensional textures, solid textures, hypertextures, volume density functions, fractal and genetic algorithms, and implicit surfaces. Attendees learn details that are normally omitted from technical papers and get an introduction to several new, unpublished approaches to anti-aliasing and texture performance enhancement.

Who Should Attend

Those interested in procedural modeling, shading, and texturing techniques, the procedural design approaches of several researchers, and a toolbox of procedures for producing realistic images.

Organizer

David S. Ebert is Assistant Professor of Computer Science at the University of Maryland Baltimore County. His research interests include rendering and animating gases and fluids, combining volume- and surface-based rendering, texturing, and animation control issues.

Lecturers

F. Kenton Musgrave
The George Washington University

Darwyn Peachey
Pixar

Ken Perlin
New York University

Steven Worley

Brian Wyvill
University of Calgary

Introduction to Volume Visualization – Imaging Multi-Dimensional Scientific Data

Course 10

Monday • Full Day

Beginning Level

Course Description

Volume visualization has a wide range of applications in micro-science, macro-science, medicine, and computer simulation. This course represents a data-driven approach to volume visualization, discussing many surface-fitting, ray-casting, and projection techniques. Participants learn to create images quickly from their data using fundamental volume visualization concepts, readily available software tools, and recent advances in the field.

Who Should Attend

Computer graphics programmers, scientists, physicians, researchers, engineers, and anyone who wants to learn about using volume visualization to gain insight into multi-dimensional data.

Organizer and Lecturer

T. Todd Elvins is a staff visualization programmer at the San Diego Supercomputer Center. He leads a group of software engineers, animators, and media specialists who assist scientists in gaining insight into a wide variety of intellectual problems. He has been a computer graphics enthusiast for eight years and has been doing research in distributed and parallel-volume rendering for the last four years.

New Directions for Fractal Modeling in Computer Graphics

Course 13

Monday • Full Day

Intermediate Level

Course Description

This course demystifies fractal image compression, clarifies subtle differences in fractal representations, and provides methods for synthesizing and visualizing fractal models. It treats fractal models like any other geometric model, developing a rigorous theory demonstrated by numerous applications.

Who Should Attend

Those who want to implement their own fractal image compression programs, explore chaotic dynamical systems beyond the Mandelbrot set, understand applications of fractals to modeling, and incorporate these tools into existing computer graphics environments.

Organizer

John C. Hart is Assistant Professor in the School of Electrical Engineering and Computer Science at Washington State University, where he researches the relationship between fractal geometry and geometric design, producing new technologies for visualizing general implicit surfaces as well as extending the geometric theory for fractal modeling. He co-organized an advanced fractals course at SIGGRAPH 91 and has since lectured in SIGGRAPH courses on fractals and implicit surfaces. His animation, "unNatural Phenomena," was modeled entirely by fractals. It has been shown in the SIGGRAPH Electronic Theater, on ABC's "Prime Time Live," and in several animation collections.

Lecturers

F. Kenton Musgrave
The George Washington University

Przemyslaw Prusinkiewicz
University of Calgary

Dietmar Saupe
Universität Freiburg

Richard F. Voss
Yale University

Courses

MONDAY, 25 JULY

Programming Virtual Worlds

Course 17

Monday • Full Day

Intermediate Level

Course Description

This course covers the practical issues that must be addressed to begin working in virtual environments. Topics include: system requirements, hardware, application design, and implementation of visual worlds using immersive displays.

Who Should Attend

Those who wish to create immersive virtual environments.

Organizers

Anselmo Lastra is Research Assistant Professor of Computer Science at the University of North Carolina at Chapel Hill and Software Manager for the Pixel-Planes project. His research interests include interactive computer graphics and virtual environments.

Henry Fuchs is Frederico Gil Professor of Computer Science and Adjunct Professor of Radiation Oncology at the University of North Carolina at Chapel Hill. He received the 1992 ACM SIGGRAPH Computer Graphics Achievement Award and the 1992 National Computer Graphics Association Academic Award.

Lecturers

Stephen Ghee
Division Limited

Mark Mine
University of North Carolina

Jon Naughton-Green
Division Limited

Randy Pausch
University of Virginia

Fundamentals and Overview of Computer Graphics

Course 18

Monday • Full Day

Beginning Level

Course Description

This course de-mystifies computer graphics with a basic introduction to concepts and buzzwords. It presents a broad, non-technical survey of topics, including a brief historical introduction and discussion of the current industry.

Who Should Attend

Technical professionals and managers who want a general understanding of computer graphics, *not* those who want to learn specifics like how a Bresenham vector algorithm works or how to code a 3D transform.

Organizer

Olin Lathrop is a founder and Vice President of Research of Cognivision, Inc., which specializes in data visualization software and services. His current interests are visualization algorithms and techniques, and presentation methods that optimize human understanding.

Lecturers

Richard M. Fichera
R.M. Fichera Associates

Andrew Glassner
Xerox PARC

Carl Machover
Machover Associates Corporation

Introduction to Perception-Based Visualization

Course 19

Monday • Full Day

Intermediate

Course Description

The focus of this course is the design of effective static displays of quantitative information. It introduces the foundations of human perception, relates them to visualization, and prepares researchers and practitioners to improve the effectiveness of their perception-based visualizations.

Who Should Attend

Visualization researchers, visualization systems developers, and users of visualization systems.

Organizers

Haim Levkowitz is Assistant Professor of Computer Science and a founder of the Institute for Visualization and Perception Research at the University of Massachusetts Lowell. His research interests include graphics, imaging, color, human-computer interaction, computers in music and sound, and evaluation techniques.

Penny Rheingans is a visualization specialist at the U.S. Environmental Protection Agency's Scientific Visualization Center. Her current research interests include multi-variate data visualization, dynamic manipulation, design of color mappings, perceptual issues in visualization, and experimental validation of visualization techniques.

Lecturers

Stephen G. Eick
AT&T Bell Laboratories

Georges Grinstein
University of Massachusetts Lowell

Ronald Pickett
University of Massachusetts Lowell

Computational Representations of Geometry

Course 23

Monday • Full Day

Advanced Level

Course Description

This course presents the latest research on the most important computational representations of geometry used in computer graphics. Topics include: boundary representations, spatial partitioning schemes, parametrically and implicitly defined non-linear surfaces, voxel representations, triangulations, and multi-resolution wavelet-based methods. There is a strong emphasis in this course on the similarities/differences and the strengths/weaknesses of the various representations.

Who Should Attend

Software engineers who implement computer graphics and/or geometric modeling systems and anyone who is conducting research in these areas.

Organizer

Bruce Naylor is a member of the Information Systems Research Laboratory at AT&T Bell Labs. His research interests include computer graphics, computational geometry, image compression, and parallel architectures. He is best known for his work on binary space partitioning trees.

Lecturers

Chanderjit Bajaj
Purdue University

Tony DeRose
University of Washington

Herbert Edelsbrunner
University of Illinois

Arie Kaufman
State University of New York at Stony Brook

Jarek Rossignac
IBM T.J. Watson Research Center

THE OPENGL GRAPHICS INTERFACE

Course 30

Monday • Full Day

Intermediate Level

Course Description

OpenGL gives application developers efficient access to the 3D graphics capabilities of workstation and PC machines, including: transformation, lighting, clipping, z-buffering, and texture mapping. This course provides an overview of the OpenGL interface, a thorough description of OpenGL's rendering model and controls, and discussions of how OpenGL fits within the X Window System and Microsoft Windows environments.

Who Should Attend

Programmers who are interested in writing interactive 3D applications on graphics workstations or PCs. Anyone interested in implementing OpenGL or porting it to another environment.

Organizer

Randi J. Rost is Chief Architect for Graphics Software at Kubota Pacific Computer, Inc., where he leads the design and implementation of rich and flexible software environments for high-performance graphics and imaging systems. He was one of the main architects of PEX and served as the PEX document editor for four years. He has participated in the OpenGL effort and in NCGA's Graphics Performance Characterization Committee. In 1993, he received the NCGA Award for The Advancement of Graphics Standards.

Lecturers

Kurt Akeley
Silicon Graphics, Inc.

Bruce D'Amora
IBM Corporation

John Dennis
Digital Equipment Corporation

George Roussos
Microsoft Corporation

VISUALIZING MULTI-DIMENSIONAL GEOMETRY AND APPLICATIONS TO MULTI-VARIATE PROBLEMS

Course 16

Monday am • Half Day

Intermediate Level

Course Description

This course explores methods of augmenting human 3D perception to improve visualization of multi-dimensional geometry and multi-variate relationships. Theoretical material is applied to a variety of areas including statistics, finance, air traffic control, computer vision, instrumentation, and process control.

Who Should Attend

Statisticians, engineers, commodity traders and financial analysts, physicists, chemists, control theorists, optimization specialists, decision makers, medical researchers, and anyone else who wants to visualize multi-variate problems.

Organizer

Alfred Inselberg is Senior Technical Corporate Staff Member at the IBM T.J. Watson Research Center and Adjunct Professor in the Departments of Computer Science at the University of California, Los Angeles, and the University of Southern California.

Lecturers

Kim Esbensen
SINTEF

Avijit Chatterjee
University of Southern California

DIGITAL ILLUSION: DISTRIBUTED INTERACTIVE ENTERTAINMENT

Course 7

Monday pm • Half Day

Beginning Level

Course Description

A survey of both the state of the art and future directions in networked interactive entertainment content development and systems design. A range of market assumptions is discussed, including hardware, software, and the cost/performance trade-offs of image generation in attraction design. Topics include: techniques for developing non-linear, real-time scenarios to ensure compelling stories; how to develop elaborate story lines to meet schedule and budget constraints; production techniques; hardware affordances; DIS network protocols; and groupware paradigms.

Who Should Attend

Anyone interested in the application of multi-modal interface design, non-linear storytelling, real-time high-bandwidth networking techniques, virtual environment design, and themed development in location-based entertainment (LBE).

Organizer

Clark Dodsworth, Jr. is an interface design consultant at Osage Associates. His clients include theme park design firms, LBE developers, advertising agencies, and advanced business communications systems developers. He specializes in low- and high-technology tools of illusion.

Lecturers

Scott Billups
Viz-Net Productions

Michael Harris
NCR Human Interface Technology Center

Farid Mamaghani
Systems Developer

Celia Pearce
Writer/Creative Director

ANIMATION TRICKS

Course 1

Tuesday • Full Day

Intermediate Level

Course Description

A complete mathematical model of animation would require both physically based dynamical simulation and a psychological model of the thought processes of the characters. Some researchers are attempting just that, but they are not presenting this course. The focus here is on hacks and tricks that human animators use to give the impression of weight, thought, importance, and other ideas without directly simulating them in the most general sense.

Who Should Attend

Anyone who needs an introduction to the real world of computer animation.

Organizer

James F. Blinn has been tricking people for many years. He specializes in producing animated videos that trick the unsuspecting into learning mathematics and physics. At the California Institute of Technology, he is Associate Director of *Project Mathematics!*, a math program for high schools.

Lecturers

Mark Henne
Rhythm & Hues Studios

John Lasseter
Pixar

Ken Perlin
New York University

Chris Wedge
Blue Sky Productions

Courses

TUESDAY, 26 JULY

Developing Advanced Virtual Reality Applications

Course 2

Tuesday • Full Day

Advanced Level

Course Description

This course addresses the issues that arise in efforts to develop virtual reality applications with non-trivial graphics, computation, or interaction. Emphasis is on the design process leading to the implementation of useful virtual environments. Topics include: human factors, optimization, augmented reality, and intuitive interface techniques.

Who Should Attend

Those who have taken introductory courses in virtual reality and/or have developed simple virtual reality applications.

Organizer

Steve Bryson is an investigator at Computer Sciences Corporation under contract for the Applied Research Office of the Numerical Aerodynamic Simulation Systems Division at NASA Ames Research Center. He studies the application of virtual reality techniques to scientific visualization.

Lecturers

Steven K. Feiner
Columbia University

Randy Pausch
University of Virginia

Dennis Proffitt
University of Virginia

Henry Sowizral
Boeing Computer Services

Andries van Dam
Brown University

Computer Vision for Computer Graphics

Course 3

Tuesday • Full Day

Advanced Level

Course Description

In recent years, two traditionally separate fields – computer graphics and computer vision – have begun to merge. This course investigates the increasingly important role that computer vision plays in graphical model building, user interfaces, biomedical imaging, and animation. Topics include model building from video image sequences, face and hand gestures as new interface paradigms, extracting models from biomedical data, using live video and 3D images in the operating room, capturing motion from video sequences, and modeling perception for the animation of humans and other living creatures.

Who Should Attend

Graphics researchers, software developers, and practitioners who want to add computer vision methods to their skills arsenals.

Organizer

Ingrid Carlbom is Manager of Visualization Research at Digital Equipment Corporation's Cambridge Research Lab. From 1980 to 1986, she was a member of the professional staff at Schlumberger-Doll Research. Her research interests include scientific visualization, biomedical imaging, geometric modeling, and computer graphics system architecture.

Lecturers

William Freeman
Mitsubishi Electric Research Laboratories

Gudrun Klinker
Digital Equipment Corporation, Cambridge Research Lab

William E. Lorensen
GE Corporate Research and Development

Richard Szeliski
Digital Equipment Corporation, Cambridge Research Lab

Demetri Terzopoulos
University of Toronto

Keith Waters
Digital Equipment Corporation, Cambridge Research Lab

Advanced Techniques for Scientific Visualization

Course 4

Tuesday • Full Day

Advanced Level

Course Description

This course describes the latest algorithms for understanding the complex 3D datasets typical of scientific environments. Topics include: polygon reduction techniques for 3D contour services, volume rendering techniques for non-regular grids and vector fields, modeling large multi-variate datasets (especially scattered data models), and techniques for parallelizing these and other algorithms on MPP and cluster-type computers.

Who Should Attend

Anyone interested in understanding effective solutions for representing 3D datasets, from the theoretical to the practical.

Organizers

Roger A. Crawfis is the Graphics Technology Group Leader in the Livermore Computing Department of the Lawrence Livermore National Laboratory. He has led several projects to develop better visualization algorithms and published a number of research papers on scientific visualization.

Charles Hansen is a project leader in the Advanced Computing Laboratory at Los Alamos National Laboratory. His research interests include scientific visualization, 3D shape representation and geometry, and computer vision.

Lecturers

Nelson Max
Lawrence Livermore National Laboratory

Gregory M. Nielson
Arizona State University

William Schroeder
GE Corporate Research and Development

Introduction to Video and Audio Compression Techniques

Course 6

Tuesday • Full Day

Beginning Level

Course Description

This course investigates and compares basic compression techniques for audio, still video, motion video, and video conferencing. Emphasis is on the practical trade-offs between quality and cost for current hardware and software systems. After an introduction to the hows and whys of compression, the course explores the details of several compression algorithms, including: JPEG, MPEG-I, MPEG-II, ADPCM, and Px64.

Who Should Attend

Developers who would like a better understanding of compression options, designers seeking a quick introduction to compression algorithms, and content providers who want to understand the limitations of compression technology.

Organizer

Andy Daniel is Graphics Architect at Alliance Semiconductor. He specializes in developing cost-efficient graphics hardware to bring high performance to the mass market. Prior to joining Alliance, he was Engineering Manager at Western Digital, where he was responsible for the industry's first DRAM-based GUI accelerator, the WD90C31.

Lecturers

Jim Anderson
JAZZ Multimedia

Doug Bailey
Integrated Information Technology

Perry R. Cook
Media Vision
Stanford CCRMA

Wavelets and Their Applications in Computer Graphics

Course 11

Tuesday • Full Day

Advanced Level

Course Description

This course provides fundamental mathematical background on wavelets and explores their main applications, both current and potential, to computer graphics. Emphasis is on the connection between wavelets and the tools and concepts of computer graphics: Fourier techniques, pyramidal schemes, spline representations, and solutions of linear systems.

Who Should Attend

Researchers and advanced practitioners who are currently trying to solve problems in image representation and compression, curve and surface representation, light representation and propagation, shading, and illumination models.

Organizer

Alain Fournier is Professor of Computer Science at the University of British Columbia, Co-Director of Imager, UBC's computer graphics laboratory, and Director of GraFiC, a UBC/IBM Canada partnership dedicated to computer animation. His research interests include modeling, geometric algorithms, display algorithms, and wavelets, which he uses to represent light flux and compute local illumination in a global illumination algorithm of his own design.

Lecturers

Leena-Maija Reissell
University of British Columbia

Peter Schröder
Princeton University

Michael F. Cohen
Princeton University

Programming Open Inventor, an Object-Oriented OpenGL Toolkit

Course 21

Tuesday • Full Day

Intermediate Level

Course Description

This course teaches and demonstrates how to program Open Inventor, an object-oriented 3D graphics toolkit built on OpenGL. Open Inventor will be available on Silicon Graphics, Sun Microsystems, Hewlett-Packard, Digital Equipment, IBM, and NT systems. Topics include: 3D scene construction, rendering, picking, animation, 3D interaction, data monitoring, the Inventor file format, X and Windows interfaces, performance tips, and system extensibility.

Who Should Attend

Application programmers who want to write interactive 3D graphics programs employing direct manipulation and animation, developers familiar with other 3D libraries, and anyone interested in object-oriented, extensible graphics systems.

Organizer

David Mott, a member of the technical staff at Silicon Graphics, Inc., is one of the creators of the Open Inventor toolkit. He has also programmed graphics applications at Claris Corporation and Xerox Corporation.

Lecturers

Eric Enderton
Industrial Light & Magic

Eric Gregory
Strata G Systems

Paolo Sabella
NeTpower

Paul S. Strauss
Silicon Graphics, Inc.

Tim Wiegand
Cambridge University

Modeling Natural Phenomena

Course 22

Tuesday • Full Day

Advanced Level

Course Description

This course presents the state of the art in reproducing visual aspects of nature in synthetic imagery. Topics include: atmospheric scattering effects, rainbows, clouds, fires and smoke, battlefield smoke obscuration, fractal terrains, ocean waves, and structural and developmental models of plants.

Who Should Attend

Those interested in advanced modeling, realistic image synthesis, and reproduction of natural scenes with computer graphics.

Organizer

F. Kenton Musgrave, who teaches in the Department of Electrical Engineering and Computer Science at The George Washington University, is internationally known for his images of fractal landscapes and planet-scapes. He also publishes and lectures widely on computer graphics models of natural phenomena.

Lecturers

David Ebert
University of Maryland

Alain Fournier
University of British Columbia

Geoffrey Gardner

Przemyslaw Prusinkiewicz
University of Calgary

Advanced Topics in Radiosity

Course 28

Tuesday • Full Day

Advanced Level

Course Description

This course presents an in-depth look at areas of advanced research in radiosity algorithms. Topics include: hierarchical radiosity using wavelet basis functions, visibility algorithms, discontinuity meshing, hybrid radiosity/ray-tracing methods, tone mapping, and inverse methods. Participants learn how selection of basis functions affects the quality and efficiency of a radiosity method, how concepts from computational geometry and psychology are applied to radiosity methods, how radiosity is integrated with other image synthesis techniques, and how radiosity is reformulated as a design tool.

Who Should Attend

Anyone who is interested in current and future developments in the radiosity method of image synthesis.

Organizer

Holly E. Rushmeier is on the staff of the Computing and Applied Mathematics Laboratory at the National Institute of Standards and Technology. Her research interests include computer graphics synthetic image generation, scientific visualization, and radiant heat transfer.

Lecturers

Michael F. Cohen
Princeton University

Dani Lischinski
Cornell University

Peter Schröder
Princeton University

Peter Shirley
Indiana University

Seth Teller
Princeton University

Courses

TUESDAY, 26 JULY *WEDNESDAY, 27 JULY*

An Introduction to Physically Based Modeling

Course 32

Tuesday • Full Day

Intermediate Level

Course Description

During the past few years, physically based modeling has emerged as an important approach to computer animation. In this course, participants will learn the skills required to actually do physically based modeling. Topics include particle dynamics, continuum methods for simulating water and non-rigid objects, constraint methods, rigid body dynamics, collision and contact, and elements of control for modeling active, purposeful creatures.

Who Should Attend

Computer graphics professionals and implementers who want to develop a solid understanding of physical methods as applied to animation and modeling.

Organizer

Andrew Witkin is Professor of Computer Science and Robotics at Carnegie Mellon University in Pittsburgh. Prior to joining the Carnegie Mellon faculty, he headed the perception and graphics group at Schlumberger Palo Alto Research. He has authored seven SIGGRAPH papers.

Lecturers

David Baraff
Carnegie Mellon University

Michael Kass
Apple Computer, Inc.

Character Animation Systems

Course 9

Wednesday • Full Day

Intermediate Level

Course Description

Motion capture is a quickly evolving technique for generating long-form computer character animation. It involves capturing the performance of a (usually) live source such as an actor, rather than using the traditional key-frame approach. This course:

• Presents an in-depth review of the most prevalent of the many approaches animators are now using to capitalize on this technique.

• Provides insight into current research and production techniques that use motion capture for character animation.

• Reviews concepts and working applications of performance, optical, magnetic, prosthetic, and mechanical technologies.

Who Should Attend

Anyone interested in motion capture techniques for use in live performance and long- and short-form character animation in all media.

Organizer

Matt Elson is an award-winning artist who has been working with computer graphics since 1983. For several years, he was the artist-in-residence for the Symbolics graphics division, where he created two short HDTV productions: "The Little Death" and "Virtually Yours." He is currently the Creative Director for 3D Graphics at The Post Group, where he designs and directs computer animation.

Lecturers

Jon Snoddy
Walt Disney Imagineering

David Sturman
MEDIALAB

Wes Trager
Acclaim Entertainment

Michael Wahrman
Independent Consultant

Sound Synchronization and Synthesis for Computer Animation and Virtual Reality

Course 12

Wednesday • Full Day

Intermediate Level

Course Description

In this course, participants will gain a general understanding of the problems involved in synchronizing sounds to motions as an integrated process. Some of the current research topics in sound as they relate to computer animation and virtual reality are reviewed and examined in case studies from recent films and animations.

Who Should Attend

Scientists, animators, and anyone interested in generating more effective soundtracks for their animations.

Organizer

James K. Hahn is Assistant Professor in the Department of Electrical Engineering and Computer Science at The George Washington University, where he leads research in motion control, sound, virtual environments, and scientific visualization. His animations have been shown at SIGGRAPH film and video shows and displayed in television broadcasts and museum exhibits worldwide.

Lecturers

Robin Bargar
University of Illinois at Urbana-Champaign

Wayne Lytle
Cornell University

Gary Rydstrom
Skywalker Sound

Tapio Takala
Helsinki University of Technology

Designing Real-Time Graphics for Entertainment

Course 14

Wednesday • Full Day

Intermediate Level

Course Description

Using examples from actual games, theme attractions, and software toolkits, this course reviews real-time graphics in the design and construction of leading-edge theme park and location-based entertainment systems. Topics include architectures, multiprocessing, performance trade-offs, visual simulation methods, modeling, motion platforms, sound generation, and game design.

Who Should Attend

Anyone with a technical background in computer graphics who wants to know how real-time computer imagery is generated in entertainment systems, or how to design and tune high-performance virtual environments.

Organizer

James Helman, a member of the technical staff in Silicon Graphics' Advanced Graphics Division, is one of the authors of IRIS Performer, SGI's real-time graphics toolkit. His interests include game design, virtual environments, and making things run real fast.

Lecturers

Bernard Crowe
GreyStone Technology

Sharon Fischler
Silicon Graphics, Inc.

Eric Johnston
Spectrum Holobyte

Michael Jones
Silicon Graphics, Inc.

Michael Limber
Angel Studios

John Rohlf
Silicon Graphics, Inc.

Graphic Design for Usable User Interfaces

Course 20

Wednesday • Full Day

Beginning Level

Course Description

This course introduces terminology, principles, guidelines, and heuristics for using information-oriented, systematic graphic design in user interfaces, especially for the design of metaphors, mental models, navigation schemes, icons, and dialogue boxes. Perceptual, conceptual, and communications topics include: typography, symbol systems, color, spatial composition, animation, and sequencing.

Who Should Attend

Product development engineers, software engineers, product marketers, staff scientists, applications developers, human factors specialists, graphic designers, industrial designers, and technical editors.

Organizer

Aaron Marcus, President of Aaron Marcus and Associates, Inc., is an internationally recognized authority on graphic design for computer graphics, especially chart, form, document, icon, and screen design. He has given user interface, knowledge visualization, and document design courses at SIGGRAPH, SIGCHI, Human Factors and Ergonomics, and NCGA conferences in addition to courses at companies and other conferences in the United States, Australia, Canada, Europe, Israel, Singapore, South Korea, and Japan.

Lecturers

Wolfgang Heidrich
Aaron Marcus and Associates, Inc.

Grant Letz
Aaron Marcus and Associates, Inc.

Jay Melican
Aaron Marcus and Associates, Inc.

Three-Dimensional Visualization of Medical Data

Course 24

Wednesday • Full Day

Intermediate Level

Course Description

This course summarizes current approaches to the fundamental problem of medical visualization: extracting information from 3D clinical data and converting it to clinically useful images. Topics include data acquisition, segmentation, rendering methods, display hardware, and actual clinical applications presented by orthopedic specialists, oncologists, surgeons, and radiation therapists.

Who Should Attend

Computer graphics programmers, scientists, physicians, researchers, engineers, and anyone who wants to understand the application of computer graphics to medical imaging.

Organizer

Until last year, **Derek Ney** was an assistant professor of radiology at the Johns Hopkins Medical Institutions, Baltimore. He is now a consultant specializing in medical imaging software.

Lecturers

Elliot K. Fishman
The Johns Hopkins Medical Institutions

Henry Fuchs
University of North Carolina at Chapel Hill

Pat Hanrahan
Princeton University

Ron Kikinis
Harvard University

William E. Lorensen
GE Corporate Research and Development

Hans-Peter Meinzer
University of Heidelberg

Terry S. Yoo
University of North Carolina at Chapel Hill

Visualizing and Examining Large Scientific Datasets: A Focus on the Physical and Natural Sciences

Course 27

Wednesday • Full Day

Intermediate Level

Course Description

With highly illustrative, real-time atmospheric, oceanographic, and geographic examples, this course demonstrates the application of visualization tools and techniques to examination of large scientific datasets. Emphasis is on the process of developing effective visualization paradigms for supporting high-speed networking, database management, heterogeneous computing platforms, user interface design, collaborative computing, and animation techniques.

Who Should Attend

Researchers and computer graphics specialists interested in exploring the issues associated with managing large scientific datasets.

Organizer

Theresa Marie Rhyne is a Senior Visualization Researcher with Martin Marietta/U.S. EPA Scientific Visualization Center. She has been responsible for development of the center since its inception in 1990. Her research interests include visualization toolkit development and collaborative computing in a networked environment. She is also a widely respected computer graphic artist and art educator.

Lecturers

Bill Hibbard
University of Wisconsin at Madison

Kevin J. Hussey
Jet Propulsion Laboratory

Lloyd Treinish
IBM T.J. Watson Research Center

The Science of Digital Color

Course 26

Wednesday am • Half Day

Intermediate Level

Course Description

This course explains the science behind color reproduction, image digitization, and image reproduction in video, film, print, and computer graphics. Participants learn how to design and program systems that transport digital images among various media while retaining maximum color accuracy and image quality.

Who Should Attend

Hardware and software engineers, system designers, and advanced end-users such as digital photographers and digital cinematographers.

Organizer and Lecturer

Charles A. Poynton is a staff engineer at Sun Microsystems Computer Corporation, where he is working to integrate video technology – particularly high-definition television and accurate color reproduction – into computer workstations. He was recently elected a Fellow of the Society of Motion Picture and Television Engineers and is an active participant in a number of SMPTE standards committees.

Courses

WEDNESDAY, 27 JULY

Taking the Leap: The Profits and Pitfalls of Entrepreneurial Venturing

Course 31

Wednesday am • Half Day

Beginning Level

Course Description

This practical introduction to the world of high-tech entrepreneurship provides an overview of the key legal, organizational, financial, and psychological issues involved in starting a new technology venture. Case studies are used to illustrate the real-life challenges and rewards of business development.

Who Should Attend

Anyone interested in learning what it takes to start and build a profitable technology company, including intrapreneurs (those who are creating new business ventures within large organizations).

Organizer

Gary Smaby is founder and President of Smaby Group, Inc., a strategic and financial advisory firm that serves clients in the information technology industry. He has served as managing director of two leading Wall Street investment banking firms, where he built an international reputation as a leading securities analyst in the advanced computing sector. He now advises Fortune 100 executives, as well as entrepreneurs, on strategies for new business venturing.

Lecturers

Larry Barels
Wavefront Technologies

Ken Liebman
Faegre & Benson

Jim Treleaven
UARCO, Inc.

High-Technology Marketing: Key Concepts for Bringing New Technology to Market

Course 25

Wednesday pm • Half Day

Beginning Level

Course Description

This course presents key concepts, techniques, and examples of successful high-technology marketing. The focus is on marketing strategies, rather than tactics, that all technology-based companies need to understand and apply. Topics include target market identification, the technology adoption curve and its implications, whole product marketing, and competitive positioning.

Who Should Attend

Product marketing or product engineering managers and executives who are interested in defining, directing, or implementing the product development or marketing strategies of their companies or organizations.

Organizer and Lecturer

Randy Nickel applies more than 15 years of experience in technology marketing for companies, including Regis McKenna Inc., Digital Equipment Corporation, and Silicon Graphics, Inc. In 1993, he started Technology Marketing Consulting, an independent consulting practice focused on applying many of the concepts presented in this course.

Copyright Protection for Software, Graphics, and Multimedia

Course 29

Wednesday pm • Half Day

Beginning Level

Course Description

This course introduces participants to the basic issues of intellectual property law. Topics include: copyright, look-and-feel, reverse engineering, and the fair use doctrine. Though it concentrates primarily on settled and unsettled issues in U.S. law, the course also compares and contrasts the current state of intellectual property law in Europe and Japan.

Who Should Attend

Graphic designers, software developers, and their managers, especially those who are confronting the complex challenges of intellectual property law.

Organizer and Lecturer

Pamela Samuelson has been Professor of Law at the University of Pittsburgh since 1981. She specializes in intellectual property law, with a particular emphasis on computer software protection. She is the author of numerous articles and reports on software intellectual property and a contributing editor of *Communications of the ACM*, for which she writes a quarterly column: "Legally Speaking."

PEXlib Lab Courses

MONDAY, 25 JULY THROUGH THURSDAY, 28 JULY

Lab Courses: Programming Distributed 3D Graphics in a PEX Environment

Course 15

Lab Overview

This series of lab courses presents various levels of technical content in small-group lecture-style instruction intermixed with hands-on programming. Attendees learn how to use a variety of toolkits and then actually see their programs run in a distributed environment. Attendance is on a first-come, first-served basis.

Prerequisites

Prior C programming experience is required for all courses. An understanding of basic computer graphics is also recommended. Knowledge of an object-oriented language (C++ or SmallTalk) and an understanding of the object paradigm are recommended for the object-oriented course.

Organizers

Jerry Howard is a Senior Graphics Technical Analyst at Template Graphics Software Inc., San Diego, where he develops graphics applications and software tools using PHIGS, X, and Motif. He has taught and co-taught PEX/PEXlib courses at several conferences, including Xhibition 93 and Xhibition 94.

Michael Neal is a Research and Development Project Manager at CogniSeis Development in Boulder, Colorado, where he leads a team that is developing a distributed interactive graphics application in an object-oriented environment. For more than 10 years, he has developed interactive graphics for a variety of applications, including simulation, mechanical CAD, and geoscience.

Programming PEX with PEXlib – Basic

Lab 15A

Monday am • Half Day

Beginning Level

Lab Description

Introductory instruction on the use of PEXlib 3D graphics API. Ample time is allocated to hands-on experience with simple programs that demonstrate correct usage of PEXlib. Some time is reserved for exploring more capable programs.

Who Should Attend

Developers of applications using 3D graphics should attend this course to learn the basics of the PEXlib 3D graphics API.

Prerequisites

Prior C programming experience is required. Familiarity with PEX, PHIGS or other 3D graphics interface concepts is desirable, but not required. Familiarity with X Window system interface concepts is helpful, but prior X Window programming experience is not required.

Lecturer

Jane Sczechowski is a member of the technical staff at Hewlett-Packard Company, where she has worked for six years on the PHIGS and PEX standards and related HP products. Previously, she spent three years with General Electric designing graphics accelerators. She is currently the document editor for the PEX 5.2 standard.

Programming PEX with PEXlib – Intermediate

Lab 15B

Monday pm • Half Day
Tuesday pm • Half Day

Intermediate Level

Lab Description

Introduction to the mechanisms PEX provides for modeling, lighting, and shading, and discussion of their uses and limitations. Through programming examples, attendees learn how to model, light, and shade with PEXlib and how different controls affect the quality and composition of the final image.

Who Should Attend

Developers of 3D graphics applications should attend this course to learn about programming distributed graphics in a PEX environment.

Prerequisites

A level of knowledge equivalent to that provided in the Basic PEXlib programming course is required.

Lecturer

Tom Gaskins, President of Tom Gaskins Software, Inc., is author of the *PEXlib Programming Manual*, published by O'Reilly & Associates. For 10 years, he has been implementing both graphics applications and libraries, and he has served on ANSI, ISO, and X Consortium standards committees.

Programming PEX with PHIGS

Lab 15C

Tuesday am • Half Day

Beginning Level

Lab Description

This course teaches how to use the Programmer's Hierarchical Interactive Graphics System (PHIGS) API, ISO standard 9593, in a distributed environment. Topics include: what PHIGS is and how it works in a distributed environment, 3D modeling and viewing, animation of objects, lighting, and shading. Programming examples are geared toward writing and running a first-time PHIGS application.

Who Should Attend

Developers of 3D graphics applications should attend this course to learn about programming distributed graphics in a PEX environment using the ISO standard PHIGS API.

Lecturer

Jerry Howard

Programming PEX with PEXlib – Advanced

Lab 15D

Wednesday am • Half Day
Thursday am • Half Day

Intermediate Level

Lab Description

This course covers advanced, application-specific issues in programming in a distributed environment. PEXlib is used as the model to discuss various issues such as resource loading, use of display lists versus immediate mode, optimization techniques, and various implementation issues that arise when developing and tuning applications.

Who Should Attend

Developers of 3D graphics applications who want to learn more about the complexities of performance and optimization.

Prerequisites

Prior C programming experience, experience with a distributed 3D graphics toolkit, and knowledge equivalent to that provided in the PEXlib intermediate course are required.

Lecturer

Karl Schultz, a Software Engineer at Hewlett-Packard Company, is X Consortium PEXlib Chief Architect for the PEXlib 5.2 effort. He became involved with X Consortium PEX design work in 1990, when he assumed technical and product leadership for IBM's PEX products. He also participated in the design and development of IBM's graPHIGS programming interface.

Object-Oriented Graphics Programming in a PEX Environment

Lab 15E

Wednesday pm • Half Day
Thursday pm • Half Day

Intermediate Level

Lab Description

This course examines how to develop distributed 3D applications using PEXlib within an object-oriented paradigm. Some of the basics of PEXlib and 3D graphics are covered, but the course concentrates more on how to design and implement an object-oriented graphics system in a PEX environment.

Who Should Attend

Developers of 3D graphics applications in an object-oriented environment should attend this course to learn about programming distributed graphics in a PEX environment.

Prerequisites

Programming experience with C++ or another object-oriented language is strongly recommended. Experience with a 3D toolkit is desired, but not required.

Lecturers

Michael Neal

James Wilmsen is a Senior Software Engineer at CogniSeis Development, where he develops object-oriented geoscience applications. He is the lead application programmer for a new interactive graphics product developed with object technology.

Papers/Panels

PAPERS

Wednesday
10:15 am to 5:15 pm
Thursday – Friday
8:15 am to 5:15 pm

Researchers redefine the future in the pre-eminent international forum for current inquiry in computer graphics theory and applications. Papers are documented in the SIGGRAPH 94 *Conference Proceedings*.

CHAIR
Andrew Glassner
Xerox PARC

ADMINISTRATIVE ASSISTANT
Chase Garfinkle

COMMITTEE
Kurt Akeley
Silicon Graphics, Inc.

Norman Badler
University of Pennsylvania

Al Barr
California Institute of Technology

James F. Blinn
California Institute of Technology

Ingrid Carlbom
Digital Equipment Corporation, Cambridge Research Lab

Michael F. Cohen
Princeton University

Rob Cook
Light Source, Inc.

Alain Fournier
University of British Columbia

Ned Greene
Apple Computer, Inc.

Chris Hoffmann
Purdue University

John Hughes
Brown University

James T. Kajiya
Microsoft Corporation

Michael Kass
Apple Computer, Inc.

R. Victor Klassen
Xerox Webster Research Center

Wolfgang Krueger
German National Research Center for Computer Science

Gary Meyer
University of Oregon

Greg Nielson
Arizona State University

Tomoyuki Nishita
Fukuyama University

Randy Pausch
University of Virginia

Ken Perlin
New York University

Przemyslaw Prusinkiewicz
University of Calgary

Jarek Rossignac
IBM T.J. Watson Research Center

Robert F. Sproull
Sun Microsystems Computer Corporation

Ken Torrance
Cornell University

PANELS

Wednesday
10:15 am to 5:15 pm
Thursday – Friday
8:15 am to 5:15 pm

Watch advanced concepts merge and clash. Listen to the experts agree and disagree on the relationship between technology and human activities. Join the interactive audience and contribute your own questions and comments on computer graphics issues, directions, and visions. Panel abstracts are published in the SIGGRAPH 94 *Conference Proceedings*.

CHAIR
Mike Keeler
Silicon Graphics, Inc.

ADMINISTRATIVE ASSISTANT
Kathy Mancall

COMMITTEE
Mark Bolas
Fakespace, Inc.

Donna J. Cox
National Center for Supercomputing Applications

Charles Hansen
Los Alamos National Laboratory

Leo Hourvitz
Broderbund Software

F. Kenton Musgrave
The George Washington University

Vibeke Sorensen
California Institute of the Arts

Pauline Tso
Rhythm & Hues Studios

PAPERS/PANELS BREAKOUT ROOM

After each Paper/Panel session, speakers and attendees are welcome to continue their discussions in the Papers/Panels Breakout Room, 10A.

WEDNESDAY, 27 JULY — 10:15 AM - NOON

Papers: Dynamics
Hall D

CHAIR
Michael Kass
Apple Computer, Inc.

Evolving Virtual Creatures
Karl Sims
Thinking Machines Corporation

Hierarchical Spacetime Control
Zicheng Liu and Michael F. Cohen
Princeton University

Fast Contact Force Computation for Nonpenetrating Rigid Bodies
David Baraff
Carnegie Mellon University

Artificial Fishes: Physics, Locomotion, Perception, Behavior
Xiaoyuan Tu and Demetri Terzopoulos
University of Toronto

Panel: Programmers – Mechanics of the Information Highway
Room 8

Marketers of the digital future overlook one crucial fact: software is hard. That's why the interactive TV trials are already behind schedule. And that's why, if they ever materialize, their content is 95 percent certain to be boring and stupid. This panel is a pre-mortem for the overhyped information infrastructure and a debate on the actual role of programmers in the digital future.

CHAIR
Denise Caruso
Technology and Media

PANELISTS
Peter Barrett
Rocket Science

Michele di Lorenzo
Viacom New Media

Vinnie Grosso
AT&T

Dave Kaiser
Kaleida

Patrick Naughton
FirstPerson

1:30 PM - 3:15 PM

Papers: Error Estimation in Image Synthesis
Hall D

CHAIR
Michael F. Cohen
Princeton University

Textures and Radiosity: Controlling Emission and Reflection with Texture Maps
Reid Gershbein, Peter Schröder, and Pat Hanrahan
Princeton University

Hierarchical Error-Bounded Rendering
Ned Greene and Michael Kass
Apple Computer, Inc.

Bounds and Error Estimates for Radiosity
Dani Lischinski, Brian Smits, and Donald Greenberg
Cornell University

A Framework for the Analysis of Error in Global Illumination Algorithms
James Arvo, Kenneth Torrance, and Brian Smits
Cornell University

Panel: Research Frontiers in Virtual Reality
Room 8

Virtual reality is a new paradigm of human-computer interaction that has generated a great deal of excitement but relatively few real applications. This panel attempts to identify the leading-edge research issues that must be addressed before the full promise of virtual reality can be realized. Discussion focuses on the hardware and software challenges to development of effective virtual reality systems and how those challenges can be met.

CO-CHAIRS
Steve Bryson
CSC/NASA Ames Research Center

Steven Feiner
Columbia University

PANELISTS
Frederick P. Brooks, Jr.
University of North Carolina at Chapel Hill

Philip Hubbard
Brown University

Randy Pausch
University of Virginia

Andries van Dam
Brown University

3:30 PM - 5:15 PM

Papers: Drawing and Painting
Hall D

CHAIR
Ken Perlin
New York University

Multiresolution Painting and Compositing
Deborah F. Berman, Jason T. Bartell, and David H. Salesin
University of Washington

Computer-Generated Pen-and-Ink Illustration
Georges Winkelbach and David H. Salesin
University of Washington

Interactive Pen-and-Ink Illustration
Michael P. Salisbury and Sean E. Anderson
University of Washington
Ronen Barzel
Pixar
David H. Salesin
University of Washington

Efficient Techniques for Interactive Texture Placement
Pete Litwinowicz and Gavin Miller
Apple Computer, Inc.

Drawing and Animation Using Skeletal Strokes
Siu Chi Hsu
Chinese University of Hong Kong
Irene Hing Huen Lee
Hong Kong Academy for Performing Arts/Creature House

Panel: Computer Graphics and Economic Transformations
Room 8

Four ideas are presented for viewing the impact of SIGGRAPH-inspired innovations:

- The historical role of technology in social, business, and economic transformation.
- The bionomic view that ever-improving information handling is the engine of economic progress.
- The challenge of developing, marketing, and supporting graphics-based products such as CD-ROM and interactive TV.
- The emerging role of computer graphics in creating new ways to share information, new approaches to organization, and new styles of social interaction.

CHAIR
Walt Bransford
The Premisys Corporation

PANELISTS
Maury Klein
University of Rhode Island

Craig Moody
Time Warner Interactive Group

David Reed
Interval Research Corporation

Michael Rothschild
The Bionomics Institute

Papers/Panels

THURSDAY, 28 JULY

8:15 AM - 10:00 AM

Papers: 2D Imaging
Hall D

CHAIR
Rob Cook
Light Source, Inc.

Rotated Dispersed Dither: A New Technique for Digital Halftoning
V. Ostromoukhov, I. Amidror, and R.D. Hersch
Swiss Federal Institute of Technology (EPFL)

Energy Preserving Non-Linear Filters
Holly E. Rushmeier
National Institute of Standards and Technology
Greg Ward
Lawrence Berkeley Laboratory

Spreadsheets for Images
Marc Levoy
Stanford University

A Model for Efficient and Flexible Image Computing
Michael A. Shantzis
Pixar

Panel: Production for the Long Haul
Room 8

Panelists present and discuss issues related to producing 3D computer animation and digital image synthesis in the context of long-format productions. Speakers include top producers of feature films and television programs.

CHAIR
John Donkin
Lamb & Company

PANELISTS
Charles Gibson
Rhythm & Hues Studios

Ralph Guggenheim
Pixar

Edward Kummer
Walt Disney Features

Brad Lewis
Pacific Data Images

Jeff Thingvold
Lamb & Company

Panel: Approaches to Teaching Introductory Computer Graphics
Room 20

This panel reviews various approaches to teaching an introductory computer graphics course. Panelists represent a wide spectrum of the discipline; they offer courses that emphasize systems, engineering, mathematics, science, art and design, and animation. Sample course syllabi, textbook recommendations, software packages, and suggested projects are displayed for audience review.

CHAIR
Maria Larrondo-Petrie
Florida Atlantic University

PANELISTS
Jack E. Bresenham
Winthrop University

John Lansdown
Middlesex University

Cary Laxer
Rose-Hulman Institute of Technology

G. Scott Owen
Georgia State University

10:15 AM - NOON

Papers: Hardware
Hall D

CHAIR
Kurt Akeley
Silicon Graphics, Inc.

Priority Rendering With a Virtual Reality Address Recalculation Pipeline
Matthew Regan and Ronald Pose
Monash University

Reflection Map Shading Hardware
Douglas Voorhies and Jim Foran
Silicon Graphics, Inc.

FBRAM: A New Form of Memory Optimized for 3D Graphics
Michael F. Deering, Stephen A. Schlapp, and Michael Lavelle
Sun Microsystems Computer Corporation

Frameless Rendering: Double-Buffering Considered Harmful
Gary Bishop, Henry Fuchs, Leonard McMillan, and Ellen J. Scher
University of North Carolina at Chapel Hill

Hardware-Accelerated Rendering of CSG and Transparency
Michael Kelley, Kirk Gould, Brent Pease, Stephanie Winner, and Alex Yen
Apple Computer, Inc.

Panel: Exploiting Networks for Visualization and Collaboration – No Network Roadblocks?
Room 8

This panel examines the underlying concepts that support visualization and collaboration using high-speed networking, multimedia, and interactive computer graphics techniques. Topics include: collaborative efforts among researchers, programmers, and artists (Renaissance teams) to use the new national information infrastructure; international telecommunication systems; and the challenges associated with interactive visualization across heterogeneous platforms.

CHAIR
Teresa Marie Rhyne
Martin Marietta/U.S. EPA Scientific Visualization Center

PANELISTS
George Brett
Clearinghouse for Networked Information Discovery and Retrieval

Donna J. Cox
National Center for Supercomputing Applications

Don Brutzman
Naval Postgraduate School

Adelino Santos
Fraunhofer Institute for Computer Graphics

Panel: Optimization – An Emerging Tool in Computer Graphics
Room 20

Optimization techniques are increasingly used to solve problems in image rendering, object modeling, animation, and even chart graphics. Does this presage an important new development in computer graphics? Panelists survey the impact of optimization in their areas of expertise, describe the various optimization techniques that have proven useful for graphics problems, and attempt to predict what this trend means for members of the SIGGRAPH community: researchers, engineers, and artists.

CHAIR
Joe Marks
Mitsubishi Electric Research Laboratories, Incorporated

PANELISTS
Michael F. Cohen
Princeton University

J. Thomas Ngo
Interval Research Corporation

Stuart Shieber
Harvard University

John Snyder
Microsoft Corporation

1:30 PM - 3:00 PM

Papers: Images and Interaction
Hall D

CHAIR
Randy Pausch
University of Virginia

3D Position, Attitude, and Shape Input Using Video Tracking of Hands and Lips
Andrew Blake and Michael Isard
University of Oxford

Accelerated MPEG Compression of Dynamic Polygonal Scenes
Dan S. Wallach, Sharma Kunapalli, and Michael F. Cohen
Princeton University

Improving Static and Dynamic Registration in an Optical See-Through HMD
Ronald Azuma and Gary Bishop
University of North Carolina at Chapel Hill

A Virtual Environment and Model of the Eye for Surgical Simulation
Mark A. Sagar, David Bullivant, Gordon D. Mallinson, and Peter J. Hunter
The University of Auckland
Ian W. Hunter
McGill University

Panel: Information Visualization – The Next Frontier
Room 8

This panel and audience discuss the use of data visualization software and hardware in presenting the rather abstract information contained in databases, digital libraries, and other massive collections of information. Bringing this technology to information users and taking their needs into account may transform business, science, medicine, engineering, and education. Topics include how to create effective information visualizations and how to use them effectively in information navigation, retrieval, and access.

CHAIR
Nahum D. Gershon
The MITRE Corporation

PANELISTS
Colleen Bushell
National Center for Supercomputing Applications

Jock D. Mackinlay
Xerox PARC

William A. Ruh
The MITRE Corporation

Anselm Spoerri
Massachusetts Institute of Technology

Joel Tesler
Silicon Graphics, Inc.

Panel: Art and Technology – Very Large Scale Integration
Room 20

Artists who use computer graphics to create large-scale works discuss the future of artistic techniques that incorporate technology to extend the possibilities of human interaction with the machine and other people.

CHAIR
Tom Meyer
Brown University

PANELISTS
Douglas Davis
Author, Independent

Mary Lou Jepsen
Brown University

Stephen R. Johnson
Director, Independent

Sally N. Rosenthal
big Research

3:15 PM - 5:15 PM

Papers: Shadows and Shading
Hall D

CHAIR
Ken Torrance
Cornell University

Wavelength-Dependent Reflectance Functions
Jay S. Gondek, Gary W. Meyer, and Jonathan G. Newman
University of Oregon

Polarization and Birefringency Considerations in Rendering
David C. Tannenbaum
IBM Corporation
Peter Tannenbaum and Michael J. Wozny
Rensselaer Polytechnic Institute

A Fast Shadow Algorithm for Area Light Sources Using Back Projection
George Drettakis and Eugene Fiume
University of Toronto

Fast Computation of Shadow Boundaries Using Spatial Coherence and Backprojections
A. James Stewart and Sherif Ghali
University of Toronto

Diffuse Reflection Model for Rough Surfaces
Michael Oren and Shree K. Nayar
Columbia University

Papers: Curves and Surfaces
Room 20

CHAIR
Greg Nielson
Arizona State University

Simplicial Surface Modeling
Will Welch and Andrew Witkin
Carnegie Mellon University

A Generalized de Casteljau Approach to 3D Free-Form Deformation
Yu-Kuang Chang and Alyn P. Rockwood
Arizona State University

Multiresolution Curves
Adam Finkelstein and David H. Salesin
University of Washington

Using Particles to Sample and Control Implicit Surfaces
Andrew Witkin and Paul Heckbert
Carnegie Mellon University

A Non-Euclidean Displacement Mapping Technique
Hans Køhling Pedersen
Carnegie Mellon University

Panel: Computer Graphics – Are We Forcing People to Evolve?
Room 8

The topic of this panel is a key emerging proposition in computer graphics and interactive techniques: the computer graphics industry is changing our world in a massive and basic way, from "written-word" communication to "imagery" communication, and this is changing how and what people think.

CHAIR
Roger E. Wilson
Roger Wilson & Associates

PANELISTS
Brenda Laurel
Interval Research Corporation

Terence McKenna
Independent

Leonard Shlain
Independent

Papers/Panels

FRIDAY, 29 JULY

8:15 AM - 10:00 AM

Papers: Surface Fitting and Numerical Control
Hall D

CHAIR
Ingrid Carlbom
Digital Equipment Corporation, Cambridge Research Lab

Dimensional Verification and Automated Correction of Five-Axis Numerically Controlled Milling Tool Paths
Yunching Huang and James H. Oliver
Iowa State University

Piecewise Smooth Surface Reconstruction
Hugues Hoppe, Tony DeRose, Tom Duchamp, Hubert Jin, John McDonald, and Werner Stuetzle
University of Washington

Smooth Spline Surfaces Over Irregular Meshes
Charles Loop
Apple Computer, Inc.

Zippered Polygon Meshes From Range Images
Greg Turk and Marc Levoy
Stanford University

Panel: Computer Graphics for Architecture and Design Presentations – Current Work and Trends Outside the U.S.
Room 8

Advanced computer graphics techniques are increasingly used for design communication and visualization in the architecture/engineering/construction industry outside the United States. This panel compares current U.S. applications to those used in other countries and assesses the future role of computer graphics in the field.

CHAIR
Alonzo C. Addison
University of California at Berkeley

PANELISTS
Alredo S. Andia
University of California at Berkeley

Nicolo Ceccarelli
Politecnico di Milano

Gustavo J. Llavaneras
Central University of Venezuela

Makoto Majima
Taisei Corporation

Ken Roger Sawai
Plus One Incorporated

10:15 AM - 11:45 AM

Papers: Illumination and Shading
Hall D

CHAIR
Wolfgang Krueger
German National Research Center for Computer Science

Efficient Algorithms for Local and Global Accessibility Shading
Gavin Miller
Apple Computer, Inc.

Illumination in Diverse Codimensions
David C. Banks
ICASE

Low-Cost Illumination Computation Using an Approximation of Light Wavefronts
Gershon Elber
Technion, Israel Institute of Technology

The Irradiance Jacobian for Partially Occluded Polyhedral Sources
James Arvo
Cornell University

Panel: Why is 3D Interaction So Hard, and What Can We Really Do About It?
Room 8

This panel reviews the difficulty of 3D interaction and explores how a modern API can facilitate user tasks. Topics include how comprehensive the API should be, how performance affects the problem, and the concept of "user experience" as opposed to "user interface."

CHAIR
Julian E. Gomez
Apple Computer, Inc.

PANELISTS
Rikk Carey
Silicon Graphics, Inc.

Tony Fields
IDEO Product Development

Andries van Dam
Brown University

Dan Venolia
Apple Computer, Inc.

Panel: Computer Technology and the Artistic Process – How the Computer Industry Changes the Form and Function of Art
Room 20

This panel is designed to augment the art show. Its purpose is to create an interchange among artists, engineers, people in the computer graphics industry, and those in academia. Panelists discuss the roles that they believe engineers, commercial artists, and art academicians play in influencing the development of the process, content, product, and context of computer art.

CHAIR
Jane Flint DeKoven
Macromedia

PANELISTS
Tim Binkley
School of Visual Arts

Glenn Entis
Pacific Data Images

Delle Maxwell
Independent Designer/Consultant

Alvy Ray Smith
Altamira Software Corporation

1:45 PM - 3:15 PM

Papers: Natural Phenomena
Hall D

CHAIR
Alain Fournier
University of British Columbia

Synthetic Topiary
Przemyslaw Prusinkiewicz, Mark James, and Radomir Mech
University of Calgary

Visual Simulation of Lightning
K. Todd Reed and Brian Wyvill
University of Calgary

Predicting the Drape of Woven Cloth Using Interacting Particles
David E. Breen
European Computer-Industry Research Centre
Donald H. House
Texas A&M University
Michael J. Wozny
Rensselaer Polytechnic Institute

Method of Displaying Optical Effects within Water using Accumulation Buffer
Tomoyuki Nishita
Fukuyama University
Eihachiro Nakamae
Hiroshima Prefectural University

Panel: Determinants of Immersivity in Virtual Reality – Graphics vs. Action
Room 8

This panel compares the determinants of psychological immersivity in virtual reality (VR) environments, employing still and video illustrations presented by the panelists and an active interchange between the panel and the audience. The extent to which immersivity depends on realistic graphics versus realistic action is assessed for key VR application areas including entertainment, training, and education.

CHAIR
Alan R. Mitchell
Trionix Corporation

PANELISTS
William Bricken
Washington Technology Center

Brenda Laurel
Interval Research

Ron Martinez
Spectrum HoloByte

Stuart Rosen
WizBang!

Panel: Reading the Fine Print – What Benchmarks Don't Tell You
Room 20

A great deal of energy has been invested in developing ways to quantify graphics performance. Have these efforts helped the industry or confused people even more? Panelists describe the caveats and limitations of various benchmarking systems and provide some real-world insight into how published graphics benchmark results might be applied to real-world needs. The panel also reviews attempts to develop useful measures of graphics performance and how those measurements may be used to compare systems from different vendors.

CHAIR
Randi J. Rost
Kubota Pacific Computer, Inc.

PANELISTS
Jim Bushnell
IBM Corporation

David Cooper
Hewlett-Packard Company

Jerry Schneble
Ford Motor Company

Lynn Thorsen-Jensen
Evans & Sutherland

3:30 PM - 5:15 PM

Papers: Animation Systems
Hall D

CHAIR
John Hughes
Brown University

IRIS Performer: A High-Performance Multiprocessing Toolkit for Real-Time 3D Graphics
John Rohlf and James Helman
Silicon Graphics, Inc.

Planning Motions With Intentions
Yoshihito Koga
Stanford University
Koichi Kondo
Toshiba Corporation
James Kuffner and Jean-Claude Latombe
Stanford University

Animating Images With Drawings
Pete Litwinowicz and Lance Williams
Apple Computer, Inc.

Animated Conversation: Rule-Based Generation of Facial Expression Gesture and Spoken Intonation for Multiple Conversational Agents
Justine Cassell, Catherine Pelachaud, Norman Badler, Mark Steedman, Brett Achorn, Tripp Becket, Brett Douville, Scott Prevost, Chin Seah, and Matthew Stone
University of Pennsylvania

TBAG: A High-Level Framework for Interactive, Animated 3D Graphics Applications
Conal Elliott, Greg Schechter, Ricky Yeung, and Salim Abi-Ezzi
SunSoft, Inc.

Papers: Rendering Algorithms and Systems
Room 20

CHAIR
Jarek Rossignac
IBM T.J. Watson Research Center

A Clustering Algorithm for Radiosity in Complex Environments
Brian Smits, James Arvo, and Donald Greenberg
Cornell University

Partitioning and Ordering Large Radiosity Computations
Seth Teller and Celeste Fowler
Princeton University
Thomas Funkhouser
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Fast Volume Rendering Using a Shear-Warp Factorization of the Viewing Transformation
Philippe Lacroute and Marc Levoy
Stanford University

The RADIANCE Lighting Simulation and Rendering System
Gregory J. Ward
Lawrence Berkeley Laboratory

Panel: Is Visualization *Really* Necessary? The Role of Visualization in Science, Engineering, and Medicine
Room 8

This panel and audience discuss whether the use of visualization has changed the way scientists, engineers, and physicians do their work. Panelists examine their own fields and explore whether it is possible to achieve the same results and effectiveness without using these dazzling visualization tools. In other words: are these just pretty pictures?

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The MITRE Corporation

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Hans-Peter Meinzer
German Cancer Center

Justin D. Pearlman
Harvard Medical School

Technical Sketches

Room 11
Wednesday, 1:30 pm to 2:30 pm
Thursday, 10:15 am to 11:45 am
and 1:30 pm to 3 pm
Friday, 10:15 am to 11:45 am
and 1:45 pm to 3:15 pm

This new technical venue encourages informal discussion of late-breaking, creative, surprising, and controversial ideas and approaches. A committee of technical contributors reviewed proposals in May and selected sketches that have the best potential to stimulate new ideas and conversations in the computer graphics community.

CHAIR
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Silicon Graphics, Inc.

Karl Sims
Thinking Machines Corporation

APPLICATIONS
Wednesday, 27 July
1:30 pm to 2:30 pm

1:30 pm
Flyballs – Analysis and Synthesis of Biological Spherite Packings

Benjamin Wells
Paul K. Chien
University of San Francisco

Using computer graphics, we strive to analyze, model, and interpret fractal and nonfractal distributions of packed mineral spherites in the Malpighian organ of Mono Lake brine fly (*Ephydra*) larvae.

1:45 pm
The Cambrian Explosion: A Computer Graphics Gallery

Kerry B. Clark
Florida Institute of Technology and Brevard Zoo

Tom Rockwell
Robert Leathers and Associates and Brevard Zoo

Jeff White
Lockheed Corporation and Brevard Zoo

The Cambrian Explosion presents a gallery of 30 high-resolution 3D transparencies (including reconstruction of extinct animals) in a passively-illuminated outdoor exhibit that summarizes the evolutionary history of animals.

2 pm
SimGraphicsRR: A Tool for Railroad Simulation Data Visualization

Shari L. Halter
School of Visual Arts

SimGraphicsRR is a Macintosh-based visualization tool for transportation planners that displays and animates numerical data generated by a rail transportation simulator, facilitating rapid understanding of complex railroad systems.

2:15 pm
Surgical Simulation: A Prototype Device with Stereo Imagery and Force Feedback

Michael Sinclair
Georgia Institute of Technology

A prototype ophthalmic surgical simulator employing visual and tactile feedback has been produced at Georgia Tech. This will allow surgeons to practice new procedures at no risk to the patient.

THE 2D WORLD
Thursday, 28 July
10:15 am to 11:45 am

10:15 am
Automated Gap Closing for Freehand Drawing

Michel Gangnet
Jean-Manuel Van Thong
Digital Equipment Corp., Paris Research Laboratory

Jean-Daniel Fekete
2001 S.A.

Automated closing of the regions defined by freehand strokes is mandatory for cartoon animation. Our solution, based on connected component analysis, is currently used within TicTacToon, a paperless animation system.

10:30 am
Shape Blending Using the Star-Skeleton Representation

Michal Shapira
Ari Rappoport
The Hebrew University

We present a novel approach to polygon blending, which avoids shape distortions and almost completely eliminates boundary self-intersections by parameterizing the polygons' areas. Our method introduces the star-skeleton representation, based on equivalent decompositions of the polygons into star pieces.

10:45 am
Breaking the Time Complexity of Fractal Image Compression

Dietmar Saupe
Universität Freiburg

The encoding of fractal image compression consists of a large number of sequential searches. We reduce its time complexity by introducing multi-dimensional nearest neighbor search techniques.

11 am
Wavelet Paint

Ken Perlin
New York University

Luiz Velho
Instituto de Matematica Pura e Aplicada

We have implemented an unbounded resolution paint system by using biorthogonal B-spline wavelets. The wavelet framework makes it possible to implement multiscale image operations efficiently with no discontinuities or artifacts.

11:15 am
Interference on Technology Applied to Electronic Arts

Charles Anthony Viviani
Tereza Brandao Vieira
Faculdade da Cidade

An experience on reverting the recommended operational process of technology and equipment applied on computer graphics and electronic art in general as a way of producing very good unexpected effects.

11:30 am
Color Recovery

Anthony C. Barkans
Hewlett-Packard Company

A discussion of color recovery focusing on three issues:
- What is color recovery?
- How does it work?
- What hardware and software support is needed in order to use color recovery.

RENDERING AND SYSTEMS
Thursday, 28 July
1:30 pm to 3 pm

1:30 pm
Pipeline Rendering: Interactive Refractions, Reflections, and Shadows

Paul J. Diefenbach and
Norman I. Badler
University of Pennsylvania

Use of bitplanes and rendering pipelines can create ray-trace-quality illumination effects in real time by providing recursive reflections and refractions, reflective and refractive lighting and shadows, and caustics.

1:45 pm
Synthesizing Flames and Their Spreading

Christopher H. Perry
Rhythm & Hues Studios

Rosalind W. Picard
MIT Media Laboratory

We present a model for synthesizing fires that look real, respond properly to wind and gravity, light their environment, spread over and char 3D objects, and compute in interactive times.

2 pm

Architecting AVS/Express: An Object-Oriented Visual Programming Environment for Data Visualization

Jeffrey J. Vroom
Alan B. Scrivener
Advanced Visual Systems Inc.

Results of a two-year effort devoted to re-architecting AVS, a visually programmed visualization software environment, to use data-notification instead of data flow and to allow object-oriented visual programming.

2:15 pm

Rendering Extremely Complex Scenes

Kenneth Chiu
Peter Shirley
Indiana University

Extremely complex scenes and arbitrary BRDFs present difficulties for patch-based global illumination methods. With future hardware, ray tracing may produce more realistic results for such scenes.

2:30 pm

Handling Non-Constant Radiosity Patches Within an Adaptive Hierarchical Scheme

Takashi Totsuka
SONY Corporation

A simple but efficient method for handling non-constant radiosity, non-rectangular, and texture mapped-patches within an adaptive hierarchical scheme.

2:45 pm

Applying C++ to Computer Graphics

Nicholas Wilt

C++ offers many advantages over C, the lingua franca of computer graphics implementation. These advantages are outlined with specific examples from the speaker's ray tracer implemented in C++.

SHAPE-MAKING
Friday, 29 July
10:15 am to 11:45 am

10:15 am

Conceptual Shape Design: Sketch, Clay, or Spray?

Casper G.C. van Dijk
Delft University of Technology

An interactive surface modeler is presented based on sketched design curves. To find a better tool for conceptual shape design, we discuss electronic clay and introduce a 3D sketch metaphor.

10:30 am

Procedural Modeling by Paths and Repetitions

Masa Inakage
The Media Studio, Inc.

The paper describes a modeling technique that combines simple primitives to generate complex shapes. Modeling is defined procedurally in two steps: "path" modeling and "repetition" modeling.

10:45 am

A Field-Oriented Approach for Free-Form Modeling

Hiroshi Kaizuka
Makoto Sagara
Yasuhiro Matsusaka
Kunihiko Okamura
Kazuyoshi Tsukiyama
Nippon Steel Corporation

A new implicit modeling technique has been studied with special reference to simultaneous implementation of smoothed Boolean set operations and volume deformations.

11 am

Volume-Preserving Free-Form Deformations

Ari Rappoport
Alla Sheffer
Daniel Youlus
Michel Bercovier
The Hebrew University

We show how to compute the volume inscribed by a topological cube whose sides are defined by Bezier surfaces and how to preserve this volume while the user interactively moves the surfaces' control points. The algorithm has several applications in industrial design, mechanical engineering, and computer animation.

11:15 am

GURBS: Introducing Geometric Uniform Representation of B-Splines

Michel Fleury
Université du Québec à Montréal

We present an alternative mathematical description of cubic non-uniform (or uniform) B-Splines based on geometric continuity. New controls for shape manipulation are gained by this approach.

11:30 am

Massively Parallel Hybrid Brep/CSG Processing for Geometric Modeling and Graphics

Jai Menon
IBM T.J. Watson Research Center

Hybrid Brep/CSG representations – CSRs – obtained by replacing faces of a surface with "thick" CSG subtrees, are strongly amenable to massively parallel processing for rendering, interrogation, and a host of geometric modeling applications.

SYSTEMS AND INTERACTION
Friday, 29 July
1:45 pm to 3:15 pm

1:45 pm

The ALIVE System: Full-body Interaction with Animated Autonomous Agents

Pattie Maes
Trevor Darrell
Bruce Blumberg
Alex P. Pentland
MIT Media Laboratory

This talk will discuss the design and implementation of a novel system that allows wireless full-body interaction between a human participant and a graphical world inhabited by autonomous agents.

2 pm

Presence as the Defining Factor in a VR Application

Larry F. Hodges
Rob Kooper
Thomas Meyer
Georgia Institute of Technology

Barbara O. Rothbaum
Emory University

Dan Opdyke
Georgia State University

Johannes J. de Graaff
Delft University of Technology

James S. Williford
Fort Campbell, Kentucky

Max M. North
Clark Atlanta University

We conducted a controlled study using virtual reality in the treatment of acrophobia (fear of heights). The study also served as a testbed to explore a user's sense of presence.

2:15 pm

Space Shuttle Database Access with Three Graphic Examples

Mitch Harris
New Technology, Inc.

This is of interest to those who require or are curious about space shuttle data. Three examples of acquiring and using the space shuttle data are given.

2:30 pm

Dynamic Simulation of Human Diving and Splashing Fluids

James F. O'Brien
Wayne L. Wooten
Jessica K. Hodgins
Georgia Institute of Technology

Physically based simulation and control systems are used to generate the motion of a human diver. Fluid dynamics and particle system dynamics are combined to produce the splash.

2:45 pm

Tactile Widgets at Consumer Prices

Ronie Hecker
Ken Perlin
New York University

We introduce a new, inexpensive tactile feedback mouse together with a new paradigm for tactile widget control. We demonstrate with an example: a tactile scrolling controller.

3 pm

ViSurf: A Tool-Based Virtual Surface Modeler with Force Feedback

Juli Yamashita
Hiroshi Yokoi
Yukio Fukui
Makoto Shimojo
National Institute of Bioscience and Human-Technology, AIST, MITI

ViSurf offers direct free-form deforming interface with force feedback, which is independent of underlying B-Spline parameters, by introducing virtual "tools" such as curving tools, twisting tools, and trowels.

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JAPAN

Registration Information

NEW REGISTRATION AND FEE SYSTEM

Please register for one registration category only. Do NOT register for more than one.

SIGKIDS REGISTRATION

For information on SIGkids (for which children must be separately registered), see page 23.

WHAT YOU GET WITH YOUR REGISTRATION

	Exhibition	*Courses*	*CD-ROM Course Notes*	*Papers/Panels*	*Technical Sketches*	*Electronic Theater Ticket*	*Screening Room*	*Art and Design Show*	*The Edge*	*VROOM Voucher*	*SIGkids*	*Conference Proceedings and CD-ROM*	*Visual Proceedings*	*Course Reception*	*Papers/Panels Reception*	*Keynote Session*	*Special Sessions*	*Fundamentals Seminar*
CONFERENCE PASSPORT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
COURSES PASSPORT	•	•	•		•	•	•	•	•	•	•		•	•		•	•	•
PAPERS/PANELS PASSPORT	•			•	•	•	•	•	•	•	•	•	•		•	•	•	•
EXHIBITS PLUS	•				•		•	•	•		•					•	•	•

ATTENDEE REGISTRATION

MEMBER DISCOUNTS

You must present your current ACM or SIGGRAPH membership number to receive member discounts. Students must present a copy of their 1994 ACM student membership card or a valid student identification card. Be prepared to show these IDs, which must have valid expiration dates. You will be charged non-refundable, non-member rates if you cannot provide this information.

CONFERENCE PASSPORT REGISTRATION

The Conference Passport registration includes all Courses, Course Reception, CD-ROM course notes, Papers/Panels, Papers/Panels Reception, Technical Sketches, Exhibition, one Electronic Theater ticket, Screening Room, Art and Design Show, The Edge, one VROOM voucher, SIGkids, one copy each of the SIGGRAPH 94 *Conference Proceedings* and *Visual Proceedings*, Keynote Session, Special Sessions, and Fundamentals Seminar. Courses seating is not guaranteed, and is available on a first-come, first-served basis. Please be sure to arrive early for the course(s) that you wish to attend. Lunch is not provided.

COURSES PASSPORT REGISTRATION

Courses Passport registration includes all Courses, Course Reception, CD-ROM course notes, Technical Sketches, Exhibition, one Electronic Theater ticket, Screening Room, Art and Design Show, The Edge, one VROOM voucher, SIGkids, one copy of the SIGGRAPH 94 *Visual Proceedings*, Keynote Session, Special Sessions, and Fundamentals Seminar. Courses seating is not guaranteed, and is available on a first-come, first-served basis. Please be sure to arrive early for the course(s) that you wish to attend. Lunch is not provided.

PAPERS/PANELS PASSPORT REGISTRATION

Papers/Panels Passport registration includes Papers/Panels, Papers/Panels Reception, Technical Sketches, Exhibition, one Electronic Theater ticket, Screening Room, Art and Design Show, The Edge, one VROOM voucher, SIGkids, one copy each of the SIGGRAPH 94 *Conference Proceedings* and *Visual Proceedings*, Keynote Session, Special Sessions, and Fundamentals Seminar. Lunch is not provided.

EXHIBITS PLUS REGISTRATION

Admission to the Exhibition is included in the Conference, Courses, and Papers/Panels Passports. Exhibits Plus registration includes admission to the Exhibition, Technical Sketches, Screening Room, Art and Design Show, The Edge, SIGkids, Keynote Session, Special Sessions, and Fundamentals Seminar. Exhibits Plus registration is non-refundable.

ELECTRONIC THEATER ADMISSION

One ticket per person is included with registrations for Conference, Courses, and Papers/Panels Passports. Every attempt will be made to accommodate your requested Electronic Theater performance evening. All performances contain the same material. Registered attendee may purchase Electronic Theater tickets (subject to availability) at the on-site registration desk in the Orange County Convention Center beginning Sunday, 24 July.

ON-SITE REGISTRATION HOURS

SIGGRAPH 94 registration at the Orange County Convention Center is available during the following hours:

Sunday, 24 July	noon to 10 pm
Monday, 25 July	7:30 am to 7 pm
Tuesday, 26 July	7:30 am to 7 pm
Wednesday, 27 July	7:30 am to 6 pm
Thursday, 28 July	8 am to 6 pm
Friday, 29 July	9 am to 1 pm

MEDIA REGISTRATION

Media representatives must register at Media Headquarters, Room 6B. Media registration hours are listed on page 62.

SPECIAL POLICIES

The Exhibition is open only to badged attendees. Children under 16 are not permitted in the Exhibition. For information on child care, see page 61. For information on SIGkids, see page 23.

No cameras or recording devices are permitted at SIGGRAPH 94.

EXPOCARDS

All SIGGRAPH 94 attendees receive Expocards, scannable cards containing names and addresses for use in obtaining information from exhibitors. Please remember to return the card when you leave the conference. Returned cards are entered in a drawing for valuable prizes. The cards are recycled after the drawing.

On-Site Services

SIGGRAPH 94 and the Orange County Convention Center (OCCC) offer a number of services during the conference to make your week more enjoyable.

ART AND DESIGN SHOW OFFICE

Room 13
+1.407.345.9626

Contributors can gather here to exchange ideas, leave messages, or discuss questions and concerns.

AUDIO/VISUAL SERVICES

Rear of Hall E (behind The Edge and SIGkids)
+1.407.345.9624

Sunday-Friday: 8 am to 5:30 pm

Direct all questions about audio/visual needs to this office during these hours. For more information on audio/visual services for speakers, see Speaker Prep Room, page 62.

BUSING

See Shuttle Services, page 66.

CHILD CARE

Clarion Plaza Hotel
Salons 1, 2, 7, and 8
+1.407.648.0454

Monday-Thursday: 8 am to 10 pm
Friday: 8 am to 8 pm
The child care schedule may change if participation is lower than expected.

Child care is back for SIGGRAPH 94. The services of Kids Konventions USA have been contracted for SIGGRAPH 94 attendees with infants and children up to 11 years of age. Various themed, age-appropriate activities are offered at the Clarion Plaza Hotel for your child's enjoyment.

All Kids Konventions USA staff are licensed, bonded, and certified. They are trained in CPR and emergency management techniques, and a nurse or EMT is always on duty. For maximum safety, Kids Konventions USA photographs you with your child and allows your child to be picked up only by the person(s) in the photo.

CONFERENCE MANAGEMENT OFFICE

2nd Floor above Registration
+1.407.345.9625

If you have questions regarding SIGGRAPH 94, you'll find friendly assistance in this office. Call or stop in anytime.

CONFERENCE POLICIES

Smoking is not permitted at any of the conference locations. No cameras or recording devices are allowed. Children under 16 are not permitted on the Exhibition floor. Lost badges can only be replaced for the original cost of the badge.

ELECTRONIC THEATER OFFICE

Suite A, above Hall C
+1.407.345.9600

Contributors can gather here to exchange ideas, leave messages, or discuss questions and concerns.

ELECTRONIC THEATER TICKETS

See Tickets (Additional Purchases and Voucher Exchanges), page 63.

EXHIBITION MANAGEMENT OFFICE

Suite B, Located above Hall C
+1.407.345.9610

If you have questions regarding the SIGGRAPH 94 Exhibition, feel free to call or visit a staff member here.

EXHIBITOR REGISTRATION

Registration Concourse

Exhibitors should pick up their badges at the exhibitor registration counter, which is open during the same hours as other registration counters (see Registration, page 62).

EXPOCARDS AND PRIZE DRAWING

All SIGGRAPH 94 attendees receive Expocards – scannable cards containing your name and address – for use in obtaining information from exhibitors. Please make a note of the number on your Expocard. Because your name is not printed on it, this is the only way to identify it if it is misplaced. Attendees are urged to return their Expocards on their final departure from the conference. All returned Expocards are automatically entered in a drawing for prizes valued at more than $250 each. Winners will be notified by 5 August 1994. A $5 replacement fee is charged for lost Expocards.

FIRST AID

Art & Design Gallery, Opposite Room 10
+1.407.345.9848

A registered nurse or paramedic is on duty at the first aid areas during registration hours.

INFORMATION BOOTH

Grand Lobby Entrance

The Information Booth is open during registration hours to answer questions about conference destinations and the Orlando area.

INTERNATIONAL CENTER

Grand Lobby
+1.407.345.9627
+1.407.345.9628 fax

Sunday	noon to 10 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

SIGGRAPH 94's International Center is the ideal gathering spot for attendees and exhibitors from around the world. The International Center provides telephones, a fax machine, and a multi-lingual staff. The staff is always available to assist attendees and to help arrange for translation services.

Several SIGGRAPH 94 Student Volunteers are fluent in languages other than English. Look for the Student Volunteers wearing yellow vests with patches that indicate their language fluency.

Questions or concerns may also be directed to the members of the multi-lingual International Committee.

On-Site Services

INTERNET ACCESS CENTER

Room 9

SIGGRAPH 94's Internet Access Center provides computer terminals and Telnet access to the Internet. From the conference, you can access your home Internet sites to read email and keep in touch with your office.

Sunday	noon to 8 pm
Monday-Tuesday	8 am to 7 pm
Wednesday-Thursday	8 am to 6 pm
Friday	8 am to 1 pm

JOB BOARD

Grand Lobby, behind the International Center

The centrally located job board provides a place for job-seekers to post resumes and employers to post job openings.

LOST AND FOUND

At Luggage Check/Check Room

LUGGAGE CHECK/CHECK ROOM

Grand Lobby, near Room 12D

SIGGRAPH 94 provides complimentary luggage check services for briefcases, backpacks, and other small items during conference hours. Items cannot be checked overnight.

MEDIA ACTIVITIES

Media Headquarters
Room 6B
+1.407.345.9629

Sunday	noon to 7 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

Registered media representatives are encouraged to use the media headquarters. The facility includes a registration/information area, media library, and work area.

Media Briefing
Tuesday, 26 July
8 am to 8:50 am
Hall D, Orange County Convention Center

The official SIGGRAPH media briefing has become the place to discover "what's hot" in computer graphics and interactive techniques. You'll meet industry luminaries and discover some of this year's exciting conference programs and events.

Media Exhibition Tour
Immediately following the media briefing:
Tuesday, 26 July
8:55 am to 10 am
Meet at Media Headquarters
Room 6B, Orange County Convention Center.

Prominent members of the SIGGRAPH community accompany small groups of media representatives on a tour of the Exhibition an hour before it officially opens.

Media Venue Tours
If you're a SIGGRAPH newcomer, tours of venues – such as the Art and Design Show, The Edge, and SIGkids – will give you an inside perspective and a complete overview of the conference.

Venue tours are repeated on the following schedule:

Sunday	4 pm to 5 pm
Monday	9 am to 10 am
Wednesday	9 am to 10 am

Exhibitor Press Events
Pick up a schedule of exhibitor press events at Media Headquarters.

MERCHANDISE WAREHOUSE

SIGGRAPH merchandise is available for sale at SIGGRAPH 94 in the Registration Concourse. Merchandise must be purchased and picked up by 1 pm, Friday, 29 July.

MESSAGE CENTER

Grand Lobby, behind International Center
+1.407.345.9621

Messages are posted on a bulletin board in the Message Center.

ORANGE COUNTY CONVENTION CENTER ACCESSIBILITY

The OCCC is wheel-chair accessible. It has no curbs, and there are elevators to second-floor levels. SIGGRAPH 94 provides free shuttle service between many of the conference hotels and the convention center. For assistance with handicap access, call:

+1.407.426.1212

The special-assistance-equipped shuttle bus operates during SIGGRAPH 94 shuttle hours. Look for the signs indicating pick-up times and locations at your hotel, and refer to Shuttle Services, page 66.

ORANGE COUNTY CONVENTION CENTER BUSINESS SERVICES

Kinko's offers copying, faxing, and secretarial services for a fee.

REGISTRATION

Registration Concourse
+1.407.345.9630

Registration counters are open:

Sunday	noon to 10 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

RESTAURANT INFORMATION DESK

Grand Lobby

Menus from local restaurants are available here. Staff members can assist you with restaurant selection and reservations. This desk is open during registration hours.

SHIPPING DESK

Registration Concourse

For your convenience, a shipping desk at SIGGRAPH 94 provides next-day air, second-day air, and regular ground shipping services to destinations throughout the world.

SIGKIDS OFFICE

Hall E
+1.407.345.9626

Contributors can gather here to exchange ideas, leave messages, or discuss questions and concerns.

SPEAKER PREP ROOM

Room 6A
+1.407.345.9632

Sunday - Thursday	7 am to 7 pm
Friday	7 am to 2 pm

All speakers must check in at the speaker prep room at least 24 hours before their presentation.

Speakers and contributors should use the speaker registration desk in the Registration Concourse to resolve registration problems and obtain conference information.

Speakers may use the speaker prep room to prepare for their presentations, preview slides and videotapes, sort slides, and obtain slide carousels.

Changes in audio/visual equipment needs in presentation rooms should be directed to the speaker prep room.

SPECIAL ASSISTANCE DESK

Registration Concourse

Staff members at the special assistance desk help attendees resolve a wide range of possible problems and concerns, including:

- Credit card problems (validations, errors)
- Lost badges
- Misspelled names on conference materials
- Payments submitted without registration forms
- Refunds
- Receipts not received in the mail
- Registration forms submitted without payments
- Speaker problems (changes, missing ribbons)
- Substitute registration (only if authorized on company letterhead)

THE EDGE OFFICE

Hall E
+1.407.345.9633

Contributors can gather here to exchange ideas, leave messages, or discuss questions and concerns.

TICKETS

(Additional Purchases and Voucher Exchanges)

Electronic Theater
One ticket per person is included with registrations for Conference, Courses, and Papers/Panels Passports. Every attempt is made to accommodate your requested Electronic Theater performance evening. All performances contain the same material. Badged attendees may purchase up to four Electronic Theater tickets (subject to availability) at on-site registration beginning at noon Sunday, 24 July.

VROOM
All attendees who purchase a Conference, Courses, or Papers/Panels Passport receive a VROOM (Virtual Reality Room) voucher that may be exchanged for a ticket to experience the CAVE installations in VROOM. The VROOM Ticket Exchange Booth on the second floor to the left of the escalator is open during registration hours.

Course Reception
Disney-MGM Studios
Vouchers included with Courses Passport registrations must be exchanged for an official Disney tickets at the Ticket Exchange Booth in the Orange County Convention Center. Vouchers must be exchanged before 7 pm on Monday.

Badged attendees may purchase additional vouchers for the Course Reception at on-site registration.

Papers/Panels Reception
Sea World
Vouchers included with Conference and Papers/Panels Passport registrations must be exchanged for an official Sea World ticket at the Ticket Exchange Booth in the Orange County Convention Center. Vouchers must be exchanged before 6 pm on Thursday.

Badged attendees may purchase additional vouchers for the Papers/Panels Reception at on-site registration.

TELEPHONE NUMBERS

ATI Travel Management
+1.407.345.9623

Art and Design Show Office
+1.407.345.9626

Audio/Visual Services
+1.407.345.9624

Conference Management Office
+1.407.345.9625

Continental Airlines
+1.407.345.9622

Electronic Theater Office
+1.407.345.9600

Emergencies (ambulance, fire, police)
119 (inside OCCC)

Exhibition Management Office
+1.407.345.9610

First Aid Office
+1.407.345.9848

Handicap Access
+1.407.426.1212

International Center
+1.407.345.9627
+1.407.345.9628 fax

Mears Shuttle
Reservation Office
+1.407.423.5566

Media Office
+1.407.345.9629

Message Center
+1.407.345.9621

Orlando/Orange County
Convention & Visitors Bureau, Inc.
+1.407.363.5800

Registration
+1.407.345.9630

SIGkids Office
+1.407.345.9626

Speaker Slide-Making Room
+1.407.345.9631

Speaker's Prep Room
+1.407.345.9632

The Edge Office
+1.407.345.9633

International Center

Grand Lobby
+1.407.345.9627
+1.407.345.9628 fax

SIGGRAPH 94's International Center, just inside the main entrance to the Orange County Convention Center, is the ideal gathering spot for attendees and exhibitors from around the world. The International Center provides telephones, a fax machine, and a multi-lingual staff. The staff is always available to assist attendees and to help arrange for translation services.

Several SIGGRAPH 94 Student Volunteers are fluent in languages other than English. Look for the Student Volunteers wearing yellow vests with patches that indicate their language fluency.

Questions or concerns may also be directed to the members of the multi-lingual International Committee.

The International Center is open during the following times:

Sunday	noon to 10 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

INTERNATIONAL OPERATIONS CHAIR
John Michael Pierobon

INTERNATIONAL CENTER MANAGERS
Jim Scidmore
Linda Hersom
Scidmore Hersom & Others
1115 Vicksburg Lane
18 Vicksburg Plaza
Plymouth, MN 55447-3215
USA
+1.612.476.4976
+1.612.476.6083 fax

INTERNATIONAL COMMITTEE

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rix@igd.fhg.de

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mkzuffo@lsi.usp.br

Spanish and Portuguese

John Michael Pierobon
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pierobon@siggraph.org

Attraction Tickets and Post-Conference Purchases

DISCOUNT ATTRACTION TICKETS

WALT DISNEY WORLD THEME PARK

SIGGRAPH 94 attendees can purchase Magic Kingdom, EPCOT Center, and Disney-MGM Studios tickets at special rates not available elsewhere. Prepaid tickets can be picked up at the Orange County Convention Center in the SIGGRAPH 94 conference management office starting Friday, 22 July at 9:00 am, or beginning Sunday, 24 July, at the Walt Disney Booth in the Registration Concourse during registration hours.

Two-Day Ticket
Includes two days unlimited admission to the Magic Kingdom Park, EPCOT Center, and Disney-MGM Studios during regular operating hours.

Adult	$75
Child (ages 3-9)	$60

Three-Day Ticket
Includes three days unlimited admission to the Magic Kingdom Park, EPCOT Center, and Disney-MGM Studios, and one complimentary visit to Pleasure Island, during regular operating hours.

Adult	$110
Child (ages 3-9)	$90

Four-Day Ticket
Includes four days unlimited admission to the Magic Kingdom Park, EPCOT Center, and Disney-MGM Studios, and one complimentary visit to Pleasure Island, during regular operating hours.

Adult	$140
Child (ages 3-9)	$110

UNIVERSAL STUDIOS

SIGGRAPH 94 attendees can purchase Universal Studios tickets at discounted rates. Tickets can be purchased at the Attraction Ticket Booth in the Registration Concourse during registration hours.

Adult	$34.35
Child (ages 3-9)	$27.67

SEA WORLD

SIGGRAPH 94 attendees can purchase Sea World tickets at discounted rates. Tickets can be purchased at the Attraction Ticket Booth in the Registration Concourse during registration hours.

Adult	$28
Child (ages 3-9)	$24

POST-CONFERENCE PURCHASES

SIGGRAPH 94 Slide Sets, Multimedia CD-ROM, *Conference Proceedings*, Conference Proceedings CD-ROM, and *Visual Proceedings* are available for purchase after the conference. Please call or write:

ACM Order Department
P.O. Box 12114
Church Street Station
New York, NY 10257 USA
800.342.6626 (USA credit card orders from U.S. and Canada, except New York metro area codes)
+1.212.626.0500 (international and New York metro area codes)
+1.212.944.1318 fax (single-copy orders)
acmhelp@acm.org

SIGGRAPH Video Reviews are available for purchase after the conference from:

VI&A/First Priority
P.O. Box 576
Itasca, IL 60143-0576 USA
800.523.5503 USA toll free
+1.708.250.0807 international
+1.312.789.7185 fax
svrorders@siggraph.org

Travel and Housing

AIRLINE INFORMATION

Grand Lobby
Continental Airlines (+1.407.345.9622) will be available to assist you with your travel plans at the following times:

Sunday	noon to 10 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

ATI TRAVEL MANAGEMENT ASSISTANCE HOUSING AND CAR RENTAL

Grand Lobby
+1.407.345.9623

A representative from ATI Travel Management is available at the housing desk at the following times:

Sunday	noon to 10 pm
Monday	7:30 am to 7 pm
Tuesday	7:30 am to 7 pm
Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

If you wish to rent a car, ATI offers special discounts or 10 percent off the retail rate with Alamo Rent A Car Company. Your ATI agent can book a car reservation for you, or you can call Alamo directly at:

800.732.3232
+1.305.522.0000
or fax your request to:
+1.305.527.4700

Mention SIGGRAPH ID #75148 and plan XG code for negotiated rates, or 9G for 10 percent off the retail rates.

Rates

Economy	$75/week $20/day
Compact	$101/week $23/day
Midsize	$131/week $26/day
Fullsize	$151/week $32/day
Luxury	$199/week $39/day

BUSING

See "Shuttle Services"

PARKING

SIGGRAPH 94 attendees may park at the Orange County Convention Center for $4 per day. Attendees should enter the parking area from the main convention center entrance at the rear of the building.

SHUTTLE SERVICES

Local Shuttle Service/Buses
SIGGRAPH 94 provides free shuttle service between all conference hotels and the Orange County Convention Center (except from the Clarion Plaza Hotel and the Peabody Orlando, which are within a short walk). Look for the signs indicating pick-up times and locations at your hotel. For assistance with handicap access, call +1.407.426.1212. The handicap-equipped shuttle runs during SIGGRAPH 94 shuttle hours.

Routes

Route #1 serves:	Orlando Marriott
Route #2 serves:	Hawaiian Super 8 Quality Inn Plaza Red Roof Inn Wynfield Inn
Route #3 serves:	Courtyard by Marriott Embassy Suites Orlando Radisson Inn Summerfield Suites
Route #4 serves:	Sheraton World Resort Sonesta Villa Resort Stouffer Orlando Resort
Route #5 serves:	Disney's Port Orleans Grosvenor Resort at Walt Disney World Hilton at Walt Disney World

Shuttle Schedule
Limited service: approximately every 15- 20 minutes.
Heavy service: approximately every 5-10 minutes.

Sunday, 24 July	
10 am to 10 pm	Limited Service
Monday, 25 July	
7 am to 8:30 am	Heavy Service
8:30 am to 4:30 pm	Limited Service
4:30 pm to 7:30 pm	Heavy Service
Tuesday, 26 July	
7 am to 8:30 am	Heavy Service
8:30 am to 4:30 pm	Limited Service
4:30 pm to 7:30 pm	Heavy Service
7:30 pm to 9:30 pm	Limited Service
9:30 pm to 10:30 pm	Heavy Service
Wednesday, 27 July	
7 am to 8:30 am	Heavy Service
8:30 am to 4:30 pm	Limited Service
4:30 pm to 7:30 pm	Heavy Service
7:30 pm to 9:30 pm	Limited Service
9:30 pm to 10:30 pm	Heavy Service
Thursday, 28 July	
7:30 am to 9 am	Heavy Service
9 am to 4:30 pm	Limited Service
4:30 pm to 7:30 pm	Heavy Service
7:30 pm to 9:30 pm	Limited Service
9:30 pm to 10:30 pm	Heavy Service
Friday, 29 July	
8 am to 6 pm	Limited Service

Shuttles to Receptions
Monday - Course Reception
Shuttles leave the Orange County Convention Center from 7 pm to 7:30 pm to take attendees to the Course Reception at Disney-MGM Studios. From 7:30 pm to 12:30 am, the shuttle will travel from Disney-MGM Studios to all SIGGRAPH 94 hotels.

Thursday - Papers/Panels Reception
Shuttles transport attendees between the Orange County Convention Center and the Papers/Panels Reception at Sea World from 6:30 pm to 10:30 pm.

Mears Shuttle

One-way	Zone 3	International Drive Area $11 adult $8 child (4-11)
One-way	Zone 4	Disney Area $13 adult $10 child (4-11)

A return reservation must be scheduled at least one day prior to your departure by calling the Mears reservation office at:

+1.407.423.5566

Mears staff are available in the Grand Lobby at the following times to confirm return transportation to the airport:

Wednesday	7:30 am to 6 pm
Thursday	8 am to 6 pm
Friday	9 am to 1 pm

Hotel Map

ORLANDO HOTELS

1 Clarion Plaza Hotel
9700 International Drive
Orlando, FL 32819-8114
800.366.9700
+1.407.352.9700

2 Courtyard by Marriott on International Drive
8600 Austrian Court
Orlando, FL 32819
+1.407.351.2244

3 Disney's Port Orleans
2201 Orleans Drive
Lake Buena Vista, FL 32830
+1.407.934.5000

4 Embassy Suites Orlando International Drive
8978 International Drive
Orlando, FL 32819
+1.407.352.1400

5 Grosvenor Resort at Walt Disney World Village
Walt Disney World Village
Lake Buena Vista, FL 32830
+1.407.828.4444

6 Hawaiian Super 8
1956 Hawaiian Court
Orlando, FL 32819
+1.407.351.5100

7 Hilton at Walt Disney World Village
1751 Hotel Plaza Boulevard
Lake Buena Vista, FL 32820
+1.407.827.4000

8 Orlando Marriott
8001 International Drive
Orlando, FL 32819
+1.407.351.2420

9 Peabody Orlando
9801 International Drive
Orlando, FL 32819
+1.407.352.4000
(Co-headquarters)

10 Quality Inn Plaza
9000 International Drive
Orlando, FL 32819
+1.407.345.8585

11 Radisson Inn on International Drive
8444 International Drive
Orlando, FL 32819
+1.407.345.0505

12 Red Roof Inn
9922 Hawaiian Court
Orlando, FL 32819
+1.407.352.1507

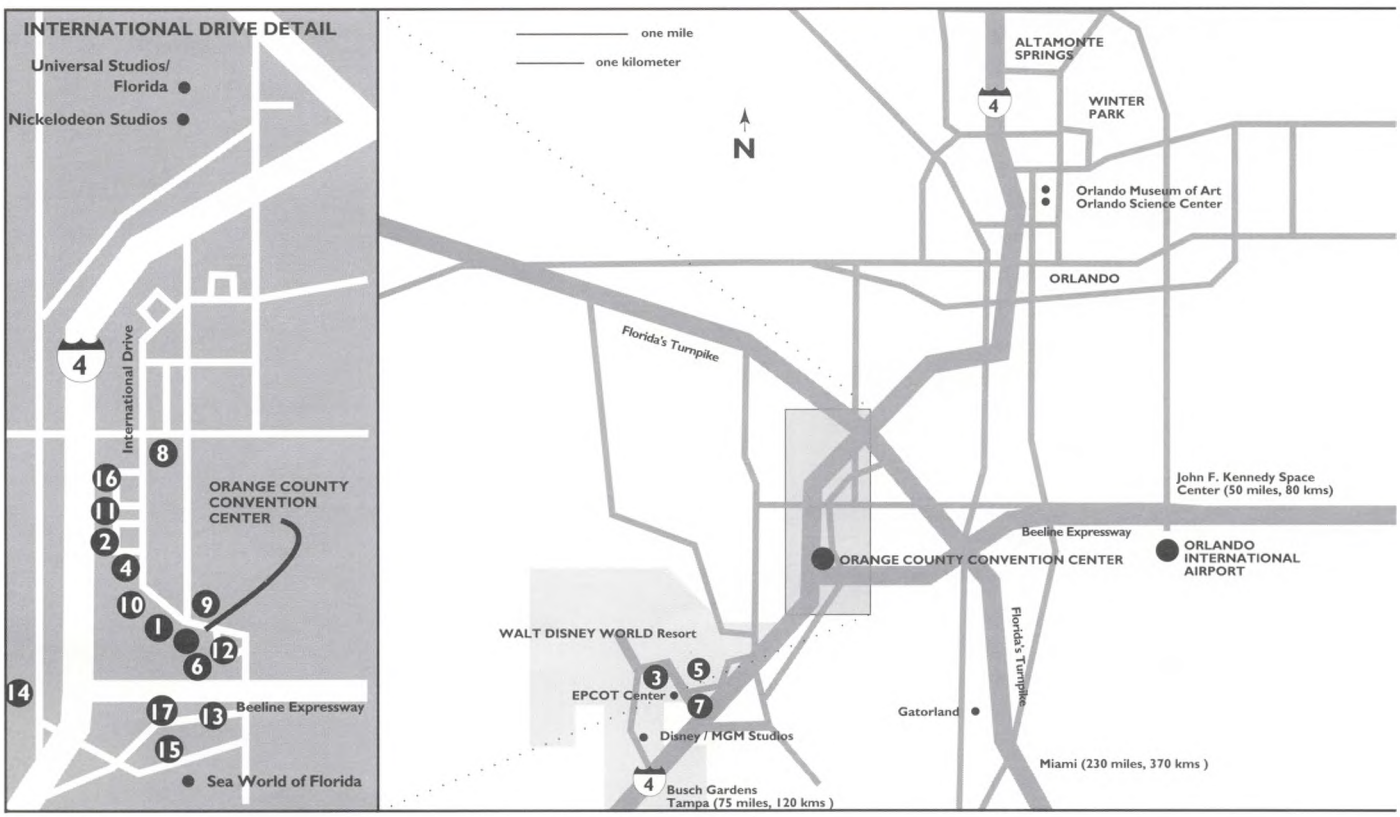
13 Sheraton World Resort
10100 International Drive
Orlando, FL 32821
+1.407.352.1100

14 Sonesta Villa Resort Orlando
10,000 Turkey Lake Road
Orlando, FL 32819
+1.407.352.8051

15 Stouffer Orlando Resort
6677 Sea Harbor Drive
Orlando, FL 32819
+1.407.351.5555
(Co-headquarters)

16 Summerfield Suites
8480 International Drive
Orlando, FL 32819
+1.407.352.2400

17 Wynfield Inn
6263 Westwood Boulevard
Orlando, FL 32821
+1.407.345.8000



Exhibition

Halls A, B, C, and Room 12
Tuesday-Wednesday
10 am to 6 pm
Thursday
10 am to 3:30 pm

Experience all the latest computer graphics hardware, software, and services. SIGGRAPH 94 is the year's best opportunity to see and experience the latest computer graphics technologies in a focused, interactive, high-energy environment.

Over 250 exhibitors have overbooked four exhibit halls at the Orange County Convention Center. On Tuesday, Wednesday, and Thursday, their displays of the latest computer graphics technologies are a main attraction for the 25,000-30,000 executives, artists, scientists, designers, engineers, enthusiasts, and researchers from all parts of the world who have gathered in Orlando for SIGGRAPH 94.

PRODUCTS & SERVICES ON DISPLAY

Animation
Artificial Intelligence
Business and Financial Graphics
CAD/CAM/CAE/CIM/Robotics
Cameras and Scanners; Scan Converters
Computer-Video Interfacing
Desktop Publishing
Electronic Publishing
Encoders/Decoders
Graphic Art Systems
Graphic Design Systems
Graphics Accelerator Boards
Graphics Standards Software
Hardcopy Devices
Photographs/Slides
HDTV
High-Performance Graphics Processors
High-Resolution Graphics Display Systems
Image Processing
Input Devices: Digitizers, Light Pens, Mice
Low-Cost Graphics Systems
Mapping and Cartography
Medical Imaging Software
Multimedia/Hypermedia
Networking: Hardware, Software, Services
OEM Components
Paint Systems
PC Add-On Products
PC-Based Systems
PDAs (Personal Digital Applications)
Printers, Plotters, and Other Hardcopy Devices
Projectors
Publications
Rendering and Image Synthesis Software
Scientific Visualization
Software
Storage Devices: Tape/Disk
Terminals, Monitors, and Displays
Video Technology
Virtual Reality
Visual Arts
Windowing Systems
Workstations

EXHIBITS PLUS REGISTRATION

Admission to the Exhibition is included in Conference, Courses, and Papers/Panels Passport registrations. Exhibits Plus registration, $50 at SIGGRAPH 94, includes admission to the Exhibition, Technical Sketches, Screening Room, Art and Design Show, The Edge, SIGkids, Keynote Session, Special Sessions, and Fundamentals Seminar.

Children under 16 are not permitted to attend the Exhibition. For information on child care, see page 61.

SPACE RESERVATION

For information on how to participate in the SIGGRAPH 95 space selection meeting, inquire at the Exhibition Management Office, Suite B, above Hall C before 5 pm Tuesday, 26 July.

For complete information on exhibiting at SIGGRAPH 95, call or write:

SIGGRAPH 95
Exhibition Management
Hall-Erickson, Inc.
150 Burlington Avenue
Clarendon Hills, IL 60514 USA
+1.708.850.7779
+1.708.850.7843 fax
halleric@siggraph.org

Exhibitors

3D Scanners Ltd.
BOOTH 45

90 London Road
London SE1 6LN England
+44.71.922.8822
+44.71.922.8899 fax

Stuart Hamilton
Commercial Manager

3D Scanners launches the replica 3D Scanner and demonstrate just how you can get almost any sort of physical model into your CG package quickly and accurately. For a complete body scanner, the persona 3D Scanner turns superstars into models in just 15 seconds.

5D
BOOTH 1634

Southbank Technopark
90 London Road
London SE1 6LN United Kingdom
+44.71.922.8814
+44.71.401.8621 fax
nick_g@dircon.co.uk

Steve Hayes
Marketing Director

Just when you thought morphing was all done, 5D have gone and done it again. TMorph3 for movies and Hyperwarp3 for pre-press are the new generation of accurate, high-end, image-warping tools. Point-and-drag warping, perspective, and 3D lighting are just three of the many new features.

Abekas Video Systems
BOOTH 1606

101 Galveston Drive
Redwood City, CA 94063 USA
+1.415.369.5111
+1.415.369.4777 fax

Pete Challinger
Director of Marketing

Abekas shows its full range of CCIR-601 Digital Disk Recorders. Features include high-speed Ethernet & SCSI-2 interfaces for image transfer and control. Also nonlinear random access segment playback and disk partitioning for multi-user access. Abekas DDRs are ideal for 3D animation, compositing, and paint applications. Also exhibited is the ASWR8100, a low-cost, very high quality, real-time compositing system.

Accom
BOOTH 1538

1490 O'Brien Drive
Menlo Park, CA 94025 USA
+1.415.328.3818
+1.415.327.2511 fax

Barbara Cassidy
Marketing Communication Manager

Accom exhibits its WSD Work Station Disk, a digital disk recorder with interfaces to Macintosh and Silicon Graphics workstations. Also, the Brontostore Video Server, the most advanced storage system for both stills and real-time video clips, and the non-linear RTD Real Time Disk Recorder, shown in a dual-channel configuration with new audio option.

Acuris, Inc.
BOOTH 1854

931 Hamilton Avenue
Menlo Park, CA 94025 USA
+1.415.329.1920
+1.415.329.1928 fax
acuris.btr.com

Derek Evans
Sales and Marketing Manager

The Acuris 3D ClipModel libraries are filled with useful 3D meshes in many different formats. Materials and textures have already been assigned for most formats supported. Grouped into six themed libraries, ClipModels cover Interior Furniture and Multimedia, Exteriors, Geography, Human Forms - Male, Human Forms - Faces, and Human Forms - Female.

Addison-Wesley Publishing Company
BOOTH 1603

One Jacob Way
Reading, MA 01867 USA
+1.617.944.3700
+1.617.944.8964 fax
bobd@aw.com

Bob Donegan
Marketing Manager

Addison-Wesley is pleased to announce the SIGGRAPH Books Series with ACM Press Books, a collaborative effort among ACM SIGGRAPH, ACM Press, and Addison-Wesley Publishing Company. Please stop by our booth to see the first book in the series: *Multimedia Systems*, edited by John F. Koegel Buford. And as usual, our entire list of classic graphics-related titles are on display and available for sale.

Adjile Systems
BOOTH 20

5816 Roseville Road
Sacramento, CA 95842 USA
800.347.7621
+1.916.338.7660 fax
shawnadj@aol.com

Shawn Peterson
Marketing Manager

Adjile Systems is a third-party supplier of UNIX peripherals. Our product line includes affordable R.A.I.D. systems, disk arrays, tape drives, optical storage, memory, and much more. We also design and manufacture custom rack-mount, desktop, and deskside array enclosures.

Adobe Systems Inc.
BOOTH 520

1585 Charleston Road
Mountain View, CA 94043 USA
+1.415.961.4400
+1.415.961.1158 fax

Adobe hardware and software products and technologies enable users to create, view, communicate, and print electronic documents across platforms. Leading products include Adobe PostScript technology, Adobe Acrobat, Adobe Illustrator, Adobe Photoshop, and the Adobe Type Library.

Advanced Digital Imaging
BOOTH 600

1250 North Lakeview Avenue, Suite O
Anaheim, CA 92807 USA
+1.714.779.7772
+1.714.779.7773 fax

Larry Taylor
Marketing Manager

Advanced Digital Imaging presents the new Digital Magic Digital Disk Recording System. With two SCSI-2 hard drives in combination with Intelligent Resources Video Explorer board, this system provides real-time digital video on a Macintosh platform. It enables non-linear editing and special effects capability at a quality comparable in performance to systems costing two or three times more.

Advanced Imaging
BOOTH 1655

445 Broad Hollow Road
Melville, NY 11747 USA
+1.516.845.2700
+1.516.845.2797 fax

Charles Grecky
Publisher

Advanced Imaging is the only international magazine specifically designed to meet the needs of professionals using all forms of electronic imaging technologies. Offering monthly coverage of video, photographic, and document-based imaging technologies used to capture, manipulate, display, store, output, transmit, and communicate images, text, graphics, sound, and video. Editorial features report on the use of these technologies in the real world.

Advanced Visual Systems Inc.
BOOTH 836

300 Fifth Avenue
Waltham, MA 02154 USA
+1.617.890.4300
+1.617.890.8287 fax
teri@avs.com

Teri Murphy
Marketing Programs Assistant

Advanced Visual Systems Inc. (AVS Inc.) is the worldwide leader in 3D visual application development tools and visual data analysis products for scientific, engineering, and technical business professionals. AVS Inc. provides users with highly flexible, interactive, platform-independent software products (AVS/Express, AVS and Toolmaster).

Agfa, Division of Miles, Inc.
BOOTH 811

200 Ballardvale Street
Wilmington, MA 01887 USA
+1.508.658.0200
+1.508.658.4193 fax

Elena M. Power
Marketing Trade Show Coordinator

Agfa is the imaging division of Miles, Inc. Agfa's Electronic Desktop Solutions group was formed in 1993 to develop and cultivate channels of distribution via value-added resellers, and computer resellers. The products on display at SIGGRAPH 94 include Agfa's full line of scanners, film recorders, and color management software.

Exhibitors

A K Peters, Ltd.
BOOTH 1803

289 Linden Street
Wellesley, MA 02181 USA
+1.617.235.2210
+1.617.235.2404 fax
kpeters@math.harvard.edu

Alice Peters
Publisher

A K Peters, Ltd., presents a program of books as well as innovative publications (videos and software). View the new feature-length animation, Outside In, and the award-winning video, Not Knot. Explore properties of the Wavelet Packet in an interactive software tool. Inspect new titles for computer graphics professionals: *NURBS for Rational Curve and Surface Design*, *Geometric Concepts for Geometric Design*, *Fundamentals of CAGD*, *Computer Facial Animation*, and many more.

Alias Research Inc.
BOOTH 1018

110 Richmond Street East
Toronto, Ontario M5C 1P1 Canada
+1.416.362.9181
+1.416.362.0630 fax

Susan Anderson
Director, Trade Shows and Events

Alias demonstrates its latest release of Alias PowerAnimator and other software products for digital media content creation. Booth demonstrations focus on the latest developments in character modeling and animation, digital optical effects, performance animation, and 2D paint tools for digital storyboarding and concept sketching.

Altamira Software Corporation
BOOTH 326

150 Shoreline Highway, Suite B-27
Mill Valley, CA 94941 USA
+1.415.332.5801
+1.415.332.5804 fax
74047.623@compuserve.com

Hellene Biedny
Marketing Communications

Altamira Composer is an image composition application where image elements float as independent objects in a stack. The automatic anti-aliasing and Dynamic Alpha technology allows the images in your composition to appear seamlessly integrated even though they are always individually independent and editable. Change your image as quickly as you change your mind.

American Showcase, Inc.
BOOTH 222

915 Broadway, 14th Floor
New York, NY 10010 USA
+1.212.673.6600
+1.212.673.9795 fax

Emily Rubin
Promotion Manager

For 18 years, American Showcase has set the industry standard for illustration, photography, and digital media sourcebooks. The company is launching an assignment CD-ROM for photographers and illustrators called THE SHOWCASE CD, for release this fall. Version 1.2 of THE VIRTUAL PORTFOLIO, the interactive multimedia CD-ROM, has been released. And NEW MEDIA SHOWCASE 4: THE DIGITAL SOURCEBOOK, the only annual sourcebook devoted to digital imagery, has undergone a redesign.

Ampex Corporation
BOOTH 1251

401 Broadway
Redwood City, CA 94063-3199 USA
+1.415.367.4603
+1.415.367.3850 fax
mark_arola@ampex.com

Mark Arola
DST Marketing Manager

Ampex is introducing a series of new products under its industry-leading DST mass storage line. The DST 310 tape drive stores up to 165GB on a single tape and transfers data at 15MB/sec over a SCSI-2 interface. The drives employ the same DD-2 format used in Ampex's first generation DST products. The DST 810 library stores 6.4TB in only 21 sq. ft. of floor space. Any file can be accessed within 30 seconds.

AmPro Corporation
BOOTH 1628

525 John Rodes Boulevard
Titusville, FL 32934 USA
+1.407.254.3000
+1.407.253.3001 fax

Anacapa Micro Product, Inc.
BOOTH 28

2259 B. Portola Road
Ventura, CA 93003 USA
+1.805.339.0305
+1.805.339.0353 fax
anacapa99@delphi.com

Lennis D. Sample
Trade Show Coordinator

Anacapa is a leading international manufacturer of memory upgrades for SGI, Sun, Mac, HP Apollo, DEC, IBM RS/6000, and NCD X-Terminal. Specializing in workstation memory, Anacapa delivers SIMMs from 1MB 64MB backed with a lifetime warranty and toll-free technical support at the industry's most competitive pricing.

Animation Magazine
BOOTH 37

28024 Dorothy Drive
Agoura Hills, CA 91301 USA
+1.818.991.2884
+1.818.991.3773 fax
anniemag@aol.com

Rita Street
Publisher

Animation Magazine is the international trade publication for the animation industry, covering such areas as television, feature films, videos, commercials, post-production, multimedia, historical perspectives, and collecting animation art. Each issue also includes a column on CGI, and certain issues throughout the year are devoted to computer technologies and companies that are influencing the world of animation.

AP PROFESSIONAL/Academic Press
BOOTH 1041

525 B Street, Suite 1900
San Diego, CA 92101-4495 USA
+1.619.699.6390
+1.619.699.6580 fax
ebellanger@acad.com

Elizabeth Bellanger
Exhibit Coordinator

AP PROFESSIONAL publishes books and non-print media for the graphics professional. Please stop by our booth and see our latest releases including *Graphics Gems IV*, and The AP PROFESSIONAL Graphics CD-ROM Library. Numerous other books and journals are featured from Academic Press.

Apple Computer, Inc.
BOOTH 116

20525 Mariani Avenue
Cupertino, CA 95014 USA
+1.408.996.1010

Apple Computer is showing its latest Power Macintosh desktop systems featuring the PowerPC processor. With a RISC processor, Power Macintosh is now capable of real production work in fields that include: digital video, computer animation, visualization, special effects/post production, new media authoring, and interactive media.

Apunix Computer Services
BOOTH 1155

9555 Chesapeake Drive, Suite 105
San Diego, CA 92123 USA
+1.619.495.9229
+1.619.495.9230 fax
sales@apunix.com

Sylvia Berens
Vice President

Let your imagination run wild... Apunix introduces new state-of-the-art imaging peripherals and software for Sun Workstations, including a new high-resolution, low-cost color scanner, new very low cost dye sublimation printers, and the latest in film printing and backup and archiving. In addition, Apunix demonstrates the latest multimedia technology.

Artifice, Inc.
BOOTH 1053

204 Pacific
Eugene, OR 97403 USA
+1.503.345.7421
+1.503.346.0782 fax
artifice@aol.com
AppleLink: D3624

Donna Matthews
Director of Operations

DesignWorkshop by Artifice provides "the most direct 3D interface short of a dataglove" (*MacWEEK*, 4-94). For the first time, buildings can really be designed in live 3D with feature-based solid modeling. The native version for Power Macintosh provides radical 6-10X acceleration for real-time speed and true modeling creativity.

Ascension Technology Corporation
BOOTH 1552

74 Ethan Allen Drive
South Burlington, VT 05403 USA
+1.802.860.6440
+1.802.860.6439 fax
ascension@world.std.com

Jack Scully
Vice President

Ascension presents six-degrees-of-freedom measuring/tracking devices for a wide variety of computer-graphics applications. Its Flock of Birds tracker offers unique advantages for head, hand, and body tracking in virtual reality and character animation applications. See live performance-animation demonstrations at our booth.

Association for Computing Machinery (ACM)
GRAND LOBBY

1515 Broadway
New York, NY 10036 USA
+1.212.626.0500
+1.212.944.1318 fax
acmhelp@acm.org

Member Services

ACM, the first society in computing and sponsor of the SIGGRAPH conference, introduces its new magazines – interactions on user interface and software design; *Standard View*; and *Multimedia Systems* – in addition to the first selection in the ACM Press Books SIGGRAPH Series, *Multimedia Systems* by John Koegel Buford. Enter the SIGGRAPH 94 Sweepstakes.

AT&T Multimedia Software Solutions
BOOTH 1428

2701 Maitland Center Parkway
Maitland, FL 32751 USA
800.448.6727
+1.407.662.7117

Tracey Herman
Marketing Coordinator

AT&T Multimedia Software Solutions has entered the Windows marketplace for multimedia presentation tools. AT&T Multimedia Designer, the first of three fully integrated products for design, animation, and authoring, is demonstrated. Also featured: live 3D video seen through the eyes of a robot touring the University of Central Florida Digital Image Processing Lab.

Aurora Systems
BOOTH 1151

2230 Martin Avenue
Santa Clara, CA 95050 USA
+1.408.988.2000
+1.408.986.0452 fax

Sandy Smith
Marketing Assistant

At SIGGRAPH 94, Aurora is introducing the Liberty 3.5 software release, which incorporates major developments, features, and user interface options and operates on the full SGI platform line: INDY, Indigo II, and ONYX. The new 3.5 features include easy creation and editing of shapes for multiple instances of render or outline. 3D paste tools now include corner pinning, full resolution preview, and emboss. All paint and image processing tools can be keyframe animated over time. Text can be animated on curve paths.

Autodesk, Inc.
BOOTH 1406

2320 Marinship Way
Sausalito, CA 94965 USA
+1.415.332.2344

Anna Melillo
Multimedia Marketing Manager

3D Studio, the worldwide market leader for PC animation, is showcased with an arsenal of exciting new special effects plug-ins from leading CGI developers. See the latest in advanced animation, modeling, and effects technology for the PC at the Autodesk Multimedia booth.

auto.des.sys, Inc.
BOOTH 1653

2011 Riverside Drive
Columbus, OH 43221 USA
+1.614.488.8838
+1.614.488.0848 fax
AppleLink: FORMZ.MKTG

Alexandra Yessios
Marketing Director

Form.Z is a general purpose 3D solid and surface modeler with drafting and rendering. It features a highly interactive interface; Boolean operations; dynamic 3D form editing and sculpting; terrain modeling; curved splines and meshes including NURBS, 3D Text, object rounding, symbol instances, and libraries; and direct format translators. Available in both 68K and PowerPC native versions, form.Z can be used to model any imaginable 3D form.

Avid Technology, Inc.
BOOTH 1250

One Metropolitan Technology
Park West
Tewksbury, MA 01876 USA
800.949.AVID
+1.508.640.1366 fax

Avid's VideoXPress is a nonlinear video editing system used to create finished videotapes on your desktop Indigo system. The simple user interface makes it easy to assemble programs combining digitized video and computer-generated images. A variety of transition and special effects can be easily applied to the program. VideoXPress also allows you to create a matching soundtrack. With instant access to your footage, editing with VideoXPress is fast and easy.

BARCO
BOOTH 1142

1000 Cobb Place Boulevard
Kennesaw, GA 30144 USA
+1.404.590.7900
+1.404.590.8836 fax

Earlene Bentley
Marketing Communications Manager

Founded in 1934, BARCO is celebrating its 60th anniversary as an industry leader. Three BARCO divisions present their leading-edge products at SIGGRAPH 94. BARCO Chromatics demonstrates some of the fastest and most advanced workstations in the industry. BARCO Display Products presents its award-winning large-screen projection systems and color-critical monitors. BARCO Graphics serves the design, advertising, photo retouching, packaging, labeling, and overall prepress industries.

Bit 3 Computer Corporation
BOOTH 940

8120 Penn Avenue South
Minneapolis, MN 55431 USA
+1.612.881.6955
+1.612.881.9674 fax

Sales Department

High-speed, memory-mapped, bus-to-bus adapters for direct interconnection of various personal computers and workstations to VMEbus, MULTIBUS, and Q-bus systems: IBM PC/AT and RISC Systems/6000, Sun SPARCstations, HP 9000/Series 700, DECstation 5000, SGI Indigo, and Apple Macintosh.

Gil Bruvel by Image Station
BOOTH 53

P.O. Box 1187
Kula, HI 96790-1187 USA
+1.808.878.1637
+1.808.878.3823 fax

Marianne Bruvel
Vice President

Famed award-winning French visionary artist Gil Bruvel exhibits his very unique and totally computer-generated "machine made" art. Fine art digital printmaker, Image Station of Maui, Hawaii, outputs Gil's work, live, to the finest French watercolor papers and the Iris 3047 printer.

Byte by Byte Corporation
BOOTH 228

8920 Business Park Drive, Suite 330
Austin, TX 78759-7405 USA
+1.512.795.0150
+1.512.795.0021 fax
bytebybyte.aol.com

Scott Peterson
President

For the first time publicly, Sculpt 4.0 for Macintosh/PowerMacintosh and Envisage 3D for Windows are demonstrated. Sculpt 4.0 sports a fluid new interface with interactive NURBS modeling. Sculpt and Envisage 3D deliver workstation-level 3D modeling, animation, and photorealistic rendering on inexpensive, easy-to-use personal computers.

CAD Institute
BOOTH 41

4100 East Broadway
Phoenix, AZ 85040 USA
+1.602.437.0405
+1.602.437.5695 fax

Tron Brinkmann
Industry Services Manager

CAD Institute is a bachelor-degree-granting college specializing in computer-aided design and virtual reality education. It offers accredited education programs, professional development seminars and workshops, videotape programs, and services to industry such as placement, on-site training, and joint venture research projects through the Computer Reality Center.

CADalyst Magazine
BOOTH 860

201 East Sandpointe Avenue, Suite 600
Santa Ana, CA 92707 USA
+1.714.513.8400
+1.714.513.8612 fax

Dana Woodsmall
Associate Publisher

CADalyst Magazine is the premiere magazine for professional use and management of AutoCAD systems. The latest hardware, software, applications, and methods are covered in this publication.

Exhibitors

Cadence Magazine
Miller Freeman, Inc.
BOOTH 432

600 Harrison Street
San Francisco, CA 94107 USA
+1.415.905.2200
+1.415.905.2234 fax

Luz M. Carillo
Marketing Events Manager

Cadence Magazine, the leading AutoCad magazine, covers AutoCad and related products. *Cadence* provides tutorials and feature articles with hands-on information targeted to all user levels that makes using AutoCad more useful to professionals. Comparative product reviews are also included. *Cadence* is published by Miller Freeman, Inc., specialists in publishing technical computer magazines.

Caligari
BOOTH 52

1955 Landings Drive
Mountain View, CA 94043 USA
+1.415.390.9600
+1.415.390.9755 fax
caligari1@aol.com

Rick Denny
Marketing Director

New Caligari trueSpace for Windows enables graphics, multimedia, video, and design professionals to create advanced 3D graphics easily. trueSpace offers complete, integrated organic modeling, fast photorealistic rendering, and broadcast-quality animation. Natural interface allows users to work in full 3D perspective space, shape objects as if working in clay, and interact in real time.

Camaleon
BOOTH 29

Calle 69 #4-52
Santa Fe De Bogota D.C.,
Colombia
+57.1.248.7482
+57.1.248.7482 fax

Gabriel Cuellar
General Manager

Our package, Caramba, provides sophisticated image processing on images generated by SOFTIMAGE and many other 3D systems. The program focuses on animation. All the effects can be used to produce still images, but their strength lies in the processing of sequences of images.

Cambridge Animation Systems
BOOTH 625

3, Kings Parade
Cambridge CB2 1SJ, United Kingdom
+44.223.311231
+44.223.350286 fax
richard@cam.ani.co.uk

Richard Ashton
Exhibitions Manager

Modular 2D animation system for cartoon studios, games, and commercial producers. Features include: digital ink and paint; vector shading and character definition; automated in-betweening and lipsync generation; multiplane camera and special effects; resolution-independent output; network parallel processing. Runs on Pentium PCs; rendering licenses for Silicon Graphics.

Canon U.S.A., Inc.
BOOTH 1644

One Canon Plaza
Lake Success, NY 11042-1113 USA
+1.516.488.6700
+1.516.328.5149 fax

Russell Marchetta
Manager, Corporate Public Relations & Communications

Canon U.S.A. is displaying its color copiers, including the Color Laser Copiers 550 and 350, and the desktop CJ10 color printer, copier, and scanner. The connectivity of these products is demonstrated with PCs and PS-IPU.

CELCO
BOOTH 1638

1150 East Eighth Street
Upland, CA 91786 USA
+1.909.985.9868
+1.909.982.2464 fax
74262.3674@CompuServe.Com

Peter Constantine
Sales Engineer

CELCO's EXTREME fx Digital Color Film Recorders provide unsurpassed imagery on 16mm to 8-inch by 10-inch for animation, business graphics, digital image retouching/restoration, and special effects. The unchallenged, wide dynamic exposure range of the EXTREME fx makes it the film recorder of choice where the ultimate in digital imaging is required.

Chyron Graphics
BOOTH 1151

265 Spagnoli Road
Melville, NY 11747 USA
+1.516.845.2031
+1.516.845.3895 fax

Carol Keane
Exhibits Coordinator

The Chyron Centaur and Cindy video adaptors provide the broadcast quality video solutions for Silicon Graphics Indigo and Indy series workstations. Centaur and Cindy feature multiple professional video formats, video capture, dual frame buffers, and built-in V-LAN machine control. Available in NTSC and PAL.

Cine-Byte Imaging Inc.
BOOTH 34

130 Spadina Avenue, Suite 601
Toronto, Ontario M5V 2L4 Canada
+1.416.504.1010
+1.416.777.9447 fax

Dennis Berardi
Marketing Manager

High-quality digital film recording for the motion picture, special effects, and animation industries. Image formats include 35mm Academy, Full Frame, slides and 4-inch by 5-inch. Film recording done on Solitaire film recorders and Oxberry cine cameras.

Ciprico, Inc.
BOOTH 431

2800 Campus Drive
Plymouth, MN 55441 USA
+1.612.551.4000
+1.612.551.4002 fax

Stuart A. Reile
Director of Sales

Ciprico is announcing the new 6800 Real-Time Disk Array, with Data-on-Demand performance features designed to maximize performance in demanding real-time applications. The new 6800 provides sustained transfer rates of over 19MB/second and does away with disk drive latencies which interfere with real-time access of data.

CIRAD
BOOTH 1259

B.P. 5035
34032 Montpellier Cedex 1
France
+33.67.10.15.75
+33.67.10.15.99 fax

Alain Chauchard
Head of Administration

AMAP Software is the result of scientific research for plant growth simulation and can model any kind of plant including trees, bushes, grass, and flowers. AMAP also offers a quick and interactive 3D plant visualization and 3D scene editor for landscapes, interior decoration, and urban scenes imaging.

Cirrus Logic, Inc.
BOOTH 1956

3100 West Warren Avenue
Fremont, CA 94538 USA
+1.510.623.8300
+1.510.226.2240 fax
keo@cirrus.com

Kristin Goldthorpe
Marcom Coordinator/Trade Show Manger

Cirrus Logic, the leader in VGA graphics controllers, is addressing high-performance 3D graphics acceleration on PCs. A newly introduced chipset solution offers compatibility with OpenGL and other APIs enabling a broad range of 3D applications to emerge on the PC. Key markets for Cirrus Logic products include desktop and portable computing, workstations, and consumer electronics.

Computer Design, Inc.
BOOTH 1350

2880 East Beltline N.E.
Grand Rapids, MI 49505 USA
+1.616.361.1139
+1.616.361.5679 fax

Nan Frazee
Marketing Manager

Computer Design, Inc. presents 2D and 3D software for design and marketing of automotive, aerospace, boating, furniture, consumer goods, and apparel/textile products. The exhibit features DesignConcept 3D, for visualization, material covering, pattern flattening, and re-engineering, and U4ia (Euphoria), for 2D, resolution-independent image processing.

Computer Graphics World
BOOTH 1101

10 Tara Boulevard, Fifth Floor
Nashua, NH 03062-2801 USA
+1.603.891.0123
+1.603.891.0539 fax

Paul McPherson
Associate Publisher

Computer Graphics World, a monthly magazine, is devoted to covering modeling, animation, and multimedia technologies. Readers turn to *Computer Artist* to become more proficient and successful in their computer-based illustration, design, image-editing, and animation work. *Color Publishing* is the preeminent source of information for all professionals who produce color pages. *Electronic Publishing* is the first new-product newspaper for digital publishing professionals.

Computer VIdeo
BOOTH 56

5827 Columbia Pike, 3rd Floor
Falls Church, VA 22041 USA
+1.703.998.7600
+1.703.998.2966 fax

Annette Deutscher
Marketing Assistant

Computer Video is the industry's hottest new tabloid publication, reaching 50,000+ buyers and users of desktop video products. Subscriptions are free to qualified industry professionals. *Computer Video* covers all platforms and is designed to bridge the gap between the converging worlds of professional video and computer systems.

Computer Visualizations, Inc.
BOOTH 38

2800 Woodlawn Drive, Suite 139
Honolulu, HI 96822 USA
+1.808.539.3669
+1.808.539.3676 fax
plester@uhunix.uhcc.Hawaii.Edu

Patrick T. Lester
Chief Operations Officer

CVI presents Infinite Illusions, the first comprehensive multi-disk CD-ROM title on computer graphics, including text, animation, and audio interviews with key figures in the field. Beginning in 1955, the viewer explores development of computer graphics in film, fine arts, commercial computer graphics, scientific visualization, CAD, and virtual reality.

Coryphaeus Software, Inc.
BOOTH 837

985 University Avenue, Suite 31
Los Gatos, CA 95030 USA
+1.408.395.4537
+1.408.395.6351
jordan@cory.coryphaeus.com

Bill Oliver
Director of Sales and Marketing

Designer's Workbench (DWB) is a high performance, comprehensive environment for creating and editing dynamic instrument displays and 3D out-the-window/virtual reality scenes. Other Coryphaeus products include EasyT for generation of 3D terrain and features, SimAuthor for graphical logic and simulation model development, and EasyScene for real-time display of 3D scene databases.

CoSA, A Division of Aldus
BOOTH 1454

411 - 1st Avenue, South
Seattle, WA 98104-2871 USA
+1.206.343.4208
+1.206.343.4240 fax
john.carscadden@aldus.com

Trish Horner
Marketing/Communications Manager

Hitchcock 1.0 – digital video production tool for nonlinear, frame-accurate video editing for Mac platforms. After Effects 2.0.1. – powerful compositing, special effects, and motion graphics tool for broadcast/film/digital video professionals working on the Mac/Power Mac. After Effects add-ons for Mac/Power Mac – Effects Pack(s) 1 & 2: plug-in special effects including keying effects and blue-screen removal. After Effects Rendering Engine: standalone rendering software.

Cowles Business Media/Pre-Magazine
BOOTH 1659

911 Hope Street
Stamford, CT 06907 USA
+1.203.358.9900
+1.203.969.0373 fax

Peter Goldstone
Associate Group Publisher

Pre- Magazine is targeted to everyone who works where high-quality print materials are designed and produced. *Pre-* reaches the prepress decision makers at magazines, catalogs, newspapers, book publishing houses, advertising agencies, commercial and publication printing plants, design studios, trade shops, service bureaus, corporate publishers, and in-plant printing facilities. Editorial is targeted to art and design, editorial, production, corporate and operations management, and technical and engineering personnel.

Crystal River
BOOTH 18

490 California Avenue, Suite 200
Palo Alto, CA 94306 USA
+1.415.323.8155
+1.415.323.8157 fax
info@cre.com

Stephanie Cadet
Business Development Manager

Crystal River, the technology leader in real-time 3D spatialized audio exhibits its line of PC-based virtual acoustic displays. Crystal River's hardware and software products are used for simulation, training, psychoacoustic research, architectural, and entertainment applications as well as artistic and educational exhibits.

CrystalGraphics, Inc.
BOOTH 1534

3110 Patrick Henry Drive
Santa Clara, CA 95054 USA
+1.408.496.6175
+1.408.496.0970 fax
CompuServe: 71333,3544

Marsha Adams
Director of Marketing

The world's easiest-to-use 3D animation software. Complete line of fully integrated 3D graphics and animation software, with applications ranging from multimedia presentations to broadcast video. TOPAS Professional for PC and Mac platforms. Flying Fonts, 3D Designer, and TOPAS for the PC. New product at SIGGRAPH 94: Flying Fonts for Windows.

Cyberware
BOOTH 1717

8 Harris Court #3D
Monterey, CA 93940 USA
+1.408.373.1441
+1.408.373.3582 fax

Sara Benedict
Operations Manager

Rapid Color 3D Scanners: Capture both shape and color of an object or live subject in just seconds, for animation, special effects, simulation, research, and design. Software provides intelligent polygon reduction, NURBS surfacing, easy image combination, and conversion to many formats.

Cymbolic Sciences International
BOOTH 1554

26072 Merit Circle, Suite 113
Laguna Hills, CA 92653 USA
+1.714.582.3515
+1.714.582.1620 fax

Robert Lozano
Marketing

Cymbolic Sciences International (CSI) is the high-end film recorder industry leader. These systems output continuous-tone color film, of the highest resolution, to meet the worldwide needs of Graphic Arts markets. CSI manufactures the FIRE 1000 and FIRE 800 Film Recorders and FIREware – for System7, Windows 3.1, and UNIX environments.

Data Translation
BOOTH 227

100 Locke Drive
Marlboro, MA 01752 USA
+1.508.481.3700
+1.508.481.8627 fax

Andrew Netburn
Regional Sales Manager

Media 100 is an open digital system for creating finished video programs on the Macintosh. It is a nonlinear system that combines extraordinary image and audio quality with unrivaled simplicity. Lets animators see results immediately via online video display. Outputs animations and composited effects to tape in real time.

Delta Designs
BOOTH 17

One Second Street
New Rochelle, NY 10801 USA
800.624.9720
+1.914.636.2200
+1.914.636.1535 fax

Skip Dunn

Delta Designs provides a series of unique desktop workstations, video editing and production consoles, and equipment rack cabinets for many applications. Delta's large-surface workstations feature rack-mount cabinets or adjustable equipment shelves below the work surface and height-adjustable monitor bridges. The high-tech black finish fits nicely in any environment.

Depthography, Inc.
BOOTH 27

122 E. 27th Street, 2nd Floor
New York, NY 10016 USA
+1.212.679.8101
+1.212.679.8252 fax

Gary Darrow
Vice President

Computer graphic images can be converted by Depthography into either an Autostereoscopic, or animated image. By using your 3D renderings, or 2D computer animations, we make images of "remarkable sophistication and depth" (CGW, January 1994). For the most advanced tenticular imaging available, see us. We provide an extensive line of displays, promos, and washable tenticular clothing products.

DeskStation Technology
BOOTH 335

13256 West 98th Street
Lenexa, KS 66215 USA
+1.913.599.1900
+1.913.599.4024 fax

J.J. Coates
Marketing Communications Manager

DeskStation Technology introduces Raptor II, a MIPS R4600 RISC-based video, graphics, and animation workstation. DeskStation also shows Raptor, a multiprocessor rendering engine for Lightwave 3D.

Exhibitors

Diaquest, Inc.
BOOTH 1558

1440 San Pablo Avenue
Berkeley, CA 94702 USA
+1.510.526.7167
+1.510.526.7073 fax
diaquest@crl.com
Applelink: DIAQUEST

Dan Lindheim

Diaquest, the leader in video machine control for animation, desktop video production, image processing, and scientific visualization, showcases new PC, Macintosh, and UNIX products including: ANIMAQ/UX software control for the SGI Silicon Studio, ImageNode, and VideoServer networked animation and digitizing solutions, and Diaquest's revolutionary QuickPass recording and capture technology.

Digital Connectivity Inc.
BOOTH 850

250 Williams Street, Suite 1200
Atlanta, GA 30303 USA
+1.404.522.0220
+1.404.522.9142 fax

Kevin R. Hyrams
Sales and Marketing Manager

Digital Connectivity Inc. (DCI), is a systems integrator specializing in digital imaging, electronic prepress, presentation graphics, and 3D design and animation markets. DCI exhibits the Silicon Studio for Publishing, which includes Silicon Graphics, Macintosh, and Intel workstations collaborating in a workgroup publishing environment. Special focus is on 3D design for print and demonstrations of Adobe PhotoShop for SGI.

Digital Equipment Corporation
BOOTH 1006

146 Main Street
Maynard, MA 01754 USA
+1.603.884.3110
+1.603.884.5299 fax

Sue Yarger
Executive Conferences Manager

Discover a full range of graphics, digital video, and audio technologies that will power a variety of applications including virtual environments, music video creation, volumetric imaging, animation, video servers, multimedia authoring, and distributed rendering. See the new DEC 3000 Model 700 workstation with the new 225 MHz Alpha CPU – the fastest in the industry.

Digital Processing Systems
BOOTH 216

11 Spiral Drive
Florence, KY 41042 USA
+1.606.371.5533
+1.606.371.3729 fax

Brad Nogar
Vice President, Sales & Marketing

Digital Processing Systems is demonstrating its critically acclaimed DPS Personal Animation Recorder for the PC. The PC PAR is an affordable hard-drive-based video animation recording system. A number of new software enhancements are shown at SIGGRAPH 94, including Windows integration with synchronized sound.

Digital Video Magazine
BOOTH 232

80 Elm Street
Peterborough, NH 03458 USA
+1.603.924.0100
+1.603.924.4066 fax

Mary McCole
Promotional Coordinator

Digital Video (formerly titled *Desktop Video World*) is a monthly publication specifically targeted at creative professionals seeking desktop solutions for video and multimedia production: corporate communication specialists, cable and broadcast TV station managers, business presentation and training specialists, multimedia developers, animators, and independent producers. The mandate of *Digital Video* – unique among other publications – is to provide definitive insight on the latest technological breakthroughs.

Discreet Logic
BOOTH 1040

5505 boul. St. Laurent, Suite 5200
Montreal, Quebec H2T 1S6 Canada
+1.514.272.0525
+1.514.272.0585 fax

Sue Jensen
Senior Marketing Manager

Discreet Logic is the leading developer of resolution-independent software systems for special visual effects in film: HDTV, and video applications. Its powerful interactive products – flame and flint – are used by major post-production facilities and effects producers around the world.

Division Inc.
BOOTH 112

400 Seaport Court, Suite 101
Redwood City, CA 94063 USA
+1.415.364.6067
+1.415.364.4663 fax

Hardie Dunn
Project Manager

See award-winning dVISE, Division's unique virtual world authoring software and its runtime component dVS demonstrated. Running on our new ProVision 100 workstation featuring Pixel-Planes, the cutting-edge in super fast graphics technology, you'll see how dVISE lets users quickly and easily create complex virtual worlds – without the need for any programming.

DVS GmbH, Digital Video Systems
BOOTH 32

Krepenstr. 8
D-30165 Hannover, Germany
+49.511.678070
+49.511.630070 fax
spoer@DVS-Hannover.de

Peter Spoer

DVS is a manufacturer of computer-video interfaces for workstations: SCSI/Video Motion-JPEG board set with SCSI interface for realtime I/O of compressed video in D1/4:2:2 studio format. For SCSI/Video, RAM and disc options are available. Movie Studio Multi-channel HD RAM-recorder for film preview, HD post production, and visualization.

Eastman Kodak Company
BOOTH 1150

901 Elmgrove Road
Rochester, NY 14653-5301 USA
+1.716.726.9204
+1.716.253.9467 fax

Robert Militello
Sales and Marketing Support Director

Eastman Kodak Company is displaying a full range of digital imaging software and hardware for the capture, manipulation, storage, and display of images. Highlights include: the Cineon Digital Film Workstation, Cineon Manipulation and Retouching Software, the Cineon Genesis Digital Film Scanner, the LVT Digital Image Recorder, the XLT 7720 Printer, the XLS 8300 Printer, the RFS 2035 Plus Scanner, the Professional Image Library 30, Digital Cameras, and the Kodak PCD Writer 600.

Elastic Reality, Inc. (formerly ASDG)
BOOTH 101

925 Stewart Street
Madison, WI 53713 USA
+1.608.273.6585
+1.608.271.1988 fax

Traci Zimmer
Marketing Administrator

A major new release of Elastic Reality (ER), the dominating warping, morphing, and animation system for SGI workstations, debuts at SIGGRAPH 94. ER's results blanket broadcast TV. Check out how we've made our ubiquitous flagship even better. No Strings Attached and other advanced film and television effects technology are also on display.

Electric Image, Inc.
BOOTH 1134

117 East Colorado Boulevard, Suite 300
Pasadena, CA 91105 USA
+1.818.577.1627
+1.818.577.2426 fax
Applelink: Electric.Img
AOL Keyword: Electric

Wendy Keough Bozigian
Director of Corporate Communications

Featuring ElectricImage 2.0: 3D graphics system for computer graphics/animation professionals using higher end Apple Macintosh series/Silicon Graphics Inc. computers. ElectricImage imports/renders/animates objects from modeling programs used on multiple platforms. New features: deformations, motion blur enhancements, 3D plug-ins, sync sound animation. "Native" Power Macintosh version, 3rd Quarter '94.

ElectroGIG USA, Inc.
BOOTH 1243

30 East Huron Plaza, Suite 3807
Chicago, IL 60611 USA
+1.312.573.1515
+1.312.573.1512 fax
76500.1514@compuserve.com

Anthony Mohr
Product Manager

GIG 3DGO is an integrated professional level 3D modeling/animation/rendering/visualization software tool possessing comprehensive editing capabilities and a highly advanced animation platform. 3DGO produces high-quality ray-traced photorealistic images and motion sequences for output to all formats. Its unique modeler avoids polygonal surfaces in favor of solids. GIG 3DGO is joined by GIG PICA, a new pre-press graphics tool, and GIG CAD for the design industry.

ENCAD, Inc.
BOOTH 944

6059 Cornerstone Court West
San Diego, CA 92121 USA
+1.619.452.0882
+1.619.452.0891 fax

Candace Adams
Marketing Communication Specialist

Choose a plotter for speed. Or color. Or price. Or choose ENCAD's NOVAJET II and get it all. You get fast, professional-looking monochrome or color line drawings, brilliant color maps or renderings, or photographic-quality graphic images on a variety of media, all at a surprisingly low price.

ENEL
BOOTH 1349

Via G.B. Martini, 3
Roma 00198 Italy
+39.8509.3129
+39.8509.7643

Mr. Picari

"St. Peter's Basilicas" is a virtual reality work that recreates the Basilica and its outside square with photographic realism. It is possible to visit it now or travel back in time and arrive in 1500 when Constantine's Basilica was demolished to make space for the new one.

Engineering Animation, Inc.
BOOTH 1344

2625 North Loop Drive, Suite 300
Ames, IA 50010 USA
+1.515.296.9908
+1.515.296.7025 fax

Brad Shafer
Tradeshow Coordinator

Breathe life into your CAD models, scientific data, and engineering simulations with the easiest-to-use and fastest 3D animation software package in the world: Vislab. Come see full animations rendered in seconds. Major demonstrations given throughout the day.

Epson America, Inc.
BOOTH 1852

20770 Madrona Avenue
Torrance, CA 90503 USA
800.289.3776
+1.310.782.0770
+1.310.782.4248 fax
BBS#: +1.310.782.4531
On CompuServe, use GO EPSON for the Epson America Forum

Robin Pittman
PR Specialist

EPSON unveils its ES-1200C scanner that offers 600x1200 dpi resolution, 30-bit color, software, and connectivity devices all at a breakthrough price. The low-cost ActionScanning System is also demonstrated. Printers on display, including the RISC-based, 600 dpi ActionLaser 1600, utilize the Epson Talk Interface for Macintosh.

Eurographics
BOOTH 532

P.O. Box 16, 1288 Aire-la-Ville (GE)
Switzerland
Anne Mumford
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+44.509.267477 fax
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Anne Mumford

Eurographics (EG) is the European Association for Computer Graphics. It has a worldwide membership. Eurographics publications include the *Computer Graphics Forum* journal, *EG News*, conference proceedings, workshop reports on animation, rendering, visualization. In 1994, the annual conference is in Oslo, 12-16 September. In 1995, it is in Maastricht, 28 August - 1 September.

Evans & Sutherland Computer Corporation
BOOTH 412

600 Komas Drive
Salt Lake City, UT 84108 USA
+1.801.582.5847
+1.801.582.5848 fax

Jayne Anderson
Marketing Communications

The Power Behind the Scenes, Evans & Sutherland, takes you to the depths of Loch Ness with Virtual Adventures, an interactive VR attraction co-developed with Iwerks Entertainment. Then, turn your favorite workstation into a graphics station. The Freedom Series is the power behind the scenes for the world's leading workstations.

Extron Electronics
BOOTH 1814

13554 Larwin Circle
Santa Fe Springs, CA 90670 USA
+1.310.802.8804
+1.310.802.2741 fax
EXTRONS3@attmail.com

Ivan Perez
Marketing Communications Manager

Extron Electronics is a manufacturer of computer-video interfaces, switchers, distribution amplifiers, scan converters, and high-resolution cable. EXTRON announces new products, including: the RGB 300, a high performance, digitally controlled universal interface, and INERTIA scan-converter, which converts high-resolution workstation computer graphics (32-68 kHz) to standard VGA or Mac (640 x 480).

Falcon Systems, Inc.
BOOTH 33

1417 North Market Boulevard
Sacramento, CA 95834 USA
+1.916.928.9255
+1.916.928.9355 fax
jeff@falcons.comm

Jeff Geiger
National Sales Manager - SGI

Featuring the exclusive FalconFLYTE mounting sled, Falcon Systems, Inc. is currently shipping the only third-party internal storage solutions available in both 8-bit and 16-bit versions, supporting fast wide-differential disk drives of up to 9GB, as well as tape and optical devices. Falcon is also providing the Indy Vault S expansion enclosure, which is nearly the same size and color as the Indy, and can hold a CD-ROM, DAT, and up to 8GB of disk.

FARO Technologies Inc.
BOOTH 1828

125 Technology Park
Lake Mary, FL 32746 USA
+1.407.333.9911
+1.407.333.4181 fax

Noreen Hodapp
Show Coordinator

FARO previews its new SpaceArm 3D/6D digitizing/modeling product at SIGGRAPH 94. The first turnkey system designed exclusively for design, digital effects, and animation users, the SpaceArm is available in 36-inch and 48-inch spherical diameter digitizing volumes. Each SpaceArm system is shipped with SpaceWare software, a fast, easy, and powerful modeling software package.

Fast Electronic U.S., Inc.
BOOTH 840

One Twin Dolphin Drive
Redwood City, CA 94065 USA
+1.415.802.0772
+1.415.802.0746 fax

Karin Candussio
Marketing Manager

Video Machine/Video Machine Lite for professional quality A/B roll editing, total machine control, digital video effects, animation, audio mixing, and title generation on a single PC board. The new Digital Player/Recorder and YUV Option offer nonlinear editing in Betacam/MII quality. Movie Machine Pro is the all-in-one solution for home users wishing to enter the world of digital video.

Focus Graphics Inc.
BOOTH 1444

1163 Triton Drive
Foster City, CA 94404 USA
+1.415.377.0596
+1.415.377.0598 fax

Ann Hover
Marketing Representative

Focus Graphics, a leader in quality workstation output, presents the ImagePrinter dye sublimation printer and the ImageCorder film recorder. The ImageCorder and the ImagePrinter feature 16 million simultaneous colors, high resolution capability, fast recording/printing time, and both support a wide range of platforms, file formats, and paper and film sizes.

Folsom Research, Inc.
BOOTH 834

526 East Bidwell Street
Folsom, CA 95630 USA
+1.916.983.1500
+1.916.983.7236 fax

Ed Hart
Director of Sales and Marketing

Folsom Research is introducing two new products that convert high-resolution workstation or PC video to standard NTSC video formats. The models 9400 JR and 9300 PC were designed for the general purpose user who needs a broadcast quality autolocking scan converter, but doesn't need the added features found in the Folsom Research High-end Converter model 9500 "Otto".

For-A Corporation
BOOTH 727

11095 Knott Avenue, Suite A
Cypress, CA 90630 USA
+1.714.894.3311
+1.714.894.5399

Candace Workman
Adminstrator

HMC-1020 High-Definition digital camera system; high speed direct capture/transfer system to Mac computers or HDTV monitors; HMC-1220 High-definition digital camera system; LDR-100 Live audio-video digital recorder; *Video Systems Magazine* 1994 pick hit.

Exhibitors

Forefront Graphics
BOOTH 10

37 Kodiak Crescent, Unit #6
Downsview, Ontario M3J 3E5 Canada
+1.416.636.4444, x 208
+1.416.636.4454 fax

Bill Samagalsky
Vice President, Sales

Forefront Graphics, through its subsidiary Drastic Technologies, is displaying a digital disk recorder with full Betacam 2800/VDR 1000 emulation support in a PC-style peripheral designed for OEM's serving the broadcast and desktop video production arena.

Fractal Design Corporation
BOOTH 426

335 Spreckels Drive
Aptos, CA 95008 USA
+1.408.688.5300
+1.408.688.8836 fax
Applelink: Fractal.MKTG

Dawn Hannah
Trade Show Coordinator

Fractal Design Corporation is the leader in award-winning, innovative graphics software, and markets and develops Natural-Media painting, drawing, and image retouching software for Windows and Macintosh. At SIGGRAPH 94, Fractal Design demonstrates its new learn-to-draw and learn-to-paint program, Fractal Design Dabbler, along with Fractal Design Painter, and the expert extension to Painter, Fractal Design Painter X2. All of these applications are accelerated for Power Macintosh.

Fraunhofer Center for Research in Computer Graphics, Inc.
BOOTH 1831

167 Angell Street
Providence, RI 02906 USA
+1.401.453.6363
+1.401.453.0444 fax
pbono@crcg.edu

Peter R. Bono
VP and Managing Director

The Fraunhofer CRCG is a non-profit R&D group focusing on visually oriented and interactive processes, services, and applications that facilitate international collaboration over high-speed global networks for business, scientific, and educational purposes. CSCW, VR, and medical imaging applications are shown, supplemented by an interactive hypermedia World-Wide-Web database accessed via the Mosaic browser.

Fujitsu Microelectronics, Inc.
BOOTH 1844

3545 North First Street
San Jose, CA 95134-1804 USA
+1.408.922.9000
+1.408.526.9515 fax

Wilta Clark
Advertising/Tradeshow Manager

Fujitsu Limited and Fujitsu Microelectronics, Inc. (FMI) develop graphics and multimedia products ranging from semiconductors to display technology targeted at PCs, workstations, and game machines.

G5G
BOOTH 50

Parc Chateau Rouquey BP 168
Merignac, France 33708
+33.56.34.82.48
+33.56.13.02.10 fax
info@g5g.fr

Jean-Pascal Butte
Marketing & Sales Manager

G5G develops and markets technical and scientific graphics systems that are based on industry standards and that maintain hardware independence. G5G relies on its eight years of experience in graphics standards (UNIX, X Window, Motif, PEX, Open GL, GKS, PHIGS) to provide high-performance, portable from PCs to supercomputer software.

Genesis Microchip Inc.
BOOTH 858

200 Town Centre Boulevard, Suite 400
Markham, Ontario L3R 8G5 Canada
+1.905.470.2742
+1.905.470.2447 fax
hunter@genesis-microchip.on.ca

Robert Hunter
Marketing Communications Specialist

The grn833x2 is the latest member of the ACUITY series of compromise-free image resizing engines. Genesis Microchip's patented algorithm and architecture provide maximum picture quality with minimum image aliasing. The result is near-optical-quality image magnification and reduction in real time with just one chip.

Grass Valley Group
BOOTH 1310

13024 Bitney Springs Road
Nevada City, CA 95959 USA
+1.201.845.8900
+1.201.845.8063 fax

Janice Haigney
Marketing Manager

Grass Valley Group features the videoDesigner PC-based Video Graphic Design system to capture and manipulate full color NTSC, or D2/D3 video images. Also demonstrated: the TypeDeko anti-aliased, full broadcast quality character generator on the Microsoft 32-bit Windows NT operating system.

GW Hannaway & Associates, Inc.
BOOTH 1800

839 Pearl Street
Boulder, CO 80302 USA
+1.303.440.9631
+1.303.440.4421 fax
info@gwha.com

Wyndham Hannaway
President

GW Hannaway & Associates is known for pioneering imaging, graphics, integration, and research and is recognized as one of the premier laboratories in the U.S. GW Hannaway & Associates now offers scanning, print, and film recording services over the new international Sprint production supernetwork: DRUMS. GWH&A sells UNIX imaging software: TRANSMO, a universal image file format translator; CHAMELEO, for driving photo quality printers; and DC-TOOL, to operate the Kodak Digital Cameras.

Hash Inc.
BOOTH 125

2800 E. Evergreen Boulevard
Vancouver, WA 98661 USA
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+1.206.750.0451 fax

Marshall Hash
President

Animation Master, the 3D motion picture studio, is the most powerful and affordable spline-based modeling and animation program available that is specifically designed for classic character animation. Using the unique concept of motion libraries, the animator's throughput is greatly enhanced. Animation Master includes inverse kinematics, time-based materials, image mapping, motion blur, rotoscoping, alpha channels, and patch raytracing.

Helios Systems
BOOTH 1446

1996 Lundy Avenue
San Jose, CA 95131 USA
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+1.408.452.4549 fax

Jeff Chapman
Director of Marketing

Helios Systems is one of the largest manufacturers of memory upgrade configurations in the world, supporting top workstation makers like Silicon Graphics, Sun, HP, IBM, NeXT, Apple, and others. Helios' sister division, Piiceon, manufactures memory and modems for PCs, laptop computers, and laser printers.

Hewlett-Packard Company
BOOTH 806

3000 Hanover Street
Palo Alto, CA 94304 USA
800.637.7740 (workstations, servers)
800.752.0900 (personal computers, peripherals)
800.333.1917 fax

HP Support Services

Hewlett-Packard, a leader in 3D graphics systems, once again showcases a new line of graphics workstations featuring industry-leading price/performance. Combined with the broadest range of computer peripherals, mass storage devices, and new video production tools, HP delivers enterprise-wide graphics and video solutions based on industry standards. The exhibit integrates these components to create an "immersive," interactive, graphical experience. Designed for speed and realism, HP products continue to lead the way for the future.

Hotronic, Inc.
BOOTH 333

1875 South Winchester Boulevard
Campbell, CA 95008 USA
+1.408.378.3883
+1.408.378.3888 fax

Linda Chang
Sales/Marketing Manager

Hotronic manufactures PC plug-in boards of TBCs and switchers for desktop video duplication and video editing. Models are PC-TBC, AS11, and AQ21. Features include Y/C/composite input/output, digital effects, keyers, picture compression, and editor-controllable. Hotronic's video products are broadcast performance quality with consumer pricing.

IBM Corporation
BOOTH 918

P.O. Box 704
Yorktown Heights, NY 10598 USA
+1.914.784.5110
+1.914.784.5077 fax
bucktar@watson.ibm.com

Rich Buckta
Senior Market Support Rep

IBM features the latest version of IBM Visualization Data Explorer, a general-purpose application and toolkit for scientific data visualization and analysis for UNIX workstations. IBM also exhibits the latest offerings from its RISC System/6000 family of workstations and graphic adapters (including PowerPC) and the IBM POWER Visualization System for digital film and video production.

IBM/Virtuality
BOOTH 825

3 Oswin Road, Brailsford Industrial Park
Leicester, LE3 1HR United Kingdom
+44.533.542127
+44.533.471855 fax

Samantha Goodman
Secretary to Design Director

IBM/Virtuality features an immersive virtual reality development platform for commercial and industrial applications.

IEEE Computer Society
BOOTH 1523

10662 Los Vaqueros Circle
Los Alamitos, CA 90720 USA
+1.714.821.8380
+1.714.821.4010 fax
HRex@computer.org

Frieda Koester
Marketing Manager

IEEE Computer Society publishes two magazines related to graphics: *Multimedia* (new in 94) and *IEEE Computer Graphics and Applications* in addition to related books and proceedings. The prestigious organization serves nearly 100,000 members through publications, conferences, and workshops. Membership information, magazines, and new titles in visual graphics are on display.

Image Resources, Inc.
BOOTH 1258

4545 36th Street
Orlando, FL 32811 USA
+1.407.843.4200
+1.407.422.3490 fax

Sandra Richert
Marketing Coordinator

Image Resources, Inc. is a 15-year-old computer graphic engineering company providing turnkey system integration for industrial and textile design, CAD and architectural design, electronic printing and packaging, video animation and simulation, and photographic imaging. Image Resources integrates and supports most of the manufacturers of computer graphics products. Image Resources is a multinational company with offices in Orlando, Atlanta, Sao Paulo, and Hong Kong.

IMAGICA Corporation of America
BOOTH 1450

5320 McConnell Avenue
Los Angeles, CA 90066 USA
+1.310.306.4180
+1.310.305.7563 fax

Jeffrey L. Barkin
Business Manager

IMAGICA will exhibit its High Resolution Digital Film Scanner model IDS3000. It transfers 35mm 4p motion picture film into digital image data of 4k x 3k x 12bits RGB. It employs a state-of-the-art color linear CCD to perform high-speed scans at up to 4k x 3k at 30 seconds per frame.

IMAGINA-INA
BOOTH 117

4, avenue de l'Europe
94366 Bry Sur Marne Cedex, France
+33.1.49.83.25.23
+33.1.49.83.31.85 fax

Genevieve Pichon

IMAGINA is the European event for computer graphics, virtual worlds, and special effects with conferences, panels, an exhibition, and the Prix Pixel-INA competition for computer-generated images. IMAGINA is organized by INA and the Television Festival of Monaco, with the collaboration of CNC. IMAGINA 95 will be held in Monte-Carlo, 1-3 February 1995.

triple-I (Information International Inc.)
BOOTH 1234

5933 Slauson Avenue
Culver City, CA 90230 USA
+1.310.390.8611
+1.310.397.0166 fax
schnur@triple-i.com

Larry Schnur, Director of Marketing, Digital Media Group

ARKImage is an SGI-based, third-generation paint and 2D animation system with an extensive number of tools, capabilities, and automated macros. ARKAttack is an integrated 3D animation system, which provides a wide array of creative tools for the artist and animator in the film, broadcast, and advertising industries.

Integrated Research
BOOTH 1848

2716 Erie Avenue, Suite 2W
Cincinnati, OH 45208 USA
+1.513.321.8644
+1.513.321.8722 fax

Maura L. Timko
Director Administration & Marketing

Integrated Research demonstrates how simple SGI-based video and film production can be. Integrated Video 1.3, designed for on-line, short format, non-linear editing and authoring, provides all the tools for professional production. CineBase, a customizable, network-based, fully-relational database, allows producers to manage and distribute any type of multimedia content.

Intelligent Resources Integrated Systems
BOOTH 1835

3030 Salt Creek Lane, Suite 100
Arlington Heights, IL 60005 USA
+1.708.670.9388
Applelink: IR.Sales

Intelligent Resources Integrated Systems is a manufacturer of a digital processing system that provides solutions for the computer-aided video marketplace in the fields of animation, compositing, real time, and special effects. The Video Explorer system fits into a wide range of production and broadcast environments.

Interactive Effects
BOOTH 23

102 Nighthawk
Irvine, CA 92714 USA
+1.714.551.1448
+1.714.786.2527 fax
info@ifx.com

Tom Benoist
President

Amazon 3D Paint provides Silicon Graphics workstation users with the ability to paint directly onto 3D models using all of the advanced multi-layer paint and image processing features of Amazon Paint. Products including Amazon, Amazon 3D, and the upcoming Framedozer Digital Compositing system are on display.

Intergraph Computer Systems
BOOTH 102

Huntsville, AL 35894-0001 USA
800.345.4856
+1.205.730.9441 fax

Based on Intel's Pentium processor technology and the Windows NT and Windows/DOS operating systems, Intergraph personal workstations and InterVideo Media Station (IVMS) unite high-end workstation capabilities – such as speed, advanced 2D/3D graphics and animation, high-resolution displays, and optimized input/output – with the compatibility, affordability, and ease of use of a personal computer. IVMS brings professional-quality desktop video production – including all digital video capture, edit, and playback – to the personal workstation.

Intervisual Communications Inc.
BOOTH 46

1452 Second Street
Santa Monica, CA 90401 USA
+1.310.576.2006
+1.310.576.2010 fax

Becki Ryan
Sales Administrator

Intervisual designs and packages high-impact products for direct mail, premium advertising, and sales promotion agencies. Our product line consists of Magic Motion, sliding pop-up cards, hand-assembled pop-ups, AdVoice voice products, 3D viewers, patented in-line pop-ups, pop-up books as premiums, and custom, specialty printed products. These products can be utilized as direct mail pieces, premiums, magazine inserts, collateral materials, FSI's, in-pack/on-pack, and point-of-sale formats.

Ithaca Software
BOOTH 1406

1301 Marina Village Parkway
Alameda, CA 94501 USA
+1.510.523.5900
+1.510.523.2880 fax

Philip Gilbert

Ithaca Software, Autodesk's Component Technology Business Division, demonstrates HOOPS 4.0 and the Cyberspace Developer Kit. HOOPS, the commercial graphics development standard, is a high-level, portable interface that simplifies building interactive graphics applications. CDK is Autodesk's award-winning virtual reality toolkit.

Itochu Technology, Inc.
BOOTH 854

2701 Dow Avenue
Tustin, CA 92680 USA
800.347.2484
+1.714.757.4423 fax

Terry Susaki
Director of Sales and Marketing

Itochu Technology, Inc., a major industry supplier of printers worldwide, is displaying its Pictrography 3000 printer. The Pictrography 3000 is a high-resolution silver halide thermal printer that produces photographic quality prints onto paper or transparency film in two minutes or less from digital image data.

JVC Professional Products Company
BOOTH 1002

41 Slater Drive
Elmwood Park, NJ 07407 USA
+1.201.794.3900
+1.201.523.2077 fax

Ellin Everson
Manager, Advertising Sales Promotion

JVC displays the super-high-resolution frame capture camera TK-F7300U. It can capture images at resolutions up to 4416H x 3456V pixels at a depth of 24 bits per pixel with the proper image capture board. The KY-F55U is a 1/3-inch 3-CCD multi-purpose color video camera with resolution of 750 lines, weighing only 1.1 pounds. The TK-1270U RGB camera with 470 lines of resolution, 1.5 lux minimum illumination, flexible iris system, and external genlock.

Kaiser Corporation
BOOTH 1438

3555 North Prospect
Colorado Springs, CO 80907 USA
+1.719.636.3864
+1.719.636.3865 fax

Dennis Hoover
President

Kaiser Corporation, a manufacturer of slide mounts and slide mounting equipment, features its line of pin-registered slide mounts and slide mounters especially designed for the computer-generated slide production and imaging industries.

Exhibitors

Kingston Technology Corporation
BOOTH 1723

17600 Newhope Street
Fountain Valley, CA 92708 USA
+1.714.435.2600
+1.714.435.2699 fax

Kate Loomis
Tradeshow Manager

Kingston Technology Corporation designs and manufactures memory for workstations, PCs, laptops, and laser printers including memory for DEC, HP, IBM, Silicon Graphics, and Sun Microsystems. Kingston also designs and manufactures a family of removable disk storage enclosures and external SCSI storage enclosures.

Knowledge Industry Publications, Inc.
BOOTH 1728

701 Westchester Avenue
White Plains, NY 10604 USA
+1.914.328.9157
+1.914.328.9093 fax

Barbara Stockwell
VP, Associate Publisher

Knowledge Industry Publications, Inc. is the publisher of *AV Video* and *Computer Pictures*, magazines covering the visual presentation/communication marketplace. *AV Video* is written for production and presentation technology professionals involved in the creation of presentations using video, audio, computer graphics, and multimedia. *Computer Pictures* is written for creators and producers of graphic and multimedia presentations: classical presentations, advertising, package design, POP, and prepress imaging.

KUB Systems
BOOTH 855

1181-E Chess Drive
Foster City, CA 94404 USA
+1.415.572.6140
+1.415.572.6155 fax

Sheila Ross
Director of Sales

DANCE allows you to manipulate and composite multiple live video inputs and static elements simultaneously in 3D space, at full resolution, and in real-time. DANCE includes an object-oriented digital video effects engine with advanced z-depth and compositing capabilities for unprecedented freedom of movement.

Kubota Graphics Corporation
BOOTH 1820

2630 Walsh Avenue
Santa Clara, CA 95051-0905 USA
+1.408.727.8100
+1.408.727.9301 fax
jfrerichs@kgc.com

Jodie Frerichs
Tradeshow Manager

Kubota Graphics delivers industry-leading 3D graphics and imaging performance, taking full advantage of the Alpha AXP technology. By enabling engineers and designers to visualize data interactively, Kubota workstations and graphics accelerators dramatically enhance user productivity and open doors to creative possibilities.

Kurta Corporation
BOOTH 950

3007 E. Chambers Street
Phoenix, AZ 87040 USA
+1.602.276.5533
+1.602.276.9007 fax

Richard Burger
Marketing-Communications Manager

Kurta Corporation is a world leader in the design and manufacture of high-performance graphics tablets with unique customization options and natural pen-on-paper feel. Kurta displays its new 6-inch by 8-inch XGT tablet and 4-inch by 5-inch PenMouse tablet, which provide artists and designers with a total solution for graphics input functionality.

Lasergraphics, Inc.
BOOTH 701

20 Ada
Irvine, CA 92718 USA
+1.714.753.8282
+1.714.727.2653 fax

Michael J. DeLucca
Vice President, Sales and Marketing

Lasergraphics, Inc. offers a complete line of high-quality digital film recorders and rasterizers for the computer graphics industry, including business presentations, graphic arts, and digital photography. Our products include Personal LFR, which produces slides with outstanding image clarity and detail never before available for the desktop; the mid-range LFR-X, which offers multiple format output; and the LFR Mark II, our 4,000-line digital film recorder for complex graphics, and the new LFR Mark III, our high-end 8,000-line digital film recorder for images requiring fine detail.

Legacy Systems International, Inc.
BOOTH 16

1006 Depot Hill Road, Suite G
Broomfield, CO 80020 USA
+1.303.469.6114
+1.303.469.4699 fax

Rick Pickett
President

Legacy Systems International is an Authorized Silicon Graphics Independent Hardware Vendor (IHV) specializing in high-end storage and memory upgrades for the Silicon Graphics workstation market. Legacy Systems offers a complete line of high-capacity disk drives, tape drives, memory upgrades, and other associated products for the Silicon Graphics Indigo, Indigo 2, and Indy workstations, as well as the Onyx and Challenge servers. Legacy Systems also offers RAID Arrays of Levels 0, 3, and 5, with formatted capabilities from 4.0 GB to 252 GB.

Leitch Incorporated
BOOTH 728

920 Corporate Lane
Chesapeake, VA 23320 USA
+1.804.548.2300
+1.804.548.4088 fax

Mike Duckworth
Regional Manager

Leitch will be displaying a wide variety of professional electronic broadcast and related equipment, both analog and digital, audio and video, including: distribution amplifiers; routing switchers; sync and test generators; composite, component, and dual format still stores; satellite scrambling systems; standards and format converters; and clocks and timing equipment.

Lightscape Technologies, Inc.
BOOTH 954

4030 Moorpark Avenue, Suite 219
San Jose, CA 95117 USA
+1.408.246.1155
+1.408.246.0255 fax
info@lightscape.com

Stuart Feldman
Managing Director

Lightscape Technologies produces an advanced visualization system for use in computer-aided design, commercial animation and virtual reality applications. Incorporating radiosity and ray tracing algorithms with a complete IES photometric interface, Lightscape quickly and accurately simulates lighting phenomenon in complex 3D environments, producing interactive visual and numeric results of exceptional quality and accuracy.

Lightwave Communications, Inc.
BOOTH 1059

84 Research Drive
Milford, CT 06460 USA
+1.203.878.9838
+1.203.874.0157 fax
lightwve@MCIMail.com

Peter Henderson
Director of Sales/Marketing

Lightwave's VDE/200 video display extender transparently remotes SGI and other workstations, computers, and video sources up to 3,000 feet over standard fiber optic cable. The VDE/200 is a plug-and-play transmitter/receiver system which requires no adjustments. NTSC, PAL, and RGB are supported up to 160MHz of video bandwidth/channel. The system is approved by SGI's Gold Seal Program, HP's channel partner program, and is SPARC-verified through SPARC International for Sun applications. Other compliant platforms are DEC, Apple, IBM, and clones.

Linker Systems, Inc.
BOOTH 1952

13612 Onkayha Circle
Irvine, CA 92724-3235 USA
+1.714.552.1904
+1.714.552.6985 fax
linker@applelink.apple.com

Toni M. Poper
President

The Animation Stand is a high-end 2D broadcast and film quality computer-assisted animation and special effects production system, including multi-plane camera, paint, film opticals, 2D/3D digital compositing, and transport control. The Animation Stand – Ink and Paint is a complete animation and special effects-oriented paint system providing fills, line considerations, and other tools specific to animation.

Linotype-Hell Company
BOOTH 25

425 Oser Avenue
Hauppauge, NY 11788 USA
+1.516.434.2000
+1.516.434.2748 fax

Elizabeth Laba
Trade Show Manager

With its worldwide network for sales, support, and service, Linotype-Hell supplies prepress solutions to professionals in typesetting, image processing, and color reproduction. Products consist of integrated text and image processing systems combining high-end scanners, page makeup and imaging systems, laser imagesetters, color recorders, and cylinder engraving systems.

Macromedia
BOOTH 1658

600 Townsend Street
San Francisco, CA 94103 USA
+1.415.252.2000
+1.415.626.0554 fax

Theresa O'Brien
Marketing Manager

Come see the latest in multimedia software at Macromedia's showcase theater, featuring cross-platform solutions for 3D graphics, animations, and multimedia authoring. See why more than 70 percent of today's multimedia specialists use Macromedia products to create multimedia movies, games, kiosks, applications for training and education, and speaker support. Products featured include: Director, the premier authoring tool for multimedia productions; MacroModel, the most comprehensive 3D modeling program; and Sound Edit 16 for recording, editing, and playback of 16-bit CD-quality sound.

Management Graphics, Inc.
BOOTH 516

1401 East 79th Street
Minneapolis, MN 55425 USA
+1.612.854.1220
+1.612.851.6159 fax

Sheri Keep
Marketing Coordinator

Management Graphics, Inc. (MGI) shows the Jet Stream Color Image Server for use with Xerox 8900 Series (Versatec) large format printers/plotters. Jet Stream combines a high-powered RISC-based workstation, an Adobe PostScript Level 2 interpreter, and extensive network connectivity, enabling users to maximize throughput and produce premium color graphics for posters, murals, and maps in minutes rather than hours. In its first public showing, MGI also introduces the Solitaire Cine III, with new technology to improve contrast and density range on cine images.

Martin Marietta
BOOTH 15

12506 Lake Underhill Road
Orlando, FL 32825 USA
+1.407.826.1710
+1.407.826.6539

John Lenvo
Manager, Visual Systems Marketing

Martin Marietta produces the world's most powerful real-time computer image generators. Once applied exclusively to high-performance military simulators, this technology is now packaged for advanced commercial applications.

Matrox Video Products Group
BOOTH 1801

1055 St. Regis Boulevard
Dorval, Quebec H9P 2T4 Canada
800.361.4903
+1.514.685.2630
+1.514.685.2853 fax

Janet Matey
Marketing Contact

Matrox demonstrates a complete line of professional video editing, animation, and multimedia products. The new Matrox Studio video editing system features nonlinear productivity and linear production power combined. Matrox Animation Xpress (MAX) is a digital animation recorder designed to play back broadcast-quality 3D computer animations from hard disk in real time and record them directly to videotape. Matrox Marvel II is a multi-purpose video/audio controller designed to perform in today's most demanding multimedia applications.

Maximum Strategy, Inc.
BOOTH 1422

801 Buckeye Court
Milpitas, CA 95035 USA
+1.408.383.1600
+1.408.383.1616 fax
sales@maxstrat.com

Sandy Staufenbiel
Manager, Marketing Communications

Maximum Strategy, Inc. is the world's leading supplier of storage solutions for high-performance computing. Maximum Strategy demonstrates the Strategy Gen 4 Storage Server product family, delivering superior performance coupled with high data reliability, data integrity, data availability, storage capacity scalable to 53 GBytes, and transfer rates up to 90 MB/sec.

Mecklermedia
BOOTH 40

11 Ferry Lane West
Westport, CT 06880 USA
+1.203.226.6967
+1.203.454.5840 fax
meckler@jvnc.net

Marilyn Reed
Director, Sales and Marketing

Mecklermedia is displaying its cutting edge newsstand publications: *Virtual Reality World*, *CD-ROM World*, and *Internet World*. Also on display is the release of CD-ROMS IN PRINT, an annual directory. Of particular interest to SIGGRAPH 94 attendees is Mecklermedia's Virtual Reality Expo. Stop by for further information and your free sample issue of *Virtual Reality World*.

Mediascape Corporation
BOOTH 21

1586 Redding Road
Birmingham, MI 48009 USA
+1.810.540.2251
+1.810.540.2253 fax
hcl@medias.com

Howard Luby
President

Mediascape presents Artstream, an integrated page layout, illustration, and photo-retouch application for Silicon Graphics. Graphic designers, Illustrators, and creative artists will find comprehensive features for production of print-quality images. Artstream features include high-precision vector illustration, import of editable Postscript, text composition, photo masking, airbrushing, and image processing.

MEGATEK Corporation
BOOTH 1228

16868 Via Del Campo Court
San Diego, CA 92127-1714 USA
+1.619.675.4000
+1.619.675.4341 fax
instacuity@megatek.com

Stan Zelinger
General Manager, Advanced 3D Products

MEGATEK introduces a Dual-User 3D ViewStation for incredibly fast and affordable high quality 3D realism. Patented INSTACUITY technology, 24-bit true color, multi-object transparency, texturing, surface anti-aliasing, and 1280 x 1024 resolution. Significant price/performance advantage. Database compatible with Computervision's CADDS5 and accepts geometric data from many other CAD/CAM systems.

Meridian Creative Group
BOOTH 59

5178 Station Road
Erie, PA 16510 USA
+1.814.898-2612
+1.814.898.0683 fax
odx@psuvm.psu.edu

Jill Larson
Director, Sales and Marketing

Complete editorial, design, and production services for the publishing industry. Specializing in interactive multimedia development, TEX programming, and composition for textbook and trade markets. Publisher of *Helaman Ferguson: Mathematics in Stone and Bronze*.

MicronGreen, Inc.
BOOTH 1856

1240 NW 21st Avenue
Gainesville, FL 32609 USA
+1.904.376.1529
+1.904.376.0466 fax

Alicia Mahoney
Director of Operations

The only virtual reality software to offer true integration to existing CAD packages. The Virtual Reality NAVIGATOR, as an ADS application, running inside of AutoCAD, is being launched at the SIGGRAPH 94 Exhibition. MicronGreen, Inc. presents its real-time interactive solution for 486 and Pentium platforms. Fly, edit, import animations from 3D Studio, and more.

Minicomputer Exchange
BOOTH 100

610 North Pastoria Avenue
Sunnyvale, CA 94086 USA
+1.408.733.4400
+1.408.733.8009 fax

Jane McGowan
Advertising Manager

Minicomputer Exchange is a used computer dealer. We sell, buy, rent, and repair Sun and SGI workstations, peripherals, and boards. We were established in 1973 in California's Silicon Valley and have been dealing in Sun and Silicon Graphics since such equipment existed. Our in-house technical staff tests, refurbishes, and configures systems to the buyer's specifications. Services include: 120-day warranty, technical hot-line, fast delivery, world-wide shipment, and prices far below new equipment.

Miranda Technologies Inc.
BOOTH 1915

5695 St. Francois Road
St. Laurent, Quebec H4S 1W6 Canada
+1.514.333.1772
+1.514.333.9828 fax

Yvan Ouellet

Miranda features ESPRESSO, real-time SCSI interface to digital 4:2:2 videotape and disk recorders; Toccata, 4:2:2 I/O board for Matrox Illuminator-PRO; Espace, user-configurable, high-resolution display system for real-time digital 4:2:2 video signals; Crystal and Imaging Quartet, interconnection and conversion products (ADC, DAC, etc.).

Exhibitors

Mitsubishi Electronics America
BOOTH 1806

800 Cottontail Lane
Somerset, NJ 08873 USA
+1.908.302.2855
+1.908.563.0713 fax

Ronni Tjelta
Imaging Product Marketing & Account Manager

The Imaging Group of Mitsubishi Electronics America displays its full line of analog and digital printers including our new CP-2000U/CP-2500U printer. Mitsubishi offers the perfect low alternative for your hard copy and display needs.

MONDO 2000
BOOTH 804

P.O. Box 10171
Berkeley, CA 94709 USA
+1.510.845.9018

MONDO 2000 is the premier journal of cyberculture. It addresses the "Digital Dandy" – the next ripple of techno-savvy, design-conscious professionals who are transforming art and communication in the 90's. Issue 12 spotlights location-based entertainment, CD-ROM comics, nanocyborgs, synaesthesia, simulator games, Internet-o-mania, philatelic forgeries, and the intellectual property debacle.

Montpellier Languedoc-Roussillon Technopole
BOOTH 726

Immeuble la Coupole
275 rue Leon Blum
Montpellier, 340 France
+33.1.67.13.6121
+33.1.67.13.6110 fax

Phillipe Stefanini
Business Development Manager

Montpellier L.R. Technopole presents: The European Incubator Program – how to take the most efficient and least risky route to long-term growth in Europe, and the 4th International Conference "Interface to Real & Virtual Worlds." Informatique '95 is Europe's most extensive display of professional man-machine interfaces and virtual reality applications.

Morgan Kaufmann Publishers
BOOTH 1602

340 Pine Street, Sixth Floor
San Francisco, CA 94104 USA
+1.415.392.2665
+1.415.982.2665 fax
morgan@unix.sri.com

Lisa Schneider
Assistant Promotion Manager

New Morgan Kaufman books in computer graphics include: *Radiosity and Global Illumination* by Claude Puech and Francois Sillion and *Principles of Digital Image Synthesis* by Andrew Glassner. Also featured, Knotty: A B-Spline Visualization Program, a new video by Jonathan Yen. Back titles include: *User Interface Management Systems* by Dan Olsen and *Making Them Move: Mechanics, Control, and Animation of Articulated Figures* by N. Badler, B. Barsky, and D. Zeltzer.

MultiGen Inc.
BOOTH 631

1884 The Alameda
San Jose, CA 95126 USA
+1.408.247.4326
+1.408.247.4329 fax
multigen!tom@uunet.uu.net

Tom Dowgiallo
Sales Representative

MultiGen is an interactive, graphical modeling system for creating, editing, and viewing 3D scenes for entertainment, virtual reality, and visual simulation. Dramatic new simulation modeling features have been added to the already mature MultiGen product, including advanced Road Tools, LOD morphing, Automatic LOD generation, and 3D sound tools.

MyoNetics Incorporated
BOOTH 11

P.O. Box 373099
Satellite Beach, FL 32937-1099 USA
+1.407.779.9876
+1.407.779.9877 fax

Marilyn Moss
Operations Manager

MyoNetics manufactures the ARMx Forearm Support Systems as an ergonomic solution for discomfort in the arm, shoulder, neck, and back often associated with intensive use of computer-input devices. ARMx reduces the effective arm weight with automatically adjusting vertical support and allows complete hand/arm range of motion.

ND3D: 3D Hard Copies
BOOTH 1056

Amstel 222
Amsterdam, 1017 AJ The Netherlands
+31.20.626.7213
+31.20.627.8494 fax
andrew@bs.gig.nl

Andrew Joel
Managing Director

ND3D produces 3D Hard Copies from all 3D software formats. ND3D's 3D Hard Copies are high definition autostereoscopic lenticular transparencies and prints, showing the width, height, and depth of 3D digital imagery, simultaneously and instantaneously. ND3D specializes in 3D medical and scientific visualization, and custom 3D image creation services.

NEC Electronics Inc.
BOOTH 1242

475 Ellis Street
Mountain View, CA 94039 USA
+1.415.965.6421
800.729.9288 fax
klomeli@NECEL.COM

Kathy Lomeli
Marketing Communications Specialist

NEC Electronics Inc., headquartered in Mountain View, California, manufactures and markets an extensive line of electronic products including ASICs, microprocessors and microcontrollers, digital signal processors (DSPx), memories, and components. The company operates a 676,000-square-foot manufacturing facility in Roseville, California. NEC Electronics Inc. is an affiliate of NEC Corporation.

NewGen Systems Corporation
BOOTH 109

17550 Newhope Street
Fountain Valley, CA 92708 USA
+1.714.641.8600
+1.714.641.2800 fax

Meryl Cook
Marketing Communications Manager

NewGen Systems manufactures high-performance monochrome and color printers. NewGen's high-resolution monochrome laser printers produce incredibly crisp and clean output up to 1200 x 1200 dpi on oversize paper up to 12 x 25. NewGen's new color, dye-sublimation printer produces exceptional continuous tone output that is suitable for desktop color proofing. If you're looking for large format color output, NewGen's Vista Printing System delivers poster size output up to 18.2 feet long and offers a world of large format printing possibilities.

NewMedia Magazine
BOOTH 113

901 Mariner's Island Boulevard,
Suite 365
San Mateo, CA 94019 USA
+1.415.573.5171
+1.415.573.5131 fax

David Bradway
Associate Marketing Director

NewMedia Magazine is the first publication dedicated solely to covering multimedia technologies across all major platforms, disciplines, and applications. With a controlled circulation of over 250,000 qualified readers, NewMedia Magazine serves professionals who design, develop, and professionally use multimedia products and services. *NewMedia*, published 13 times a year by HyperMedia Communications, Inc., is offering free one-year subscriptions and a copy of the August 1994 issue.

NewTek, Inc.
BOOTH 1834

1200 S.W. Executive Drive
Topeka, KS 66615 USA
+1.913.228.8000
+1.913.228.8099 fax

Debra Luling

NewTek's Video Toaster is a broadcast quality video production tool with digital video effects, 3D animation, character generator, and paint program. NewTek's most recent product development — the Video Toaster Flyer, a tapeless editor, allows users to edit video and audio for video. NewTek's new method of digital video compression (VTASC) enables this tapeless editor to deliver lossless compressed video equal to 2D digital quality.

Nikon Storage Products
BOOTH 1853

1399 Shoreway Road
Belmont, CA 94002-4107 USA
+1.415.508.4674
+1.415.508.4600 fax

Aki Takagi
Assistant Manager

Nikon Storage Products will exhibit and demonstrate our newly developed 12-inch Magneto Optical Disk Drive (DD121-1AS) & Disk (D12-CA2). Large capacity: 8GB/Platter; high-speed access: 73msec. (1/3 stroke); high data transfer: 2.07MB/sec.

Nippon Computer Graphics Association (NICOGRAPH)
BOOTH 1802

Ogawa Building, 4th Floor, 1-2-2,
Uchikanda, Chiyoda-ku
Tokyo, 101 Japan
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Hidekata Ando
International Department

Welcome to NICOGRAPH 94. Annually, 40,000 visitors and 140 exhibitors from Japan, Pan Pacific, and the U.S. attend this convention to see the newest trends of computer graphics. It will be held in Tokyo starting 15 November 1994. At our booth, we are introducing the latest information about the NICOGRAPH 94 Exhibition and Conference. Please come to our booth and talk about NICOGRAPH WORLD!

Numerical Algorithms Group, Inc.
BOOTH 1058

1400 Opus Place, Suite 200
Downers Grove, IL 60515-5702 USA
+1.708.971.2337
+1.708.971.2706 fax
nilles@nag.com

Tony Nilles
Sales and Marketing Manager

NAG, a world leader in scientific software for numerical and visual simulation is featuring IRIS Explorer: a complete object-oriented visual programming environment for developing scientific and engineering applications quickly and intuitively. Explorer provides "modules" that are self-contained operations for data input, data reduction, and rendering.

Odyssey Visual Design
BOOTH 700

4413 Ocean Valley Lane
San Diego, CA 92130 USA
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Compuserve 74012,3651

Steven Churchill
President

Led by founder Steven Churchill, Odyssey Visual Design, is the award winning producer of multi-platinum videos: The Mind's Eye, Beyond The Mind's Eye, Computer Animation Festival, Vol. 1 & 2, Virtual Nature, Imaginaria, State of the Art of Computer Animation, and soon to be released, Way Beyond The Mind's Eye.

ON Production and Post-Production Magazine
BOOTH 1858

17337 Ventura Boulevard, Suite 308
Encino, CA 91316 USA
+1.818.907.6682

Claire Segal
Assistant Editor

A trade magazine that covers the production and post-production of feature films, television, commercials, corporate communications, and computer graphics. The readership consists of producers, video facility managers, directors, producers, editors, production managers, agency creatives, engineers, and post-production executives. Current issues are on display, and complimentary subscriptions are offered.

Onyx Computing, Inc.
BOOTH 119

10 Avon Street
Cambridge, MA 02138 USA
+1.617.876.3876
+1.617.868.8033 fax
AppleLink: BBX1991

Pjer Zanchi
General Manager

Onyx Computing is exhibiting a new version of Tree Professional. The program generates broadleaf and conifer trees, and palms. Innovative color mixing techniques allow the user to depict the subtleties of color change on branches and leaves. New 3D modeling routines enable the creation of photorealistic trees with a significantly smaller number of polygons. Exports 3D DXF and PICT files.

Open Computing, McGraw-Hill, Inc.
BOOTH 1545

1900 O'Farrell Street, Suite 200
San Mateo, CA 94403 USA
+1.415.513.6800
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Emily O'Connor
Marketing Coordinator

Open Computing is the only monthly magazine written for people who integrate, resell, manage, and program commercial computer systems to provide solutions based on interoperable networks and applications. Topics for features include the effective use of Unix and other open systems to downsize and distribute applications. The magazine also provides a useful mix of product reviews, case studies, industry profiles and analysis, and technical tutorials.

O'Reilly & Associates, Inc.
BOOTH 839

103A Morris Street
Sebastopol, CA 95472 USA
+1.707.829.0515
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lynn@ora.com

Lynn Powell
Trade Show Producer

O'Reilly & Associates is the leading publisher of books on "open systems," recognized worldwide for its definitive books on UNIX, the X Window System, and the Internet. Its editors are "computer people" who use the software they write about. The company's planning and review cycles link together authors, computer vendors, and technical experts throughout the industry, in a creative collaboration that mirrors the strengths of the "open systems" philosophy.

Oxberry, Division of Cybernetics Products, Inc.
BOOTH 704

180 Broad Street
Carlstadt, NJ 07072 USA
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James Aneshansley
Director of Sales and Marketing

Oxberry displays two models of the Oxberry CINESCAN for digital conversion of motion picture film. The CINESCAN 6300 is an enclosed vertical cabinet scanner. The CINESCAN 6400 is configured as a horizontal optical printer. Both feature Oxberry pin-registered projectors, 2K x 3K x 12 bit CCD cameras, and OXSCAN acquisition software.

Panasonic Broadcast & Television Systems Company
BOOTH 1102

One Panasonic Way, 4D-4
Secaucus, NJ 07094 USA
+1.201.348.7407
+1.201.392.6484 fax

Phil Livingston
Assistant General Manager

Panasonic displays a uniquely wide and diverse product line. From D-5 uncompressed 10 bit component digital and D-3 composite digital to the S-Series sixth generation S-VHS Line. Also, a broad line of digital signal processing cameras including 16:9 studio, EFP, ENG, and special application. An advanced, cost-effective digital production switcher with serial, parallel, and analog interfaces is accompanied by professional audio equipment - DAT, wireless microphones, mixers, etc. HDTV equipment features cameras, large screen projectors, and a digital fiber optic transmission system.

Parallax Graphics, Inc.
BOOTH 828

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Alice Munz
Marketing Communications Associate

Parallax Graphics' PowerVideo and XVideo cards bring high-performance video to desktop applications such as video-conferencing, authoring, training, kiosks, TV-in-a-window, and video distribution. Available on Sun and HP workstations, Parallax Graphics video is full-motion, full-resolution, and 24-bit color for exceptional detail and image quality to support effective communication.

Parallax Software Inc.
BOOTH 1334

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Santa Monica, CA 90404 USA
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Cliff Plumer
VP Sales and Marketing North America

Parallax is showing its complete suite of powerful software solutions for TV and film special effects: MATADOR, the world's leading paint 2D animation and effects; ADVANCE, digital compositing, effects, and sequence editing; DIPSS, Digital Ink and Paint Software System; MATADOR 3D, 3D modeling and animation; and Newsroom ATLAS, automated map graphics. All products run on the complete range of SGI workstations. Parallax has over 500 customers worldwide. MATADOR has played a major role in special effects for over 20 movies.

PC Graphics & Video
BOOTH 1636

201 E. Sandpointe Avenue, Suite 600
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Holly Forsberg
Promotions Coordinator

PC Graphics and Video magazine is the exclusive, monthly information resource for PC graphics professionals. It provides news, trends, tips, and reviews for the growing world of electronic business presentations, color desktop publishing, multimedia, animation, video applications, and creative computer graphic arts.

No brai

HP introduces the most powerful desktop graphics workstations for the money.

*Fully configured with 32-Mbyte RAM, 525-Mbyte hard disk, 17" color monitor. **Internet users, key in mosaic@apollo.hp.com, www.wsg.hp.com. or www.hp.com. ©1994 Hewlett-Packard Company WSG9404

The power to dream. The speed to beat deadlines. The colors to let engineering minds go wild. And prices to make this leap in creativity affordable.

Our three new workstations will mean all this and more to your company. Their 3D and 2D performance is outstanding at any price. Starting at under $10K,* it stands alone.

New graphics subsystems bring the industry's fastest X Window performance to the desktop. As well as 3D solids modeling capability formerly available only on workstations costing three times as much.

The new Model 715 family delivers up to a scintillating 100.1 SPECint92 and 137 SPECfp92. The graphics performance is just as mind-blowing, with up to 2.6 million X11 vectors per second and 2.3 million 3D vectors per second.

Our unique HP Color Recovery technology lets you display over 4.5 million colors instead of the usual 256. And generate the image quality of a 24-plane system for the price of an eight-plane.

High-powered multimedia features, built into the new 100-MHz PA-RISC chip, provide simultaneous VCR-quality digital video and CD-quality audio.

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P.E. Photron
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Tak Takimizu
Manager

OSCON-BOX, switcher and video frame capture box for the entire line of SGI workstations; PRIMATTE, chromakey software offers powerful ultra-pression mattecontrol functions; DVDA-1, Digital Disk Array; and FSC-64000VZ & FSC-100, Frame Scan Converter.

PHI Enterprises, Inc.
BOOTH 1741

12832 Garden Grove Boulevard, Suite E
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Jennifer Reilich

Kneading Fingers is a portable deep tissue massager that provides rhythmic kneading to muscles which are tense and aching due to occupational stress. These light weight massagers fit comfortably on all types of chairs for terminal, office, or home use.

Photo Effects
BOOTH 47

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Marta Blanford

Photo Effects offers a range of services for digital print applications. Our service bureau provides high-resolution scanning and transparency outputs to and from a wide variety of file formats. Our computer imaging department offers retouching as well as 2D and 3D special effects.

Pioneer New Media Technologies, Inc.
BOOTH 1159

600 E. Crescent Avenue
Upper Saddle River, NJ 07458 USA
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Dallas Parcells
Assistant Marketing Manager

Pioneer features the VDR-V1000A Rewritable VideoDisc Recorder. This dual-head, broadcast-quality component recording device enables accurate frame-by-frame recording for animation and still-store applications. The magneto-optical disc requires no pre-roll or post-roll, allowing instant access to any cue point on the disc. Individual field recording accommodates 60 field renderings for improved temporal resolution of fast motion.

Pixar
BOOTH 104

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Ninon Pallavicini
Marketing Coordinator

Featuring Pixar Showplace, Pixar Typestry, and Pixar One Twenty Eight. Pixar Showplace is unique Macintosh software that lets you create realistic 3D scenes without being an expert in modeling or rendering. Pixar Typestry 2.0 is exciting software that turns your Type 1 and TrueType fonts and Illustrator files into extraordinary 3D images. You work in an easy, familiar 2D space, but you get amazing 3D results. Pixar One Twenty Eight is Pixar's private collection of 128 unique, high-quality, photographic textures on CD-ROM.

Pixel S. A.
BOOTH 702

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+33.1.48786090
+33.1.48781535 fax

Joel Laroche

PIXEL Magazine, in its French and American editions (*PIXEL VISION*), covers all facets of electronic imagery, still or animated, calculated from an analog original or created or processed with a computer. Through portfolios and reportages, columns and tests, it covers computer graphics in advertising, publishing, television, art, graphic arts and design, medical and scientific imaging, and architecture.

Pixibox
BOOTH 822

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Jean-Michel Spiner
Product Manager

Pixiscan is a cartoon software designed to offer animation studios more efficiency in the production of cartoon series, from the drawing input stage to the video or 35mm output. It offers automatic scanning, 255 independent layers, camera pan, zoom, and tilt, powerful peg motions, automatic painting, 3D and real images integration, special effects, and much more.

Polhemus Incorporated
BOOTH 1434

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800.357.4777
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polhemus@moose.uvm.edu

Edward W. Costello
Director, Marketing and Sales

The pioneer in 3D position/orientation measuring technology demonstrates the award-winning FASTRAK, animating, in real time, 3D objects created using 3DRAW (the first true 3D digitizer tablet for the CAD and computer graphics markets). INSIDETRAK, the world's first PC-insertable tracker, will also be demonstrated.

Portable Graphics, Inc.
BOOTH 1528

One Technology Center, 2201 Donley Drive, Suite 365
Austin, TX 78758-4538 USA
+1.512.908.4700
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glware@portable.com

Debbie Herrington
Director of Marketing

Portable Graphics demonstrates its suite of cross-platform toolkits and graphics libraries for porting and developing GL-based 2D and 3D applications. The Portable GLware product line consists of NPGL, Portable OpenGL, Portable IRIS Inventor, Portable Open Inventor, and the newly announced EDISON, an object-oriented application development toolkit with geometry problem-solving capability.

Post Magazine
BOOTH 13

25 Willowdale Avenue
Port Washington, NY 11050 USA
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Ken McGorry

Post Magazine is dedicated to post production, with the latest news and features on editing, graphics, animation, special effects, and sweetening, as well as reporting on all the equipment and service at various budget levels that are creating the best finished product.

Prentice Hall - Professional Technical Reference Division
BOOTH 111

Route 9 West
Englewood Cliffs, NJ 07632 USA
+1.201.592.2000
+1.201.461.8170

Susan Aumack
Marketing Manager

Prentice Hall - Professional Technical Reference displays its complete line of X window system and Pexlib titles. Also on display: books on the Internet, advanced communications, software engineering, UNIX, and C, object-oriented programming.

PRODUCER Magazine
BOOTH 13

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Ken McGorry

Celebrating the process of bringing a concept to life, our magazine goes into the field and on the set with people who use technology with personal creativity for projects in television, commercials, feature films, documentaries, and corporate and educational videos.

Proxima Corporation
BOOTH 42

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Customer Service

Proxima is the world leader in desktop projection solutions that allow users to project the power of their computers in the meeting room. Proxima manufactures the Desktop Projector family, the Proxima 8300 Multimedia LCD projector, the Proxima Ovation and ColorWorks families of LCD projection panels, and the Cyclops interactive pointer system.

Q-Lamp Inc.
BOOTH 1948

225 South Fulton Street
Ithaca, NY 14850 USA
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Stephen K. Blumenthal
President

Q-Lamp Inc. introduces the first 24-bit color digital video 3D stereoscopic imaging system with database management software for real-time visual display. Computer proprietary technology provides substantial improvements in picture quality, as well as storage, retrieval, split screen images, mapping, annotation, advanced query language search mode, telecommunications, and tap only x-y t 2ed depth of field measuring system.

Supermodel.

Maybe not your dream date, but definitely the model of your dreams. With Cyberware's rapid color scanners you can capture the perfect 3D model, in its most intricate detail, in just minutes.

Curvaceous models hard to get? No more. Cysurf, Cyberware's NURBS program provides a quick, efficient method for describing complex curved surfaces.

Is your dream model too big to be scanned in one pass? No problem. With Cyberware's new CyZip software, multiple scans become one contiguous data set.

Cyberware. For the world's most beautiful models.

The model is a painted latex mask.

Mask was placed on the table of a MM motion platform after being pulled over a plastic head form.

Scanned in three passes by Cyberware's 3030RGB/HIREZ Color 3D digitizer.

Each pass, low, middle and upper, covered 270 degrees horizontally and 15cm vertically.

The three passes were combined using Echo software into a dense mesh of 530,000 triangles.

Each vertex defines an XYZ geometric coordinate and an RGB texture coordinate. Vertices are spaced about 0.5mm apart (0.020").

The neck was edited away using the 3D surface tools in the Echo software.

Cyberware's Cymage software reduced the complexity of the mesh to only 25,000 triangles, preserving nearly all of the geometric details and the entire texture map.

The image to the left was rendered by Echo. The triangle mesh detail is from Cymage.

The images were all captured from the monitor of a Silicon Graphics Indigo Elan and combined in PhotoShop.

The modeling process was completed in just under one hour.

The Cyberware 3030RGB/HIREZ scanner with MM motion platform, complete with all software, training and one-year support costs $75,200 (North American List Price). Sales and service worldwide.

Adobe Photoshop is a trademark of Adobe Systems, Inc. Echo, Cymage and Cyberware are trademarks of Cyberware Laboratory, Inc. Silicon Graphics, Indigo and Elan are trademarks of Silicon Graphics, Inc.

Cyberware

8 Harris Court #3D

Monterey, California 93940

408.373.1441

Fax 408.373.3582

Exhibitors

Radiance Software International
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+1.510.848.7613 fax
lee@radiance.com

Lee Seiler
Marketing

MOVIEOLA 3D modeler from Radiance Software is a new 3D modeling and ray-tracing systems for the SGI platform at an entry-level price. With high-end features like spline surface modeling, 3D beveled text, layered texture/bump mapping, import/export to DFX, Inventor, etc. It has an intuitive graphical interface for artist and engineer.

RealSoft International
BOOTH 51

380 Queen Street, #2
Chatham, Ontario N7M 2H6 Canada
+1.519.436.0988
+1.519.436.2429 fax

Adam Godfrey
President

Real 3D V2.4: Serious tools for Windows and NT desktop animation. Designed for power animators, Real 3D V2.4 offers maximum user control over an impressive feature list: power modeling - extensive tool set for spline and CSG objects; photo-realistic rendering - selectable levels of ray tracing; advanced animation/simulation particle, behavioral, collision detection, skeletons, inverse kinematics. Open architecture, user configurable/expandable.

Research Triangle Institute
BOOTH 321

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Dale W. Rowe
Center Director for Digital System Engineering

Research Triangle Institute (RTI) provides virtual environments for clients in applications such as marketing, building architecture/interior design, transportation, training, and biomedical engineering. RTI is a 1500-person contract R&D organization located in North Carolina's Research Triangle Park.

RFX Inc.
BOOTH 1135

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Ray Feeney
President

RFX is the leading systems integrator providing high-resolution computer graphics solutions to the entertainment industry. Services include systems integration, sales, service, and training support for the computer graphics professional. Over the past 14 years, RFX has gained a reputation for being the premier resource in computer graphics to the top production studios in Los Angeles and on the West Coast.

RGB Spectrum
BOOTH 1622

950 Marina Village Parkway
Alameda, CA 94501 USA
+1.510.814.7000
+1.510.814.7026 fax

Jeff Hartson
Vice President, Sales

RGB Spectrum demonstrates products for video/computer integration and virtual reality. Featured products include the ComputerWall multi-screen display, the SynchroMaster color field sequential scan converter, and the SuperView video windowing system with four live video sources.

Roche Image Analysis Systems, Inc.
BOOTH 226

112 Orange Drive
Elon College, NC 27244 USA
+1.910.584.0250
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Susan Cobb
Sales/Marketing Coordinator

Ron Scott Inc.
BOOTH 315

1000 Jackson Boulevard
Houston, TX 77006 USA
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+1.713.529.9370 fax

Karla West
Director of Marketing

QFX image editing software offers both paint and draw capabilities in addition to Bitmap Objects, a built-in image composer. New features include Warping and Shading, Command Queueing, and extended file format support, including PhotoCD. QFX supports most SuperVGA, TIGA, and Truevision graphics adapters. Available for DOS and Windows or Windows NT operating systems.

Sanyo Industrial Video
BOOTH 626

1200 West Artesia Boulevard
Compton, CA 90220 USA
+1.310.605.6527
+1.310.605.6529 fax

Eric MacRae
Product Manager

Sanyo features the GVR-S955, an animation editing recorder with a built-in RS422/RS232 control interface, SMPTE time code generator, two separate video, and eight separate audio channels. It is shown operating with various software and edit controller systems. Also, Sanyo is exhibiting the GVR-S950 animation recorder, designed to operate with most major animation programs. It contains a built-in RS 422/RS 232 control port and SMPTE time code generator for frame-accurate animation. Sanyo is also showing the PLC200 and PLC300 composite and video data projection.

Schreiber Instruments, Inc.
BOOTH 1654

4800 Happy Canyon Road, #250
Denver, CO 80237 USA
+1.303.759.1024
+1.303.759.0928 fax
corp@schreiber.com

Scot Susmann
Vice President

Imagine series of plug-in software for 3D Studio from Schreiber Instruments, Inc. covers all your effects needs. Products include six different programs for image processing, four different particle systems, five different procedural modelers including optimization, rounded out by three solid pattern generators. Complete product line deliverable off "The Convertible CD ROM" from Schreiber.

Science Accessories Corporation
BOOTH 725

2 Research Drive
Shelton, CT 06484 USA
+1.203.925.1661
+1.203.929.9636 fax

David Blumstein
Regional Sales Manager

The GP-12 series 3D digitizers input the X, Y, Z coordinates of a point in space within an 8-foot x 8-foot x 8-foot volume. The GP-12 does for objects what a tablet does for drawings. The GP-12 is ideal for reverse engineering, prototyping, and graphics.

Scientific Computing & Automation
BOOTH 1652

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Calvin Carr
Publisher

Scientific Computing & Automation is the only computer magazine specifically written for scientists and engineers in industrial, academic, and government laboratories.

SDI Virtual Reality Corporation
BOOTH 612

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+1.416.368.4918 fax

Joe Martin
Product Development Director

SDI Virtual Reality Corporation announces a new line of VR products to compliment its high-performance VR-2000 real-time image generator and interactive VR control system. Designed to provide real-time interactive graphic solutions to medium and low-end entertainment, the IG-1500 (followed by IG-1000 and IG-500), will be highly integrated, upward-compatible entries into the image generation market.

Seiko Instruments USA Inc.
BOOTH 1416

1130 Ringwood Court
San Jose, CA 95131 USA
+1.408.922.5900
+1.408.922.5835 fax

Cheryl Landman
Marketing Communications Manager

Seiko Instruments debuts the Professional ColorPoint 2, the only color printer that produces both thermal transfer and dye sublimation 300 DPI color prints. Available in both letter and tabloid sizes, the dual technology ColorPoint 2 offers a variety of interfaces: Adobe PostScript Level 2, video, and raster. Compatible across all platforms: PC, Macintosh, and UNIX-based workstations.

Sense 8 Corporation
BOOTH 1544

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Sausalito, CA 94965 USA
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+1.415.331.9148 fax
sense8!mkettesi@well.sf.ca.us

Mark Kettering
VP, Sales and Marketing

Sense 8 Corporation is the world's leading provider of virtual reality and 3D graphic software and systems. Our World Tool Kit software is a powerful set of tools that is accepted as the standard virtual reality applications development tool. World Tool Kit runs on all the leading graphics platforms, DOS, Windows, SGI, Sun, and DEC.

Side Effects
BOOTH 928

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Toronto, Ontario M5V 2M5 Canada
+1.416.366.4607
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Henry Yee
Business Development

Side Effects is exhibiting PRISMS, a high-end 3D animation and image manipulation system. PRISMS has become a favorite of animators due to its revolutionary style of surface building and flexible character control, including performance capture and inverse kinematics. Side Effects is demonstrating "Real-time Realism" and Game Maker extensions.

SIGGRAPH 95
GRAND LOBBY

Conference Management Office
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siggraph95@siggraph.org

Get an exclusive preview of SIGGRAPH 95 – it's going to be cool, catalytic and connected! Here's you best source of information on next year's conference and exhibition, 6-11 August 1995 at the Los Angeles Convention Center, Los Angeles, California. Pick up a poster and pin, and don't forget to ask for the Call for Participation. It provides complete details on how you can become part of SIGGRAPH 95.

SIGGRAPH Education Committee
GRAND LOBBY

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Marc J. Barr
Associate Professor, Ra/TV/Photography

The SIGGRAPH Education Committee is involved with K-12 and university-level activities. The booth is displaying student animations and graphics.

SIGGRAPH One More Time
GRAND LOBBY

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Steve Cunningham

Because of last year's strong interest in back issues of SIGGRAPH's publications, including slide sets, proceedings and CD-ROMs of the SIGGRAPH conference, and other conference proceedings, these will again be available to the SIGGRAPH 94 audience. Come early – materials from before 1991 are in very short supply.

SIGGRAPH Professional Chapters: Global Network
GRAND LOBBY

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Scott Lang, Len Breen
Professional Chapters Steering Committee

SIGGRAPH Professional Chapters is a global network that, throughout the year, develops and extends the achievements of the annual SIGGRAPH conference. You can continue your SIGGRAPH experience by joining a Professional Chapter in your local area, or if one does not exist, ask us at the SIGGRAPH Global Network booth about how to form one.

SIGGRAPH Video Review
GRAND LOBBY

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Dana M. Plepys
SIGGRAPH Video Review Manager

The SIGGRAPH Video Review is a videotape publication illustrating the latest concepts in computer graphics, virtual reality, and interactive techniques. More than 105 individual issues of the SIGGRAPH Video Review tapes are available in NTSC and PAL standards, VHS, and UMATIC formats. This year, we are proud to present our Special Issue #100, a 15-year historical retrospective of the best of SIGGRAPH Video Review computer animation.

Sigma Electronics, Inc.
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Kent Porter

Wideband switching and distribution for graphics systems. Encoding, decoding, decoding and transcoding for multi-format applications. Assistance in integrating systems.

Silicon Graphics, Inc.
BOOTH 1106 & 1120

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Silicon Graphics showcases its latest interactive three-dimensional graphics, digital media, and supercomputing technologies through its full range of systems, including the Indy and Indigo desktop workstations, Onyx graphics supercomputers, Challenge servers, and Power Challenge supercomputing systems. Demonstrations including interactive entertainments, virtual reality, and new visualization applications are featured in Silicon Graphics booths as well as in numerous partner booths throughout the show floor.

Silicon Graphics World
BOOTH 959

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Callie Jones
Managing Editor

Silicon Graphics World is a monthly news magazine dedicated to the Silicon Graphics user community. Coverage includes news, features, columns, and new product announcements. The publisher, PCI, is the leading provider of vendor-specific computer newspapers and trade shows. Other publications include The *Sun Observer*, the *HP Chronicle*, *Unisys World*, *RiSC World*, *HP/Apollo Workstation* and *Digital Unix News*.

SMPTE
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Nancy Urvanowicz
Director, Marketing and Communications

The SMPTE is the leading association for professionals in motion pictures, television, electronic imaging, multi-media, and related arts and sciences. The SMPTE disseminates technical information, publishes the *SMPTE Journal*, and provides education. It is the industry source for developing standards, recommended practices, and guidelines recognized worldwide.

SOFTIMAGE, Inc.
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c_archambault@softimage.qc.ca

Carolyn Archambault
Public Relations Manager

SOFTIMAGE exhibits its new Digital Studio, in addition to its Creative Environment 3D animation software, Creative Toonz 2D cel animation program, and Eddie. Digital Studio is a comprehensive production and post-production environment featuring all the tools needed for creating digital media applications - ranging from game development to film and broadcast - Digital Studio's applications include non-linear editing/composition 3D DVES, 2D and 3D paint, on-time editing, 3D animation, sound editing and mixing, character generation, cel animation, and parallel rendering.

Solsource Computers
BOOTH 434

5928 Pascal Court, Suite 201
Carlsbad, CA 92008 USA
+1.619.929.7800
+1.619.929.7810 fax
beryl@solsource.com

Beryl Nasworthy

Soulsource will demonstrate its portable Unix presentation products. These products provide users with a complete, easy-to-use demonstration and work environment on the road or in the office. Solsource products include workstation resolution, high-performance LCD screen projection panels with remote cursor control, the Tadpole SPARCbook 3 notebook workstation, advanced Unix presentation software, and nomadic email tools.

If you can visualize all t
or a lunatic, or you o

When it comes to seeing past boundaries and imagining things others can't, it's traditionally been the playground of brilliant people and—yes—the occasional lunatic. But now 3D graphics has changed that. It's kind of an egalitarian idea. And at Kubota Graphics, we're a big part of it. We make several of the fastest

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is, you're either a genius,
n one of our machines.

workstations in the industry, as well as some of the best-rated in price/performance. To see them for yourself, stop by Booth 1250. Or to learn about employment with a company at the edge, e-mail your resume to: jobs@kpc.com. And if you do happen to be a genius or a little crazy—so much the better.

KUBOTA
GRAPHICS

CA 95051-0905. Kubota Graphics develops and markets 3D graphics workstations and graphics accelerators. For information call 1 800 934-5082.

Exhibitors

Sony Electronics Inc.
BOOTH 1218

3 Paragon Drive
Montvale, NJ 07645-1740 USA
+1.201.930.1000

Sony Electronics Computer Peripherals: new 15", 17", and 20" displays and new 16:9 ratio high-resolution display. Also, new 2x CD-ROM, magneto optical, CD-R, tape (DDS) and floppy disk drives. HDVS: High Definition Laser Disc recorder and 38-inch HDVS monitor. Desktop Digital Publishing: Color video printers and scanners.

Springer-Verlag New York, Inc.
BOOTH 1804

175 Fifth Avenue
New York, NY 10010 USA
+1.212.460.1500
+1.212.473.6272 fax
jjeng@spinger-ny.com

Jacqueline Jeng
Product Manager

Springer-Verlag is a leading publisher of books and journals in computer graphics and computer science. We serve the graphics community in areas as diverse as graphic design, animation, medical imaging, scientific visualization, image processing, simulation, and modeling. Stop by our booth and browse through our collection.

StereoGraphics Corporation
BOOTH 934

2171 East Francisco Boulevard
San Rafael, CA 94901 USA
+1.415.459.4500
+1.415.459.3020 fax
stereo@well.sf.ca.us

Wil Cochran
VP Sales/Marketing

CrystalEyes, wireless, comfortable stereo eyewear and infrared emitter, delivers a flickerless, high-resolution, full-color image. CrystalEyes VR adds head-tracking capabilities to the eyewear. CrystalEyes products are essential to any application enhanced by depth perception, such as CAD/CAM/CAE, scientific visualization, modeling, remote operations, simulation, and training.

Storage Concepts, Inc.
BOOTH 107

2652 McGaw Avenue
Irvine, CA 92714 USA
+1.714.852.8511
+1.714.557.5064 fax

Nathalie DeKarver
Assistant, Marketing Communications

Storage Concepts, Inc. (SCI) displays real-time interactive media storage systems and technology. SCI products deliver digital data at video rates for true "bandwidth-on-demand" for interactive television, video-on-demand, and other performance applications. With over a decade of real-time storage experience, SCI products have become the on-ramp to the "information highway (speedway)."

Storage Technology Corporation
BOOTH 425

2270 South 88th Street
Louisville, CO 80028 USA
+1.303.673.5151
+1.303.673.2296 fax

Brian Gibson
Manager, Marketing Communications and Advertising

StorageTek, a first-time exhibitor at SIGGRAPH, is a leader in the design and manufacture of information storage and retrieval solutions. Among other innovations, StorageTek displays new high-performance tape drives and robotic libraries, bringing the benefits of Nearline automated tape management to the computer graphics and visualization industry.

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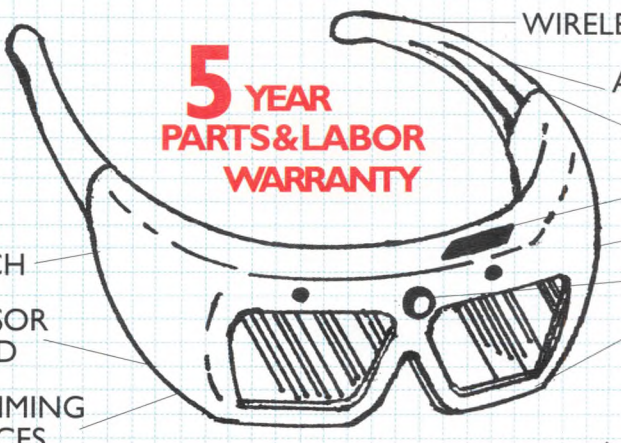

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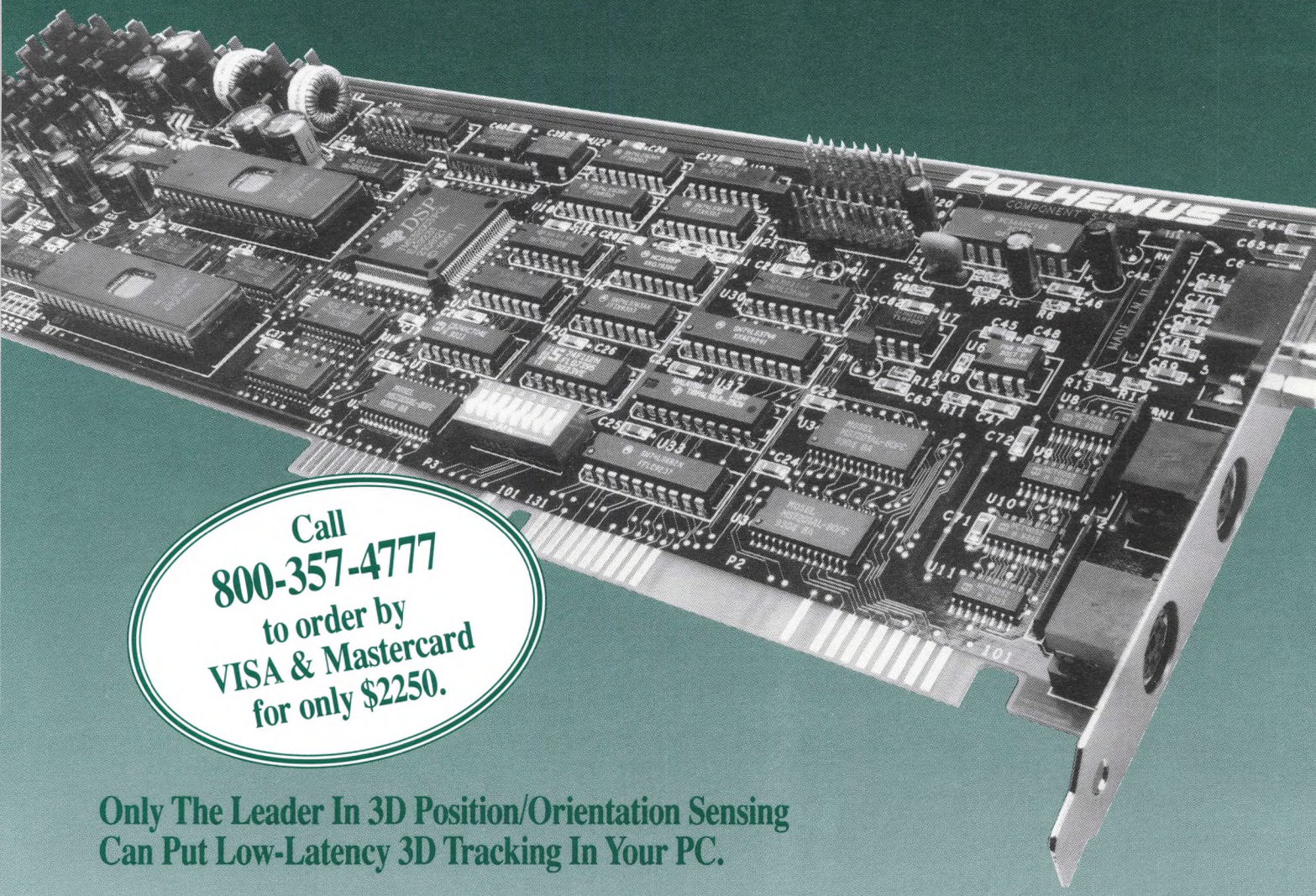

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Exhibitors

Strata, Inc.
BOOTH 844

2 West St. George Boulevard, Suite 2100
St. George, UT 84770 USA
+1.801.628.5218
+1.801.628.9756 fax

Shelly Watson
Marketing Manager

Strata is a leading developer of powerful yet easy-to-use computer-assisted visualization and illustration software tools for Macintosh and PC computers. Strata's core products, SudioPro and StrataVision 3D, are the most comprehensive 3D modeling, rendering, and animation applications on the market today.

Sun Microsystems Computer Corporation
BOOTH 1206

2550 Garcia Avenue
Mountain View, CA 94043 USA
+1.415.960.1300
+1.415.969.9131 fax
http/www.sun.com

This year you'll see a complete line of graphics and imaging workstations from Sun. We offer a system for every budget, from the economical SPARCclassic M system and the powerful, multiprocessing SPARCstation 20ZX, to the sophisticated SPARCstation 20 with the Freedom Series option. Don't miss the continuous live demonstrations of accelerated 2D graphics, fully texture-mapped 3D solids, virtual reality, imaging, and visualization for business, technical, and scientific applications.

ACM/IEEE Supercomputing '94
BOOTH 1547

Exhibition Information:
DC Expositions, Inc.
555 Republic Drive, Suite 316
Plano, TX 75074 USA
+1.214.423.4286
+1.214.423.4323 fax
dcexpo@aol.com

Don Collier

Conference Information:
Via FTP: SC94@ameslab.gov
info@sc94.ameslab.gov
+1.515.294.0673
+1.515.294.0888 fax

ACM/IEEE Supercomputing '94, the 7th annual high-performance computing and communications conference and exhibition, will take place 14-18 November 1994, at the Washington D.C. Convention Center. Committed to advancing the science and application of supercomputing technology, SC '94 will focus on research & education in computational science and engineering with particular emphasis given to applications in biology and medicine, design and manufacturing, and environmental issues.

Syndesis Corporation
BOOTH 334

235 South Main Street
Jefferson, WI 53549 USA
+1.414.674.5200
+1.414.674.6363 fax
76004.1763@compuserve.com

John Foust
President

Syndesis's InterChange translates among dozens of 3D formats including Wavefront, AutoCAD DXF, 3D Studio, Alias, and Lightwave. Two new CD-ROMs demonstrate InterChange. The second edition of the Syndesis 3D-ROM contains hundreds of 3D models in several formats. Syndesis Avalon is a snapshot of the popular Internet site for 3D data.

Techexport, Inc.
BOOTH 731

One North Avenue
Burlington, MA 01803 USA
+1.617.229.6900
+1.617.229.7706 fax

Juliane Iannaco
Marketing Coordinator

Techexport, Inc. provides international distribution and support for a comprehensive range of computer graphics and video products. The company serves the videographics, 3D modeling and animation, presentation graphics, pre-press, video editing, and industrial display markets with hardware, application software, and peripherals. Techexport operates through subsidiary offices in Europe as well as sales offices in Spain, Argentina, and Hong Kong. Techexport has a distribution channel of over 350 resellers worldwide.

Tech Images International
BOOTH 132

11 bis, rue du Colisee
Paris, 75008 France
+33.1.42.84.30.29 phone/fax

Christopher Dietrich
Publisher

Tech Images International, the digital computer images magazine, uses the latest in digital image technology in design image printing for computer graphics and professionals in film and broadcast.

Tech-Source Inc.
BOOTH 1539

442 South North Lake Boulevard
Altamonte Springs, FL 32701 USA
+1.407.830.8301
+1.407.339.2554 fax
tina@techsource.com

Tina DeVan
Marketing Assistant

Tech-Source is showing its GXTRAstation, the fastest X terminal with an unmatched 4.54 Xmark performance rating, and the GXTRA/10 and GXTRA/2000 graphics/imaging accelerators, capable of driving high-resolution 2048 x 2048 monitors. GXTRA's are ideal for OEM suppliers of ATC, ASW, and medical imaging applications requiring the power of a Sun.

Tektronix, Inc.
BOOTH 1306

26600 SW Parkway
Wilsonville, OR 97070 USA
800.835.6100

Dean Staley
Exhibit Manager

Tektronix, Inc. is demonstrating the Profile Professional Disk Recorder, an open system for storing and manipulating video and audio data. Also featured: color PostScript printers providing photo-realistic output or full color prints on letter/tabloid plain paper at 300 or 600dpi.

TELOS, The Electronic Library of Science/Springer-Verlag
BOOTH 1804

3600 Pruneridge Avenue, Suite 200
Santa Clara, CA 95051 USA
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wyldeman@applelink.apple.com

Allan Wylde
Publisher

TELOS, The Electronic Library of Science, is an imprint of Springer-Verlag New York. Its publishing program spans the natural and physical sciences, computer science, mathematics, and engineering. TELOS' primary publishing strategy is to merge traditional print media with emerging new electronic media to provide the reader with a truly interactive multimedia information environment.

Template Graphics Software, Inc.
BOOTH 722

9920 Pacific Heights Boulevard
Suite 200
San Diego, CA 92121 USA
+1.619.457.5359
+1.619.452.2547 fax
info@tgs.com

Karen Tani
Technical Consulting Specialist

Template Graphics Software provides open graphics programming tools for application developers on PCs, high performance workstations, and supercomputers. TGS markets 2D/3D libraries and toolkits which enable rapid development of graphics. TGS's products span rendering technologies including PHIGS, PEX, GL, OpenGL, XGL, and windowing systems, Motif, OpenLook, X, and Microsoft Windows.

Texas Memory Systems, Inc.
BOOTH 1401

11200 Westheimer Road, #1000
Houston, TX 77042 USA
+1.713.266.3200
+1.713.266.0332 fax

Jackie Moretz

Texas Memory Systems is exhibiting its range of SAM high performance solid-state multi-ported memory systems, aimed at high-end data acquisition and signal processing applications. SAM systems can support up to 8 Gigabytes of RAM, 500 Megabytes per second I/O bandwidth, and 1280 MFLOPS signal processing power.

Texnai, Inc.
BOOTH 1853

#1008, 2-1, Udagawa-cho, Shibuyaku
Tokyo, 150 Japan
+81.3.3464.6927
+81.3.3476.2372 fax

Norie Hiraide
International Division, Manager

Texnai exhibits and demonstrates a Macintosh-based image database system: "LaserFileIII". In the LaserFile III, a video disk recorder is used for the image storage, but it is demonstrated using Sony's write-once recorder, LVR-3000AN, and NIKON's microscope as an image-input device.

triple-I - See Information International, Inc.

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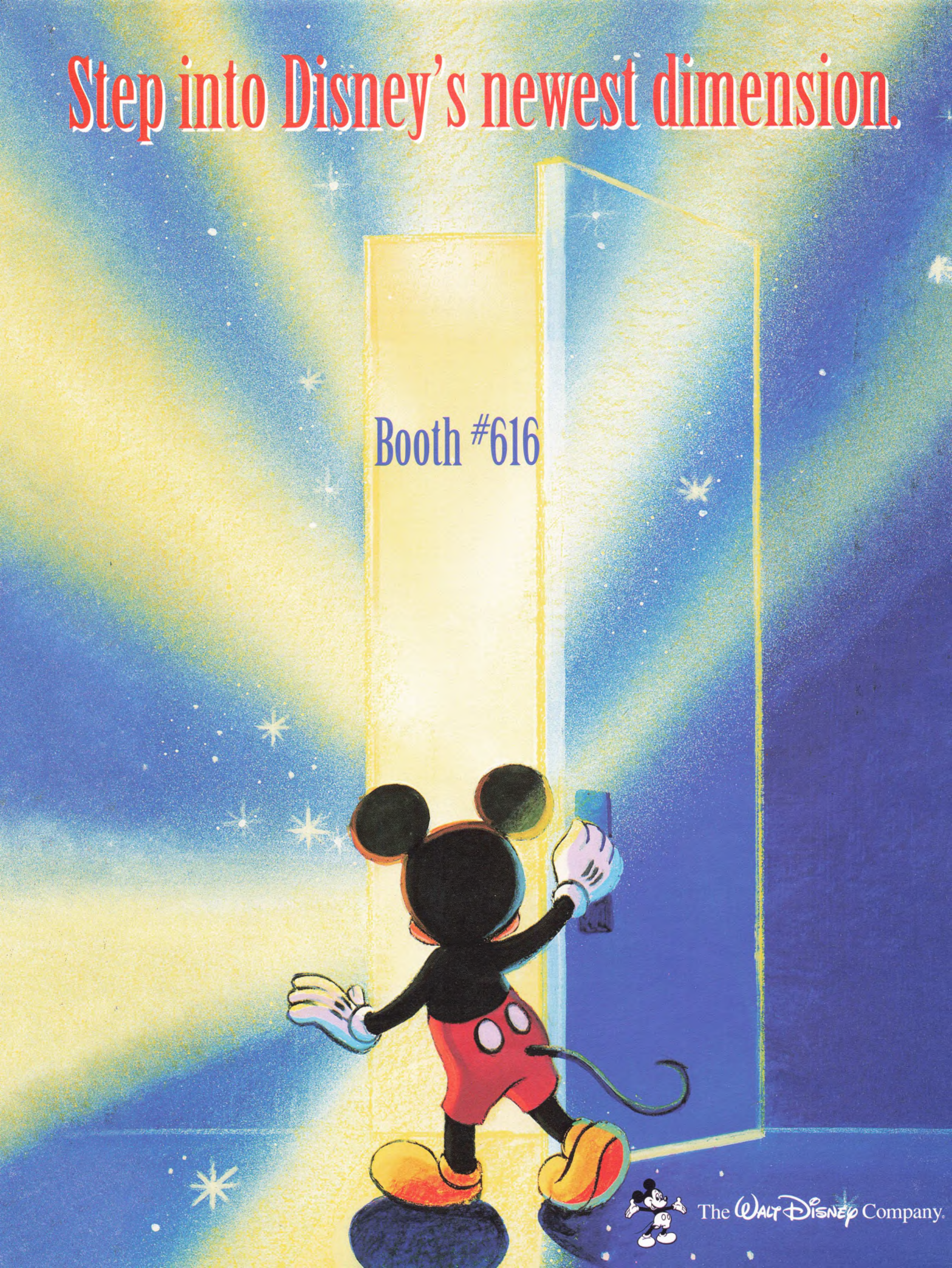

Booth #616

The Walt Disney Company

Exhibitors

Truevision, Inc.
BOOTH 415

7340 Shadeland Station
Indianapolis, IN 46256-3919 USA
+1.317.841.0332
+1.317.576.7700 fax
info@truevision.com

Tom Ransom
Manager, Marketing Communications

Truevision, the leader in desktop video, is showing the latest in digital video technology. The emphasis at SIGGRAPH 94 is on tools for building digital video applications and products. Truevision is showing its TARGA 2000, TrueVista Pro, NuVista+, ATVista, and other new products to be announced at the show.

UNIX Review Magazine
BOOTH 432

600 Harrison Street
San Francisco, CA 94107 USA
+1.415.905.2200
+1.415.905.2234 fax

Luz M. Carillo
Marketing Events Manager

UNIX Review serves the informational needs of systems integrators, VARs, OEMs, professional developers and end-users building solutions using UNIX as a platform. Technical editorial focuses on practical use of UNIX technology, news, and reviews of both hardware and software products. Visit our booth for complimentary issues and free subscriptions.

The VALIS Group
BOOTH 12

2270 Paradise Drive
Tiburon, CA 94920 USA
+1.415.435.5404
+1.415.435.9862 fax
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Rose Ann Alspektor
President, CEO

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For RenderMan: VG Shaders

Vangard Technology
BOOTH 1034

11211 East Arapahoe Road
Englewood, CO 80112 USA
+1.303.790.6090
+1.303.799.9297 fax
inquire@r2.com

Theresa DePaul
Marketing Manager

Vangard Technology provides a broad spectrum of data management solutions for the open, client/server environment, ranging from mass storage subsystems to networking and data communications products to fully integrated, turn-key systems featuring direct-access archival storage and hierarchical storage management.

Van Nostrand Reinhold
BOOTH 1051

115 Fifth Avenue
New York, NY 10003 USA
+1.212.254.3232
+1.212.475.2548 fax

Veronica Wels
Marketing Director

VNR is exhibiting The Great Buildings Collection, the first interactive multimedia encyclopedia of architecture for architects, designers, and multimedia enthusiasts, containing over 600 buildings, with hundreds of images, live 3D models, sun studies, and QuickTime video. Also featured: Multimedia Casebook CD-ROM, which includes clips and information on the 12 best multimedia projects.

Vertigo Technology Inc.
BOOTH 1050

Suite 300-842 Thurlow Street
Vancouver, British Columbia V6E 1W2
Canada
+1.604.684.2113
+1.604.684.2108 fax

Denise Pierre
Marketing Coordinator

Vertigo Technology Inc. demonstrates its new Vertigo V9.6 animation and visualization software. Vertigo V9.6 is designed for animation, broadcast, creative design, interactive, and games development applications. Unique features include fully integrated Renderman and the enhanced Effectors library. Modeling tools include spline, polygonal, Blob, B-spline, and deformations.

VIC Hi-Tech Corporation
BOOTH 43

2221 Rosecrans Avenue, Suite 237
El Segundo, CA 90245 USA
+1.310.643.5193
+1.310.643.7572 fax
Compuserve: 70544, 2472

Warren Kibbe
Sales Manager

VIC Hi-Tech features "VideoPacker Plus" low-cost video/audio capture/playback card with MCI, AVI drivers; SVGA, high color; capture, playback, editing Windows software; 30-frame full-screen playback, hardware interpolated zooming. Also featured: "VICphone" - low-cost live-action color video conferencing over standard telephone lines, ISDN, networks; hardware interpolated zooming; low-cost MPEG playback board.

Video Systems Magazine
BOOTH 1440

9800 Metcalf Avenue
Overland Park, KS 66212 USA
+1.913.341.1300
+1.913.967.1898 fax

Tom Brick
Marketing Director

Video Systems serves video, audio, multimedia production management in business, industry; computer graphics production; medical, educational institutions; government agencies; independent video, audio production facilities, producers; post-production facilities, video equipment dealers, distributors, consultants, manufacturers, other related fields including association members. *Video Systems* is the official publication of International Television Association (ITVA).

Videomedia, Inc.
BOOTH 1359

175 Lewis Road, Suite 23
San Jose, CA 95111 USA
+1.408.227.9977
+1.408.227.6707 fax
Compuserve: GO VIDEOMEDIA Forum

Mike Levin

Videomedia features V-LAN compatible products for single-frame animation, rotoscoping, and video editing applications: OZ-PRO on-line video workstation for A/B/C-roll editing; MacAnimator Pro V-LAN software with FastPass for record/capture of multiple animation frames; Express single-device controller; V-LAN HUB control system for networking applications/workstations in a post-production suite.

Viewpoint DataLabs
BOOTH 1516

870 West Center
Orem, UT 84057 USA
+1.801.224.2222
+1.801.224.2272 fax

Ron Brough
Marketing Director

Viewpoint DataLabs features 3D datasets - pre-built and custom 3D data representations of physical objects and motion paths. Compatible with major hardware platforms and over 50 3D applications, Datasets are used in visualization, animation, and real-time applications. Marketed through catalogs and DataShop CD-ROMs. Call 1-800-DATASET or +1.801.224.2222 for free catalog and/or CD.

Visionetics International Corporation
BOOTH 1459

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Torrance, CA 90503 USA
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Peggy Dreiling
Office Manager

MPEG Master - New MPEG playback board (30 fps) full-motion video playback from CD or HD. VIGA Genlock+ - VGA card with genlock overlay of VGA on video. VIGA Window II - Second-generation video and windowing card with display of scalable video on a VGA monitor. PortaShow+ - External VGA-to-video converter box with RGB output and audio pass-through.

Visual Numerics Inc.
BOOTH 1839

9990 Richmond Avenue, Suite 400
Houston, TX 77042-4548 USA
+1.713.784.3131
+1.713.781.9260 fax
marketing@houston.vni.com

Laurie Potratz
Director of Marketing Services

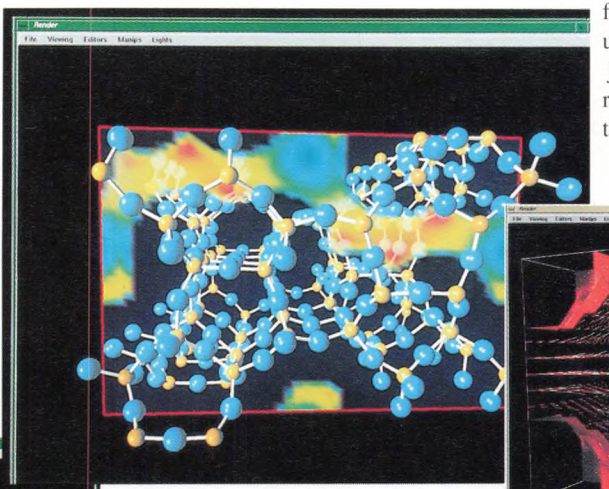
Visual Numerics' software for science, engineering, and business applications includes IMSL Exponent Graphics – powerful interactive graphics libraries and presentation quality graphs for FORTRAN, C, and X development; and PV-WAVE - an interactive 4GL data analysis environment that allows you to visualize, explore, and understand complex technical and financial data.

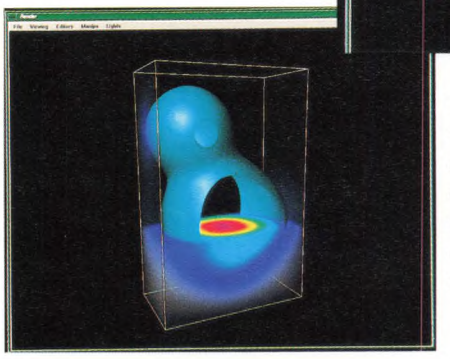
IRIS Explorer™

Get back to the business of problem solving

Take a look at IRIS Explorer. -the new generation visualisation package.

It can provide you with real understanding of your data with the minimum of effort. Already in use at thousands of sites on Silicon Graphics systems, IRIS Explorer is now becoming available on computers from Sun Microsystems, Hewlett-Packard, IBM, Digital Equipment Corporation and Cray Research.





Make it easy

With IRIS Explorer, you can inter-actively create applications for analysing complex multi-dimensional datasets – often without any programming at all. Simply choose modules from the IRIS Explorer library, connect them together using a point-and-click interface, then run the application you've created.

It's as easy as that.

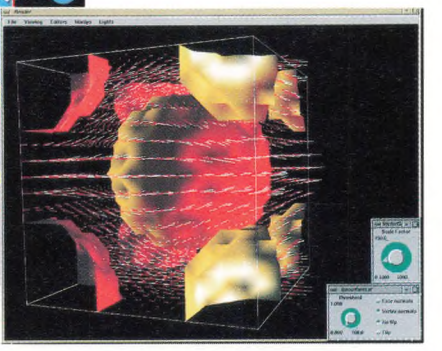
Plug and play time

You can select from an extensive range of visualisation techniques. Try out contours, slices, vectors, streamlines, edge detection or filtering; combine techniques – add a key to the image – create an animation – annotate it – move it round. It's right in front of you.

Get it all together

Over 140 modules are bundled with IRIS Explorer to read, sample, transform and display data. IRIS Explorer also contains powerful tools which make writing your own modules easy. Many of your existing programs will make suitable IRIS Explorer modules, with little work!

When you've got your application the way you want, you can deliver it as a stand-alone solution. IRIS Explorer makes it easy to interactively design the user interface by choosing the control widgets from the modules which your users will want to see. They get just the functionality they require – you get their solution to them faster.



Use your power

You can use the full range of workstations in your organisation to solve your problem. You can use the same simple point-and-click interface to select modules from any machine on the network which is running IRIS Explorer and then distribute your computing or visualisation task across the network.

Get the picture

When you can visualise your data, you can work with it in a new way – see what you"re doing – show it to others – make the right decisions.

Why not take a look at IRIS Explorer. It's just waiting to help you.

IRIS Explorer Centre (Europe) PO Box 50 OXFORD OX2 8JU UK. Tel: +44 (0)865 516377 Fax: +44 (0)865 516388 e-mail: helpdesk@iec.co.uk
IRIS Explorer Centre (N. America) 1400 Opus Place Suite 200 Downers Grove IL 60515-5702 USA Tel: +1 708 971 2337 Fax: +1 708 971 2706 e-mail: infodesk@nag.com

Exhibitors

Visual Software, Inc.
BOOTH 958

21731 Ventura Boulevard, Suite 310
Woodland Hills, CA 91364 USA
+1.818.883.7900
+1.818.593.3750 fax

Kevin Bromber
Sales Manager

Visual Software specializes in multimedia and graphic design software. Its latest product, VisualReality, is a 3D modeling, rendering, and animation package including VisualModel, RenderizeLive, VisualImage, VisualFont, VisualPlayer, a ClipART CD, and ImageCELS, a texture CD. This product can stand alone or import files and work with other products.

The Vivid Group
BOOTH 126

317 Adelaide Street West, #302
Toronto, Ontario M5V 1P9 Canada
+1.416.340.9290
+1.416.348.9809 fax
vivid@utcs.utoronto.ca

Vincent John Vincent
Director

The Mandala Virtual World system has the ability to let users step into a computer-generated environment. Using a video camera interface, users see themselves superimposed over graphics on a video monitor, without touching, wearing, or holding anything. Systems are configured for sports simulation, entertainment, product marketing, and machine vision.

Wacom Technology Corporation
BOOTH 818

501 S.E. Columbia Shores Boulevard, Suite 300
Vancouver, WA 98661 USA
+1.206.750.8882
+1.206.750.8924 fax

Marisela M. Lockhart
Marketing Events Manager

Wacom Technology Corporation is exhibiting its full line of top-rated graphics tablets with pressure-sensitive pens for artists, illustrators, and designers. Wacom's patented technology includes a unique pressure-sensitive, cordless, and battery-free stylus. Other features include tablet-to-screen scaling, pop-up screen macro support, customizable menu-strip and more.

The Walt Disney Company
BOOTH 616

500 South Beuna Vista Street
Burbank, CA 91521 USA
+1.818.560.1000

The Walt Disney Company is a world leader in the entertainment industry, spanning across the fields of film production, theme parks, and interactive media. For over six decades, Disney has been committed to technical innovation and has developed significant breakthroughs that have expanded our creative and artistic bounds. With the expanding use of digital technology throughout the entertainment industry, Disney continues to pioneer innovation in the fields of computer graphics and interactive technology. Visit our booth for a view of our current and upcoming projects.

Wavefront Technologies, Inc.
BOOTH 1318

530 East Montecito Street
Santa Barbara, CA 93103 USA
+1.805.962.8117
+1.805.963.0410 fax
tom@wti.com

Tom Sullivan
Sales Support Manager

Wavefront provides complete market-specific 2D and 3D graphics solutions for entertainment, industry, and electronic games. New versions of KINEMATION for character animation; DYNAMATION for physically-based animation; GAMEWARE for games development; 3DESIGN for integrated NURBS, surface and polygon modeling; and EXPLORE for professional animation and rendering, are unveiled.

Weitek Corporation
BOOTH 30

1060 East Arques Avenue
Sunnyvale, CA 94086 USA
+1.408.738.8400
+1.408.739.4374 fax
nancy_hannum@weitek.com

Nancy Hannum
MarCom Specialist

Weitek Corporation is a leading supplier of processors and controllers that enhance the performance of standard operating systems, user interfaces, and applications software. The company's graphics and multimedia products bring workstation-class performance to the personal computer.

John Wiley & Sons, Inc.
BOOTH 1739

605 Third Avenue
New York, NY 10158 USA
1-800-Call-Wiley
+1.212.850.6489 fax
bipsen@jwiley.com

Bob Ipsen
Senior Marketing Manager

John Wiley & Sons publishes books and journals for the computer professional on graphics programming, multimedia, virtual reality, UNIX, and programming. Stop by the booth to see the latest releases, such as *Virtual Reality Construction Kit* by Joe Gradecki, *How to Digitize Video* by Keith Weiskamp, *Radiosity, A Programmers Perspective* by Ian Ashdown, and *Practical Digital Video Programming with Examples in C* by Phillip Mattison.

Winsted Corporation
BOOTH 1735

10901 Hampshire Avenue South
Minneapolis, MN 55438-2385 USA
+1.612.944.9050
+1.612.944.1546 fax

Randy Smith
Marketing Manager

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Amy Critchett
Operations Manager

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Xaos Tools Inc.
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San Francisco, CA 94103 USA
+1.415.487.7000
+1.415.558.9886 fax

Abby Joslin
Director of Marketing

Xaos Tools is showing Rapture, an image-processing application for Autodesk 3D Studio that adds an entirely new dimension of high-end animation and special effects to 3D Studio Release 3. Also featured: the award-winning Pandemonium and nTitle for SGI workstations, and Paint Alchemy and Terrazzo, Xaos Tools' plug-in filters for Adobe Photoshop.

YARC Systems Corporation
BOOTH 1829

975 Business Center Circle
Newbury Park, CA 91320 USA
+1.805.499.9444
+1.805.499.4048 fax
yarc@yarc.com

Brad Nizdil
Vice President of Sales and Marketing

YARC is introducing the "Hydra", a NuBus accelerator board powered by four PowerPC 601 microprocessors designed to accelerate rendering and raytracing. Also being introduced is Shade III, a powerful full-featured 3D package that includes modeling, rendering/raytracing, and animation as well as distributed rendering, SGI, and YARC acceleration support.

Zeh Graphics Systems, Inc.
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Houston, TX 77079 USA
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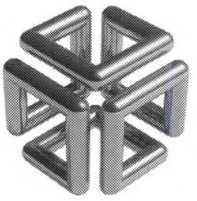
+1.713.558.3043 fax

Glenn Simmons
Sales Manager



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1306	Tektronix, Inc.

HARDCOPY DEVICES; PRINTERS/PLOTTERS

Booth	
116	Apple Computer, Inc.
1155	Apunix Computer Services
1554	Cymbolic Sciences International
850	Digital Connectivity Inc.
1150	Eastman Kodak Company
944	ENCAD, Inc.
1852	Epson America, Inc.
33	Falcon Systems, Inc.
1444	Focus Graphics Inc.
1800	GW Hannaway & Associates, Inc.
806	Hewlett-Packard Company
854	Itochu Technology, Inc.
1806	Mitsubishi Electronics America
109	NewGen Systems Corporation
1948	Q-Lamp Inc.
1135	RFX Inc.
1416	Seiko Instruments USA Inc.
1218	Sony Electronics Inc.
1306	Tektronix, Inc.

HDTV

Booth	
1040	Discreet Logic
32	DVS GmbH, Digital Video Systems
1243	ElectroGIG USA, Inc.
412	Evans & Sutherland Computer Corporation
727	For-A Corporation
1844	Fujitsu Microelectronics, Inc.
858	Genesis Microchip Inc.
1835	Intelligent Resources Integrated Systems
1952	Linker Systems
1915	Miranda Technologies Inc.
1135	RFX, Inc.
1859	Sigma Electronics, Inc.
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
107	Storage Concepts, Inc.
1234	triple-I (Information International, Inc.)
1359	Videomedia, Inc.

HIGH-PERFORMANCE GRAPHICS PROCESSORS

Booth	
1142	BARCO
1659	Cowles Business Media/Pre- Magazine
1006	Digital Equipment Corporation
412	Evans & Sutherland Computer Corporation
33	Falcon Systems, Inc.
1844	Fujitsu Microelectronics, Inc.
858	Genesis Microchip Inc.
806	Hewlett-Packard Company
918	IBM Corporation
1258	Image Resources, Inc.
1835	Intelligent Resources Integrated Systems
102	Intergraph Computer Systems
854	Itochu Technology, Inc.
1820	Kubota Graphics Corporation
15	Martin Marietta
1228	MEGATEK Corporation
1135	RFX Inc.
612	SDI Virtual Reality Corporation
1106/1120	Silicon Graphics, Inc.
1206	Sun Microsystems Computer Corporation
415	Truevision, Inc.
30	Weitek Corporation

HIGH-RESOLUTION GRAPHIC DISPLAY SYSTEMS

Booth	
1142	BARCO
1350	Computer Design, Inc.
1659	Cowles Business Media/Pre- Magazine
1006	Digital Equipment Corporation
412	Evans & Sutherland Computer Corporation
33	Falcon Systems, Inc.
727	For-A Corporation
1844	Fujitsu Microelectronics, Inc.
1310	Grass Valley Group
806	Hewlett-Packard Company
1258	Image Resources, Inc.
102	Intergraph Computer Systems
854	Itochu Technology, Inc.
1228	MEGATEK Corporation
1915	Miranda Technologies Inc.
1056	ND3D: 3-D Hard Copies
42	Proxima Corporation
1948	Q-Lamp Inc.
1135	RFX Inc.
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
1206	Sun Microsystems Computer Corporation
1539	Tech-Source Inc.
1306	Tektronix, Inc.

IMAGE PROCESSING

Booth	
836	Advanced Visual Systems Inc.
811	Agfa Division of Miles, Inc.
326	Altamira Software Corporation
1428	AT&T Multimedia Software Solutions
29	Camaleon
1644	Canon USA Inc.
34	Cine-Byte Imaging Inc.
431	Ciprico, Inc.
1350	Computer Design, Inc.
1659	Cowles Business Media/Pre- Magazine
227	Data Translation
1558	Diaquest, Inc.
1040	Discreet Logic
1150	Eastman Kodak Company
101	Elastic Reality, Inc.
1243	ElectroGIG USA, Inc.
1344	Engineering Animation, Inc.
33	Falcon Systems, Inc.
727	For-A Corporation
426	Fractal Design Corporation
1844	Fujitsu Microelectronics, Inc.
858	Genesis Microchip Inc.
1800	GW Hannaway & Associates, Inc.
806	Hewlett-Packard Company
918	IBM Corporation
1848	Integrated Research
1835	Intelligent Resources Integrated Systems
23	Interactive Effects
854	Itochu Technology, Inc.
1820	Kubota Graphics Corporation
701	Lasergraphics, Inc.
1952	Linker Systems, Inc.
516	Management Graphics, Inc.
15	Martin Marietta
1801	Matrox Video Products Group
1915	Miranda Technologies Inc.
1806	Mitsubishi Electronics America
1056	ND3D: 3-D Hard Copies
109	NewGen Systems Corporation
1058	Numerical Algorithms Group, Inc.
1616	P.E. Photron
1135	RFX Inc.
315	Ron Scott Inc.
1654	Schreiber Instruments, Inc.
1416	Seiko Instruments USA Inc.
1106/1120	Silicon Graphics, Inc.
411	SOFTIMAGE, Inc.
1218	Sony Electronics Inc.
107	Storage Concepts, Inc.
1206	Sun Microsystems Computer Corporation
1401	Texas Memory Systems, Inc.
12	The VALIS Group
43	VIC Hi-Tech Corporation
1459	Visionetics International Corporation
1839	Visual Numerics Inc.
416	Xaos Tools Inc.

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Booth	
45	3D Scanners Ltd.
1018	Alias Research Inc.
326	Altamira Software Corporation
116	Apple Computer, Inc.
1653	auto.des.sys, Inc.
228	Byte by Byte Corporation
1350	Computer Design, Inc.
18	Crystal River
1150	Eastman Kodak Company
1243	ElectroGIG USA, Inc.
1344	Engineering Animation, Inc.
412	Evans & Sutherland Computer Corporation
33	Falcon Systems, Inc.
1828	FARO Technologies Inc.
1844	Fujitsu Microelectronics, Inc.
806	Hewlett-Packard Company
1258	Image Resources, Inc.
23	Interactive Effects
1228	MEGATEK Corporation
1856	MicronGreen, Inc.
726	Montpellier Languedoc-Roussillon Technopole
1056	ND3D: 3-D Hard Copies
1948	Q-Lamp Inc.
58	Radiance Software International
1416	Seiko Instruments USA Inc.
1106/1120	Silicon Graphics, Inc.
934	StereoGraphics Corporation
1206	Sun Microsystems Computer Corporation
12	The VALIS Group

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Booth	
1155	Apunix Computer Services
1552	Ascension Technology Corporation
850	Digital Connectivity Inc.
1150	Eastman Kodak Company
33	Falcon Systems, Inc.
1828	FARO Technologies Inc.
1800	GW Hannaway & Associates, Inc.
806	Hewlett-Packard Company
1450	IMAGICA Corporation of America
1848	Integrated Research
950	Kurta Corporation
1915	Miranda Technologies Inc.
704	Oxberry, Division of Cybernetics Products, Inc.
1616	P.E. Photron
1434	Polhemus Incorporated
42	Proxima Corporation
1135	RFX Inc.
725	Science Accessories Corporation
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
1206	Sun Microsystems Computer Corporation
731	Techexport, Inc.
1853	Texnai, Inc.
43	VIC Hi-Tech Corporation
818	Wacom Technology Corporation

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Booth	
1854	Acuris, Inc.
836	Advanced Visual Systems Inc.
228	Byte by Byte Corporation
1150	Eastman Kodak Company
1243	ElectroGIG USA, Inc.
1344	Engineering Animation, Inc.
1444	Focus Graphics Inc.
1831	Fraunhofer Center for Research in Computer Graphics, Inc.
806	Hewlett-Packard Company
1856	MicronGreen, Inc.
726	Montpellier Languedoc-Roussillon Technopole
1056	ND3D: 3-D Hard Copies
1948	Q-Lamp Inc.
1106/1120	Silicon Graphics, Inc.
722	Template Graphics Software, Inc.
12	The VALIS Group
1839	Visual Numerics Inc.

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Booth	
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1142	BARCO
33	Falcon Systems, Inc.
1844	Fujitsu Microelectronics, Inc.
806	Hewlett-Packard Company
102	Intergraph Corporation
1915	Miranda Technologies Inc.
1102	Panasonic Broadcast & Television Systems Company
1948	Q-Lamp Inc.
1135	RFX Inc.
1622	RGB Spectrum
626	Sanyo Industrial Video
434	Solsource Computers
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
1206	Sun Microsystems Computer Corporation
1306	Tektronix, Inc.
43	VIC Hi-Tech Corporation

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Booth	
1854	Acuris, Inc.
1018	Alias Research Inc.
326	Altamira Software Corporation
116	Apple Computer, Inc.
1155	Apunix Computer Services
Grand Lobby	Association for Computing Machinery (ACM)
1428	AT&T Multimedia Software Solutions
1406	Autodesk, Inc.
1653	auto.des.sys, Inc.
228	Byte by Byte Corporation
52	Caligari
1151	Chyron Graphics
38	Computer Visualizations, Inc.
1454	CoSA, A Division of Aldus
1659	Cowles Business Media/Pre- Magazine
18	Crystal River
1534	CrystalGraphics, Inc.
227	Data Translation
1558	Diaquest, Inc.
1006	Digital Equipment Corporation
1150	Eastman Kodak Company
101	Elastic Reality, Inc.
1134	Electric Image, Inc.
1243	ElectroGIG USA, Inc.
1344	Engineering Animation, Inc.
1814	Extron Electronics
1828	FARO Technologies Inc.
1831	Fraunhofer Center for Research in Computer Graphics, Inc.
1844	Fujitsu Microelectronics, Inc.
858	Genesis Microchip Inc.
1800	GW Hannaway & Associates, Inc.
806	Hewlett-Packard Company
918	IBM Corporation
1848	Integrated Research
1406	Ithaca Software
1658	Macromedia
1801	Matrox Video Products Group
59	Meridian Creative Group
726	Montpellier Languedoc-Roussillon Technopole
1056	ND3D: 3-D Hard Copies
113	NewMedia Magazine
119	Onyx Computing, Inc.
104	Pixar
1948	Q-Lamp Inc.
58	Radiance Software
1135	RFX Inc.
1622	RGB Spectrum
1106/1120	Silicon Graphics, Inc.
411	SOFTIMAGE, Inc.
434	Solsource Computers
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
107	Storage Concepts, Inc.
1206	Sun Microsystems Computer Corporation
334	Syndesis Corporation
731	Techexport, Inc.
1306	Tektronix, Inc.
415	Truevision, Inc.
12	The VALIS Group
1051	Van Nostrand Reinhold
1050	Vertigo Technology Inc.
43	VIC Hi-Tech Corporation
1359	Videomedia, Inc.
1516	Viewpoint DataLabs
1459	Visionetics International Corporation
958	Visual Software, Inc.
416	Xaos Tools Inc.
1824	YARC Systems Corporation

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Booth	
116	Apple Computer, Inc.
431	Ciprico, Inc.
1558	Diaquest, Inc.
1006	Digital Equipment Corporation
1150	Eastman Kodak Company
412	Evans & Sutherland Computer Corporation
33	Falcon Systems, Inc.
1844	Fujitsu Microelectronics, Inc.
1800	GW Hannaway & Associates, Inc.
806	Hewlett-Packard Company
1848	Integrated Research
1723	Kingston Technology Corporation
516	Management Graphics, Inc.
726	Montpellier Languedoc-Roussillon Technopole
1948	Q-Lamp Inc.
1135	RFX Inc.
1206	Sun Microsystems Computer Corporation
1034	Vangard Technology
43	VIC Hi-Tech Corporation
1359	Videomedia, Inc.

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Booth	
1634	5D
1251	Ampex Corporation
431	Ciprico, Inc.
412	Evans & Sutherland Computer Corporation
33	Falcon Systems, Inc.
834	Folsom Research, Inc.
10	Forefront Graphics
1844	Fujitsu Microelectronics, Inc.
858	Genesis Microchip Inc.
1801	Matrox Video Products Group
1228	MEGATEK Corporation
1242	NEC Electronics Inc.
704	Oxberry, Division of Cybernetics Products, Inc.
1434	Polhemus Incorporated
1948	Q-Lamp Inc.
1218	Sony Electronics Inc.
107	Storage Concepts, Inc.
1206	Sun Microsystems Computer Corporation
731	Techexport, Inc.
1539	Tech-Source Inc.
415	Truevision, Inc.
43	VIC Hi-Tech Corporation
1359	Videomedia, Inc.
30	Weitek Corporation

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Booth	
1018	Alias Research Inc.
116	Apple Computer, Inc.
1142	BARCO
850	Digital Connectivity Inc.
1040	Discreet Logic
1310	Grass Valley Group
23	Interactive Effects
1952	Linker Systems Inc.
726	Montpellier Languedoc-Roussillon Technopole
119	Onyx Computing, Inc.
1334	Parallax Software Inc.
1135	RFX Inc.
315	Ron Scott Inc.
731	Techexport, Inc.
1234	triple-I (Information International, Inc.)
1318	Wavefront Technologies, Inc.

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1644	Canon USA Inc.
1956	Cirrus Logic, Inc.
18	Crystal River
1534	CrystalGraphics, Inc.
1558	Diaquest, Inc.
834	Folsom Research, Inc.
1844	Fujitsu Microelectronics, Inc.
1446	Helios Systems
918	IBM Corporation
1723	Kingston Technology Corporation
1820	Kubota Graphics Corporation
950	Kurta Corporation
701	Lasergraphics, Inc.
1801	Matrox Video Products Group
1915	Miranda Technologies Inc.
1135	RFX Inc.
434	Solsource Computers
1218	Sony Electronics Inc.
934	StereoGraphics Corporation
731	Techexport, Inc.
415	Truevision, Inc.
43	VIC Hi-Tech Corporation
1359	Videomedia, Inc.
1459	Visionetics International Corporation

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45	3D Scanners Ltd.
116	Apple Computer, Inc.
1406	Autodesk, Inc.
228	Byte by Byte Corporation
1956	Cirrus Logic, Inc.
18	Crystal River
227	Data Translation
1558	Diaquest, Inc.
850	Digital Connectivity Inc.
1852	Epson America, Inc.
10	Forefront Graphics
1310	Grass Valley Group
1446	Helios Systems
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1801	Matrox Video Products Group
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415	Truevision, Inc.
43	VIC Hi-Tech Corporation
1359	Videomedia, Inc.
958	Visual Software, Inc.
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Booth	
116	Apple Computer, Inc.
33	Falcon Systems, Inc.
1828	FARO Technologies Inc.
806	Hewlett-Packard Company
1406	Ithaca Software
1723	Kingston Technology Corporation
726	Montpellier Languedoc-Roussillon Technopole
1528	Portable Graphics, Inc.
1135	RFX Inc.
1106/1120	Silicon Graphics, Inc.
1206	Sun Microsystems Computer Corporation
722	Template Graphics Software, Inc.

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1142	BARCO
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42	Proxima Corporation
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43	VIC Hi-Tech Corporation

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37	Animation Magazine
1041	AP Professional/Academic Press
Grand Lobby	Association for Computing Machinery
432	Cadence Magazine
860	CADalyst Magazine
1101	Computer Graphics World
56	Computer Video
1659	Cowles Business Media/Pre- Magazine
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1150	Eastman Kodak Company
532	Eurographics
1523	IEEE Computer Society
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40	Mecklermedia
59	Meridian Creative Group
804	MONDO 2000
1602	Morgan Kaufmann Publishers
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1636	PC Graphics & Video
702	PIXEL Magazine
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959	Silicon Graphics World
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1804	Springer-Verlag New York, Inc.
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1804	TELOS, The Electronic Library of Science
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836	Advanced Visual Systems Inc.
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116	Apple Computer, Inc.
1428	AT&T Multimedia Software Solutions
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412	Evans & Sutherland Computer Corporation
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1831	Fraunhofer Center for Research in Computer Graphics, Inc.
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125	Hash Inc.
806	Hewlett-Packard Company
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1852	Epson America, Inc.
1814	Extron Electronics
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834	Folsom Research, Inc.
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806	Hewlett-Packard Company
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15	Martin Marietta
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726	Montpellier Languedoc-Roussillon Technopole
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1142	BARCO
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SIGGRAPH 94

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425	Storage Technology Corporation
1206	Sun Microsystems Computer Corporation
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1034	Vangard Technology

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102	Intergraph Computer Systems
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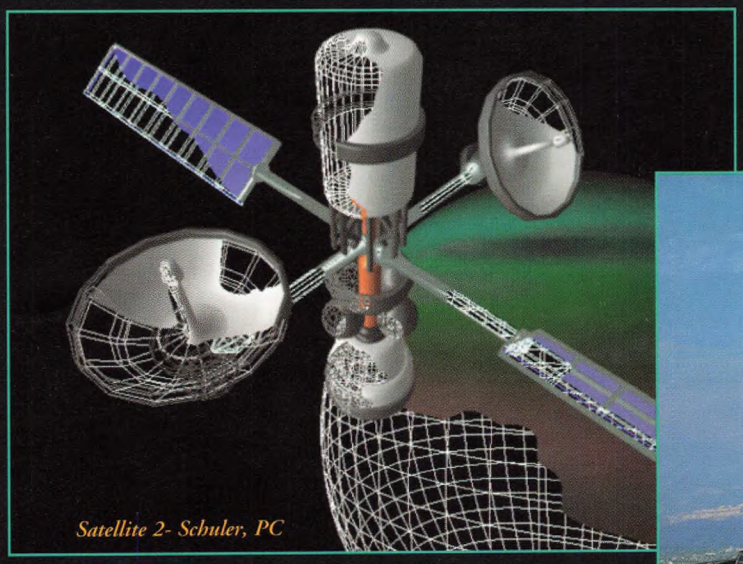

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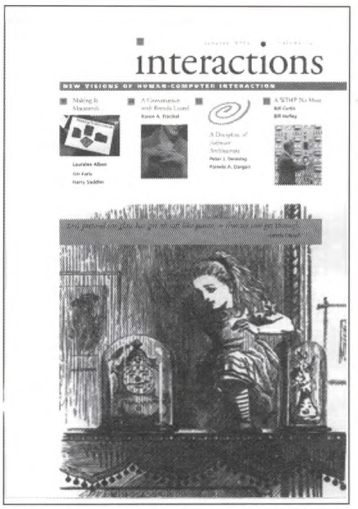

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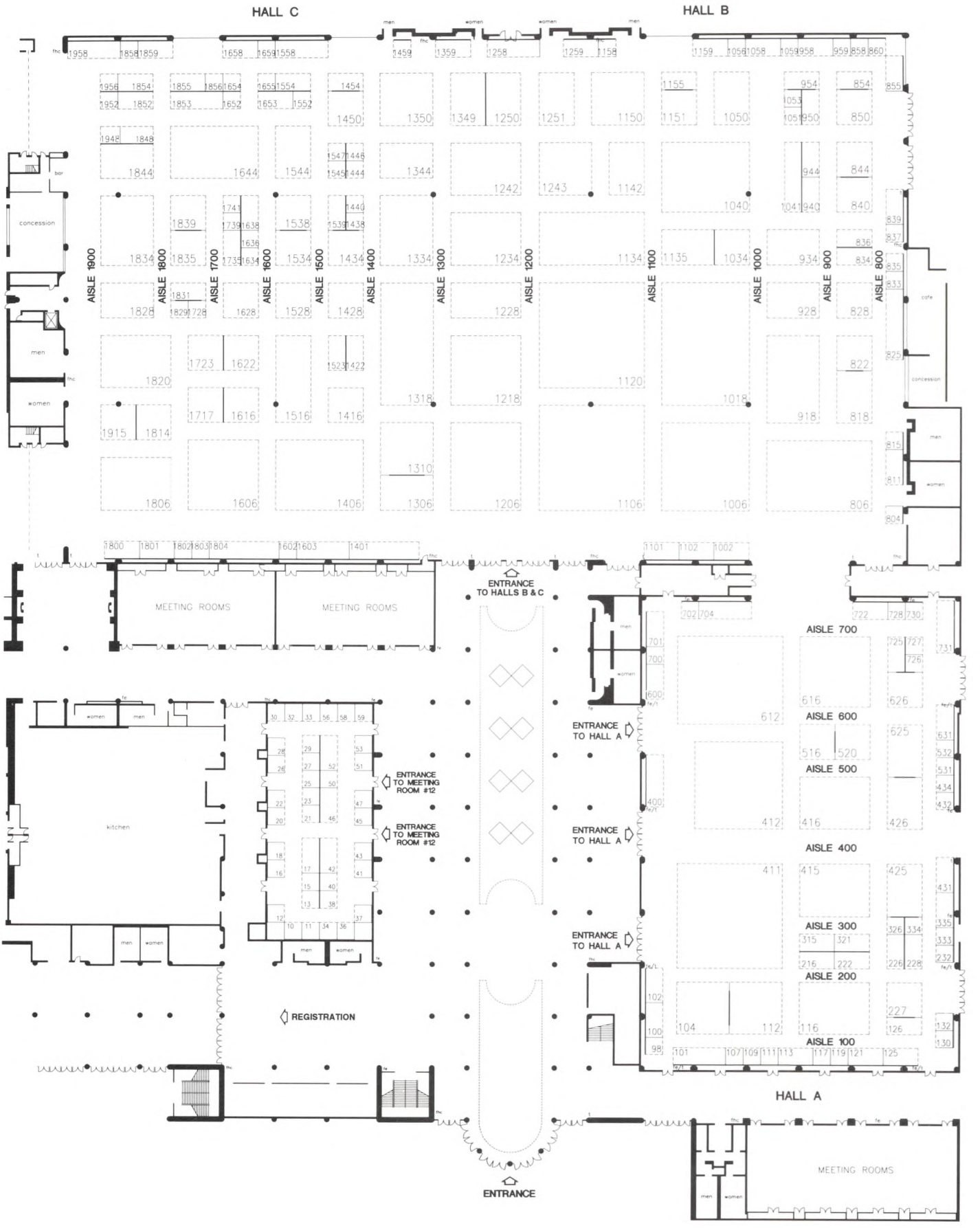

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LA 95

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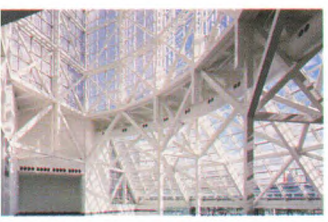

LA 95

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LA 95

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- Call for Participation
- Registration for SIGGRAPH 95
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- Good company

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LA 95

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LA 95

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Room 8, OCCC

Join the SIGGRAPH Executive Committee and other SIGGRAPH volunteers, members, and conference attendees at the annual business meeting. We will present an overview of the SIGGRAPH: the 21st Century meeting, followed by status reports from the seven task forces that were formed at that meeting.

SIGGRAPH is doing some important long-range planning this year. This involves looking carefully at where the field of computer graphics and interactive techniques is going and defining the kind of organization we need to be to adapt positively to these changes. We want your help as the planning continues. SIGGRAPH is a terrific organization, and it's your organization. Participate in the business meeting and help us to make it even better.

THE ORGANIZATION

SIGGRAPH is the Association for Computing Machinery's Special Interest Group on Computer Graphics. Started in 1967, SIGGRAPH has grown from a handful of computer graphics enthusiasts to a diverse membership of 10,000 people, including software and hardware developers, scientists, mathematicians, engineers, animators, filmmakers, artists, and other professionals in the field of computer graphics.

In addition to its own annual conference, SIGGRAPH sponsors other conferences, supports a wide range of educational activities, produces a variety of publications, and maintains active relationships with other professional technical organizations around the world. SIGGRAPH has established local groups across the United States and internationally.

For general information on SIGGRAPH and ACM membership services you can reach many SIGGRAPH volunteers and information sources through the electronic mail forwarding service on the siggraph.org system. On the following page are a number of ways to reach individuals or groups, or get information, through electronic mail. In any address, you may use lowercase letters instead of capitals.

SIGGRAPH GLOBAL NETWORK OF PROFESSIONAL CHAPTERS (SIG^{3}N)

Global Network
The Professional Chapters of SIGGRAPH, formerly called Local Groups, now span the globe and form an international network of like-minded people who, throughout the year develop, continue, and extend the work and achievements that are presented at the annual SIGGRAPH conference. They are the SIGGRAPH GLOBAL NETWORK.

Professional Chapters
Each SIGGRAPH Professional Chapter draws its membership from a particular area or region where there are professionals from education, research, development, industry, and entertainment who are interested in the development of computer graphics, its related technologies, and applications.

They meet on a regular basis usually around technical subjects or themes, but also around conferences and events.

The Professional Chapters provide the basis for a greater involvement by volunteers in the activities of SIGGRAPH, the annual conference and their future developments. Many of those involved in other SIGGRAPH activities, committees and projects have graduated from the Professional Chapter in a local region.

Electronic Network
The Professional Chapters are linked by an ever-expanding electronic network and are open to contact from other like-minded professionals and organizations throughout the world.

International
Internationally, Chapters exist in Eastern and Western Europe, South and North America, the Middle East and the Pacific Rim. Significantly, SIGGRAPH Professional Chapters are at the same time ACM Professional Chapters and stand alongside an even broader international network of computing groups.

Professional Chapters Steering Committees
All Chapters are supported by the Professional Chapters Steering Committee, a body elected by the membership, which is in turn represented on the Executive Council of SIGGRAPH. Support for Professional Chapters includes: start-up assistance, electronic communication, networking, and other material support for promotional and technical purposes. The ACM SIGGRAPH library is also available to Professional Chapters.

The Invitation to You
What can you do to extend and continue your SIGGRAPH experience? Join a Professional Chapter in your local area or region. If one does not exist, inquire at the SIGGRAPH Global Network booth about how to form a Chapter. Or contact the PCSC on Internet:
pcsc@siggraph.org

NOMINATING COMMITTEE

This year, the SIGGRAPH nominating committee is seeking candidates for Chair, Vice Chair, and Treasurer to serve two-year terms beginning July 1995.

The Chair is the principal officer and is responsible for leading SIGGRAPH and managing its activities. The duties of the Chair are:

- Calling and presiding at SIGGRAPH's Executive Committee and Business Meetings.
- Conducting SIGGRAPH's activities in accordance with the policies of the ACM.
- Making all appointments and filling vacancies as authorized.
- Appointing all standing and ad hoc committees.

The duties of the Vice Chair are:

- Assisting the Chair in leading and managing SIGGRAPH.
- Presiding at meetings when the Chair is absent.
- Assuming any duties delegated by the Chair.
- Planning or approving the program and budget for all technical meetings such as workshops and symposia not related to the annual conference.
- Coordinating all liaison activities with other SIGs and organizations.
- Representing the Special Projects activities on the Executive Committee.

The duties of the Treasurer are:

- Managing SIGGRAPH's finances according to the Financial Accountability Policy of the ACM. This includes preparing the annual budget, monitoring SIGGRAPH's disbursements for adherence to the annual budget, and preparing financial reports as required.
- Reporting SIGGRAPH's finances to members at least once a year in SIGGRAPH's regular publications.

The Nominating Committee can be reached by sending email to:
NominatingCommittee@siggraph.org.

EDUCATION COMMITTEE

ACM SIGGRAPH actively supports both Computer Graphics education and the use of Computer Graphics in education through the activities of its Education Committee. The committee currently involves more than 50 volunteers from around the world working on over 20 different projects in areas such as curriculum studies, resources for educators, and ACM SIGGRAPH conference-related activities. SIGGRAPH: the 21st Century identified education as one of the seven areas of primary concern for SIGGRAPH, consequently strengthening the mandate of the education committee.

The ACM SIGGRAPH Education Committee is always looking for new, good ideas and volunteers to implement them. In addition, the Education Committee is actively addressing the long-range education goals that were identified at SIGGRAPH: the 21st Century and eagerly welcomes new ideas and volunteers to implement those ideas.

SIGGRAPH: THE 21ST CENTURY

SIGGRAPH: the 21st Century was the theme of a long-range strategy meeting held in May 1994. Representatives of the SIGGRAPH membership, constituent groups, and volunteer leadership met for three days to identify future directions and areas of endeavor for the SIGGRAPH organization. This conference provides us with several opportunities to inform you about resulting task forces and plans, and to encourage your participation.

At Thursday's SIGGRAPH business meeting, we are presenting an overview of the SIGGRAPH: the 21st Century meeting, followed by status reports from the seven task forces that were formed as a result of it. These task forces address issues that participants considered critical to the organization's health.

The task forces are meeting here this week to solicit your ideas and to encourage your participation. A schedule of meeting times and locations will be posted onsite. If you can't attend, but are interested in becoming involved, come to the business meeting or leave your name, contact information, and areas of interest at the SIGGRAPH 95 booth.

SIGGRAPH: the 21st Century Task Forces

- ACM Relationship
- Annual Conference
- Education
- OnLine SIGGRAPH
- Political Action
- Small Conferences/Workshops
- Structure of SIGGRAPH Organization

SIGGRAPH's recent long-range planning meeting was just the beginning. We're setting out to renew and reinvent SIGGRAPH so it will be as vital an organization in the 21st century as it has been in the 20th. The SIGGRAPH Executive Committee, as well as all those who participated in SIGGRAPH: the 21st Century, invite you to join us.

ON-LINE INFORMATION

If you cannot identify the person or group you want to reach from the information listed here, send mail to directory@siggraph.org. Your mail will be scanned by an automated mail responder that will try to respond to keywords in your subject line and message body with SIGGRAPH resources of interest to you. If you do not know where to begin a search, simply forward an empty message with the subject line "help." A general directory assistance message will be returned immediately to you.

If you want to reach someone whose name you know, address the mail as surname@siggraph.org where surname is replaced by the person's surname. Remember: capitalization is not important. For example, to reach Wayne Carlson, address mail to carlson@siggraph.org. In case there is more than one person with a given surname, use the first initial followed by the surname. For example, to reach Judith R. Brown, address mail to jbrown@siggraph.org; to reach Maxine Brown, use mbrown@siggraph.org.

If you want to address mail to the person holding a given office, address mail to office.group@siggraph.org. For example, to reach the SIGGRAPH chair, send mail to chair.ec@siggraph.org, or to reach the SIGGRAPH 95 co-chairs, you can send mail to: co-chairs.s95@siggraph.org.

The following groups can be reached by addressing mail to Group@siggraph.org:
- EC (executive committee)
- CPC (conference planning committee)
- EC+CPC (both the groups above)
- EducationCommittee
- ProfessionalChaptersSteeringCommittee
- ProfessionalChaptersChairs
- NominatingCommittee
- PublicationsCommittee

Information about the following topics can be obtained by addressing mail to Info.Topic@siggraph.org:
- Info.Membership
- Info.LocalGroups
- Info.Education
- Info.Careers
- Info.Artists
- Info.Publicity
- Info.SmallConferences
- Info.ConferencePlanning
- Info.VideoReviews
- Info.Publications

Information about many parts of the annual SIGGRAPH conference can be obtained by addressing mail to Topic@siggraph.org:
- s95
- Registration.s95
- Courses.s95
- Electronic_publishing.s95
- Et.s95
- Exhibits.s95
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Other Membership Services Contact Numbers

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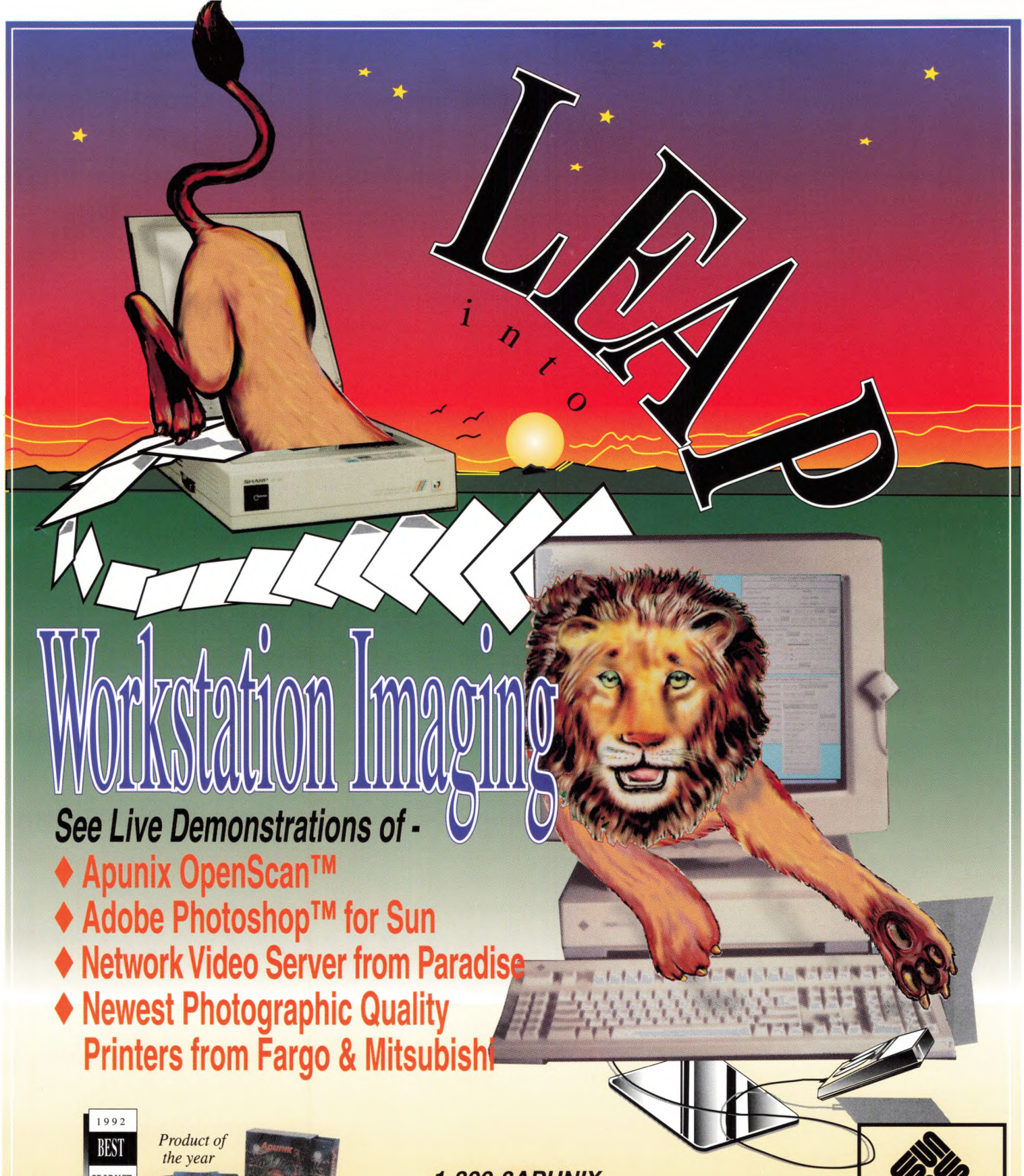

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