PROGRAM AND BUYER'S GUIDE

SIGGRAPH 97
24TH INTERNATIONAL CONFERENCE
ON COMPUTER GRAPHICS
AND INTERACTIVE TECHNIQUES

Conference 3-8 August 1997

Exhibition 5-7 August 1997

Los Angeles Convention Center Los Angeles, California USA

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New York, New York 10036 USA

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REGISTRATION/MERCHANDISE FULFILLMENT CENTER North Hall MERCHANDISE STORE South Lobby (closed Saturday)	7 pm to 9 pm	noon to 8 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 1 pm
STARTUP PARK Kentia Hall (FC CS EP) EXHIBITION Halls G, H, J, K, Kentia Hall				10 am to 6 pm	10 am to 6 pm	10 am to 5 pm	
Conference Programs							
Computer Animation Festival ELECTRONIC THEATER The Shrine Auditorium (FC)			7 pm to 9 pm	7 pm to 9 pm	7 pm to 9 pm	7 pm to 9 pm	
Computer Animation Festival ELECTRONIC THEATER MATINÉE The Shrine Auditorium (CS)				2 pm to 4 pm	2 pm to 4 pm		
Computer Animation Festival FESTIVAL SCREENING ROOMS Rooms 406, 409, Theater (FC CS EP)		6 pm to 8 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 5 pm
COURSES See pages 26–34 (FC)		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			
CREATIVE APPLICATIONS LAB West Hall A (FC CS)		1 pm to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 5:30 pm
EDUCATORS PROGRAM Rooms 403A, 403B (FC CS)						8:15 am to 5 pm	
ELECTRIC GARDEN Kentia Hall (FC CS)		6 pm to 8 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 1 pm
ONGOINGS: THE FINE ARTS GALLERY Room 153, West Concourse (FC CS EP)		6 pm to 8 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 6 pm	9 am to 1 pm
PAPERS West Hall A, B, Petree Hall C (FC)					10:15 am to 5:45 pm	8:15 am to 5:45 pm	8:15 am to 5:15 pm
PANELS West Hall A, B, Petree Hall C (FC)					10:15 am to 5:45 pm	8:15 am to 5:45 pm	8:15 am to 5:15 pm
SKETCHES Rooms 151/152, 515A, 515B, Petree Hall C, D (FC CS)					10:15 am to 5:45 pm	8:15 am to 5:45 pm	8:15 am to 5:15 pm
SPECIAL SESSIONS West Hall B (FC CS)						12:15 pm to 1:45 pm	12:15 pm to 1:15 pm
Conference Activities							
CAREER CENTER Kentia Hall JOB FAIR (Wednesday, 6 August only) Room 408 (FC CS EP)		noon to 8 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm JOB FAIR	8 am to 6 pm	8 am to 5 pm
FUNDAMENTALS SEMINAR Room 151 (FC CS EP)		2 pm to 5 pm					
INTERNATIONAL CENTER West Lobby (FC CS EP)		noon to 8 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 5 pm
INTERNET ACCESS CENTERS West Hall A, Kentia Hall (closes Friday, 1 pm) (FC CS EP)		noon to 8 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 6 pm	8 am to 5 pm
KEYNOTE ADDRESS/AWARDS West Hall B (FC CS EP)					8:15 am to 9:45 am		
SIGGRAPH TV Room 404 (FC CS EP)	Throughout the week						
SPECIAL INTEREST GROUPS & BIRDS OF A FEATHER See page 70 (FC CS EP)	Throughout the week						
Receptions							
COURSE RECEPTION The WaterCourt at California Plaza (FC)			8 pm to 11 pm				
PAPERS/PANELS RECEPTION Pershing Square (FC)						8 pm to 11 pm	
WELCOME RECEPTION Electric Garden & Ongoings: The Fine Arts Gallery (FC CS EP)		6 pm to 8 pm					

Registration Categories (FC) Full Conference (CS) Conference Select (EP) Exhibits Plus

Catch the Excitement!

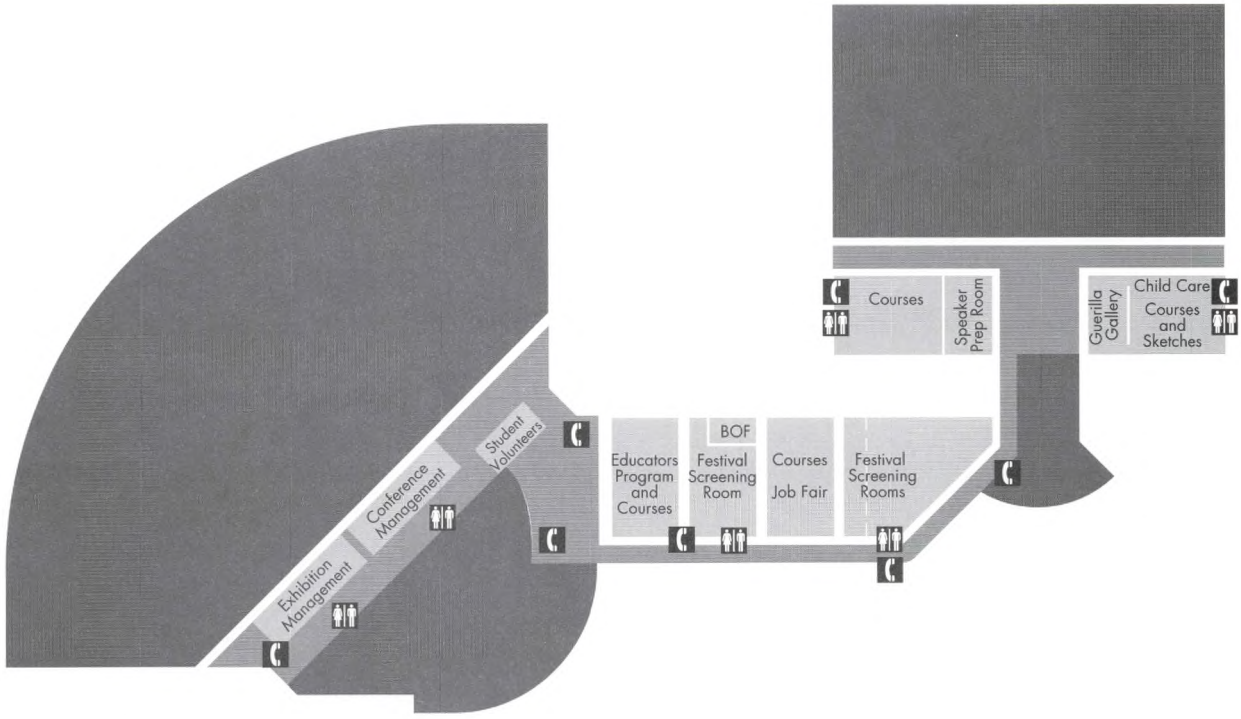
As a kid growing up in LA, I used to surf the ocean waves, and now I'm surfing the waves of changing digital technology with all of you, at SIGGRAPH 97. All of us on the SIGGRAPH 97 Committee welcome you to this festival of the future. In LA this week, you'll meet the creators of that future. The people who are developing the new algorithms, hardware, and software to create the next wave of change. The SIGGRAPH artists, the most creative riders/surfers of the new waves.

3D interactive graphics are becoming increasingly important and SIGGRAPH 97 is where you'll learn more about the basics and about the applications, from the World Wide Web to artificial life!

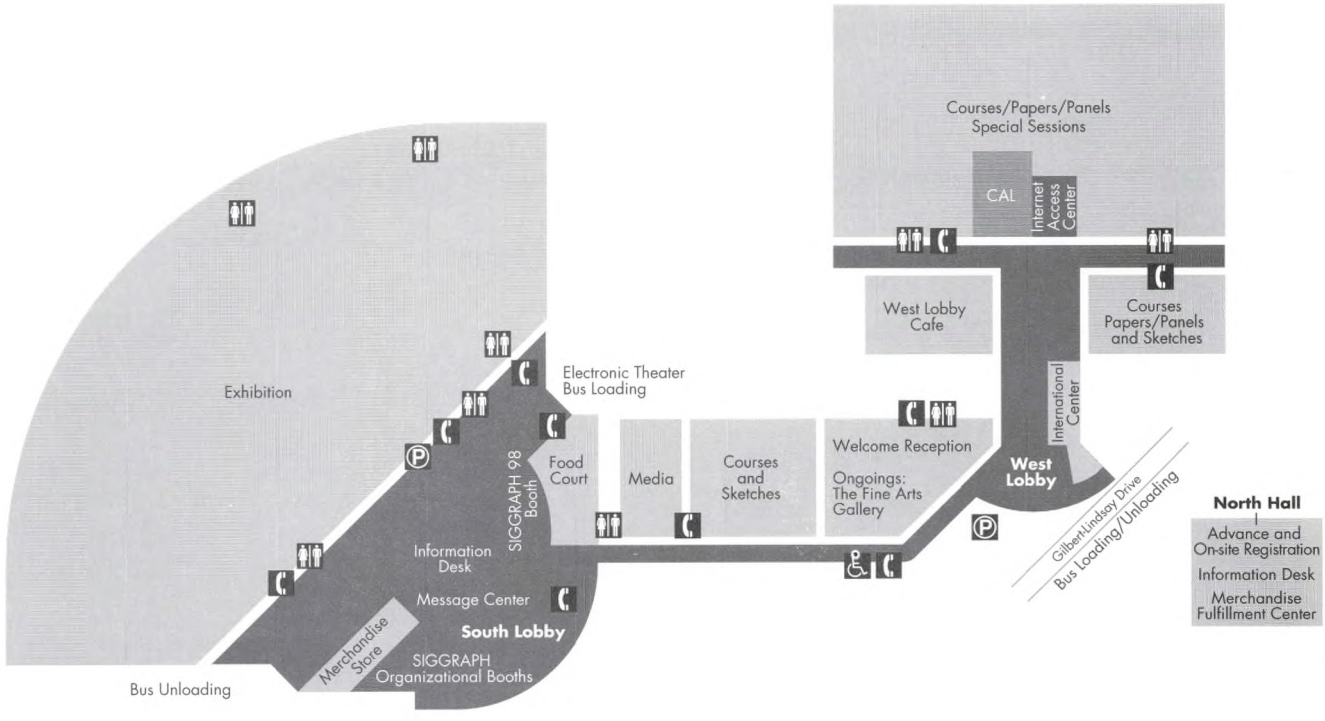
SIGGRAPH is about more than technology. It is a celebration of our community, the annual gathering of the graphics clans. It is your opportunity to interact with the graphics gurus at our technical breakouts, receptions, and social events.

The SIGGRAPH 97 Committee and contributors have combined to help you to learn, educate, participate, and enjoy the future of computer graphics and interactive techniques. Surf's up! Join the party!

G. Scott Owen
SIGGRAPH 97 Conference Chair



LEVEL TWO



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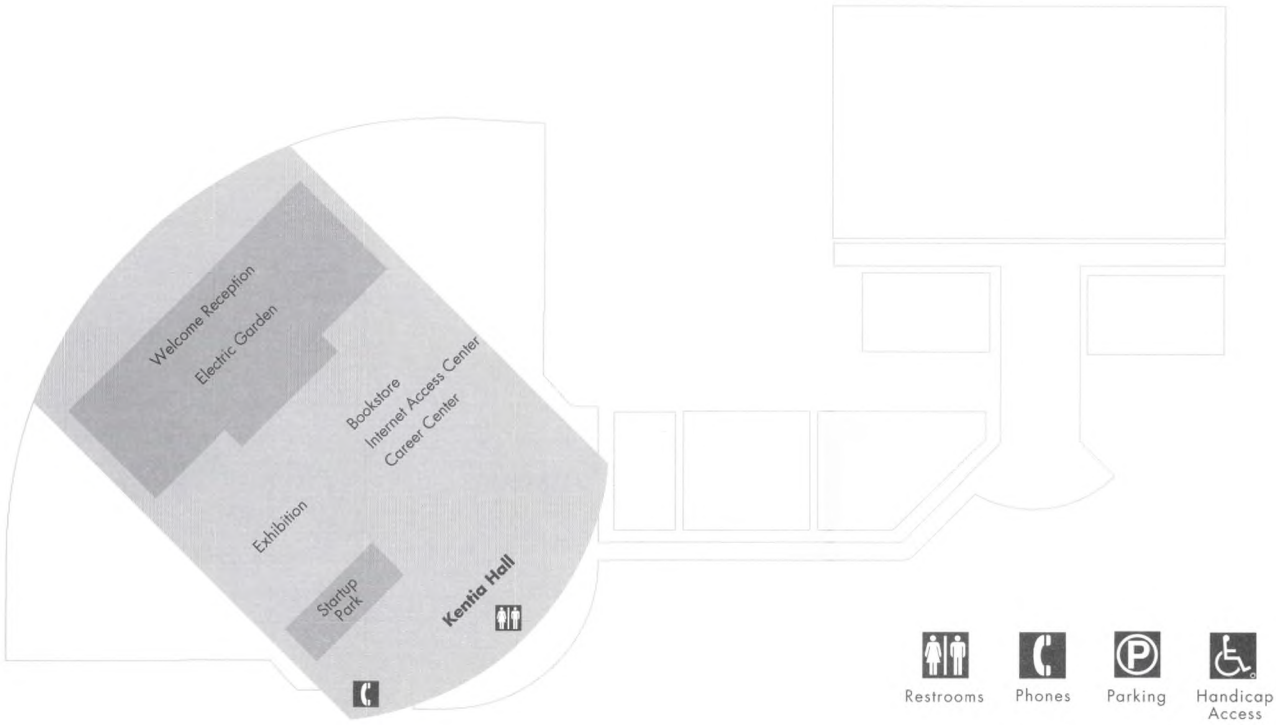

Welcome Reception
Electric Garden
Bookstore
Internet Access Center
Career Center
Exhibition
Startup Park
Kentia Hall
Restrooms
Phones
Parking
Handicap Access

LOWER LEVEL

THROUGHOUT THE WEEK

Career Center

At the SIGGRAPH 97 Career Center, registered attendees can make résumés available to the industry's leading employers and also look at job openings. See page 68 for additional information.

new The Career Center hosts an all-day Job Fair on Wednesday, 6 August. See page 68 for details.

LOCATION

Career Center
Lower Level | Kentia Hall

Job Fair
Level Two | Room 408

International Center

In the International Center, members of the International Committee are available to answer questions, provide information about SIGGRAPH 97, assist with translations, and help you find your way around Los Angeles. See page 69 for a list of the International Committee.

LOCATION

Level One | West Lobby

Internet Access Centers

Two fully networked areas in the Los Angeles Convention Center provide complete Internet access to your home, office, and colleagues around the world.

LOCATION

West Hall A, Kentia Hall (closes Friday, 1 pm)

SIGGRAPH TV

Live events, recorded programming, and video coverage of SIGGRAPH 97 distributed throughout the Los Angeles Convention Center, across North America via satellite, and globally on the Internet.

LOCATION

Level Two | Room 404

Special Interest Groups & Birds of a Feather

Special Interest Groups (SIGs) are for attendees who think and work in similar technologies and environments. Topics, times, and locations for SIGs schedules by 25 June are listed on pages 70 and 71. SIGs scheduled by Thursday, 3 July are posted in the South Lobby along the Merchandise Store wall.

Birds of a Feather are impromptu gatherings organized by anyone who posts a notice on the Birds of a Feather sign-up board in the South Lobby.

SUNDAY 3 AUGUST

Fundamentals Seminar

An essential, accessible introduction to computer graphics jargon, concepts, techniques, and technologies. The perfect orientation for novices on the fast track.

LECTURERS

Mike Bailey
University of California, San Diego and Supercomputer Center

Wayne Carlson
The Ohio State University

John Fujii
Hewlett-Packard Company

LOCATION

Level One | Room 151

DAY/HOURS

Sunday, 3 August | 2 pm to 5 pm

Welcome Reception

Mingle and chat with a fascinating and diverse group of people: industry leaders, software pioneers, hardware visionaries, academic theorists, and inspired artists.

LOCATION

Electric Garden & Ongoings:
The Fine Arts Gallery

DAY/HOURS

Sunday, 3 August | 6 pm to 8 pm

MONDAY 4 AUGUST

Course Reception

Food, refreshments, and socializing at downtown LA's outdoor WaterCourt, where water elements perform solo and in harmony. The most prominent element: a huge matrix of air-powered water plumes.

Tickets for the Course reception are included with registration materials for Full Conference registration. Tickets can also be purchased at on-site registration in North Hall.

LOCATION
The WaterCourt at California Plaza

DAY/HOURS
Monday, 4 August | 8 pm to 11 pm

WEDNESDAY 6 AUGUST

Keynote Address/Awards

Bran Ferren, Executive Vice President for Creative Technology and Research & Development, Walt Disney Imagineering, delivers the SIGGRAPH 97 keynote address. Immediately before the keynote, SIGGRAPH presents two awards:

- Przemyslaw Prusinkiewicz receives the 1997 Computer Graphics Achivement Award for his work pertaining to modeling and visualizing biological structures.
- James Foley receives the 1997 Steven A. Coons Award for Outstanding Creative Contributions for his strong and sustained leadership in computer graphics education and research, and for his dedication to the profession.

LOCATION
Level One | West Hall B

DAY/HOURS
Wednesday, 6 August | 8:15 am to 9:45 am

WEDNESDAY 6 AUGUST

SIGGRAPH Get Involved

SIGGRAPH invites all attendees, exhibitors, and contributors to explore opportunities to get involved. Your ideas, experience, and enthusiasm, and your time and energy, are welcome. Please come to SIGGRAPH Get Involved, introduce yourself, and tell us how you would like to help. We'll help you find the right opportunity!

LOCATION
Level Two | Room 301

DAY/HOURS
Wednesday, 7 August | 5:30 pm to 7 pm

THURSDAY 7 AUGUST

Special Session

New Realities in Film Production: The Process of Creating Digital Visual Effects

Creative leaders and innovators from The Industry confront realistic production challenges at various stages of the development process, from concept through post-production, and explore solutions that rely on today's (and tomorrow's) technologies.

MODERATOR
Michael Backes
American Film Institute

LOCATION
Level One | West Hall B

DAY/HOURS
Thursday, 7 August | 12:15 pm to 1:45 pm

THURSDAY 7 AUGUST

Panels/Papers Reception

Three thousand of the world's leading computer graphics explorers gather in the lawns and alcoves of downtown LA's historic Pershing Square for food, refreshments, and games.

Tickets for the Papers/Panels reception are included with the Full Conference registration. Tickets can also be purchased at on-site registration in the North Hall.

LOCATION
Pershing Square | Olive and 6th Streets

DAY/HOURS
Thursday, 7 August | 8 pm to 11 pm

FRIDAY 8 AUGUST

Special Session

A Framework for Realistic Image Synthesis

Although high-quality virtual reality simulations abound, are these images correct? Would they accurately represent the scene if the environment actually existed? This presentation provides guidelines for developing and evaluating techniques whose goal is to synthesize images that are visually and measurably indistinguishable from real-world scenes. This presentation provides a research roadmap for a rigorous program to reach this goal.

Donald P. Greenberg, James Arvo, Eric LaFortune, Kenneth E. Torrance, James A. Ferwerda, Bruce Walter, Peter Shirley, Sumanta Pattanaik, and Sing-Choong Foo
Cornell University

LOCATION
Level One | West Hall B

DAY/HOURS
Friday, 8 August | 12:15 pm to 1:15 pm

TRACKS

Tracks are common threads that pass through more than one part of the technical program. They do not define a taxonomy of technical content, nor do they encompass all elements of the technical program. Attendees interested in a particular topic may find track identifiers useful for scheduling their time spent in the technical sessions.

COURSES

EDUCATORS PROGRAM

Virtual Reality (VR)

Creation of and immersive interaction with virtual environments.

- **6** Stereo Computer Graphics for Virtual Reality
- **15** Applied Virtual Reality
- **23** Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality
- **29** Programming Virtual Worlds
- **30** Making Direct Manipulation Work in Virtual Reality

- Virtual Reality in K-12 Education
- Technology as Facilitator

Big Data (BD)

Construction, manipulation, management, and display of extremely complex graphical databases.

- **4** Exploring Gigabyte Datasets in Real-Time: Algorithms, Data Management, and Time-Critical Design
- **12** Interactive Walk-Through of Complex Environments
- **25** Multiresolution Surface Modeling
- **31** Principles of Volume Visualization
- **32** Advances in Volume Visualization

Animation & Special Effects (FIX)

Producing and using computer graphics techniques for animation, special effects, and other entertainment applications.

- **1** Motion Capture in Practice
- **13** Digital Color
- **16** Interactive Movies: Techniques, Technologies, and Contents
- **17** Virtual Humans: Behaviors and Physics, Acting, and Reacting
- **23** Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality
- **27** Scanning and Recording of Motion Picture Film
- **34** Warping and Morphing of Graphical Objects

- Computer Science

Art & Design (AD)

New technologies and techniques for art and design, and examples of artistic expression using computer graphics.

- **2** Creative Design for the World Wide Web
- **22** Mastering Visible Wisdom: Graphic Design for Usable GUIs of Productivity Tools, Multimedia, and the Web
- **33** Principles of Visual Perception and Its Applications in Computer Graphics

- The Visual Arts
- Where Computer Science and Art Meet
- Technology as Facilitator
- Web and Multimedia Design

API (API)

Descriptions and comparisons of graphics programming standards.

- **3** Programming with OpenGL: An Introduction
- **5** Sound Bytes: VRML Authoring for Noisy Worlds
- **9** Introduction to VRML
- **11** Programming with OpenGL: Advanced Techniques
- **24** OpenGL and Window System Integration
- **28** Authoring Compelling and Efficient VRML 2.0 Worlds
- **35** Introduction to Java3D

- Computer Science

PANELS	PAPERS	SKETCHES
• Experiences with Virtual Reality Applications • Narrative Environments: Virtual Reality as a Storytelling Medium • Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In • Interfacing Reality: Exploring Emerging Trends Between Humans and Machines	• Virtual Reality and Applications	*Technical Sketches* • 3D UIs and VE *Applications Sketches* • Virtual Environments *Art & Design Sketches* • Moving: Agency for Virtual Spaces
	• Visibility • Surface Simplification	*Technical Sketches* • Level of Detail *Applications Sketches* • Visualization
• Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation • Motion Capture and CG Character Animation	• Illumination • Fur, Film, and Light • Animation • Texture, Reflection, and Design	*Technical Sketches* • Simulation and Natural Phenomenon • Animation • Fur, Film, and Textures *Animation Sketches* • Full Body Animation • Visual Styles • Dynamics and Character Motion • Mutts, Machines, and Molten Monsters: The Making of . . . • Tracking and Talking
• Narrative Environments: Virtual Reality as a Storytelling Medium • The Differences Between Here and There: What Graphic Design Brings to E-Space • Community/Content/Interface: Creative Online Journalism • Medical Illustration & Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images? • Sounding Off on Audio: The Future of Internet Sound	• Non-Photorealistic Rendering	*Technical Sketches* • Artistic Rendering • Papers, Lines, and Letters *Application Sketches* • Art Applications *Art & Design Sketches* • Artist Session 1, Artist Session 2 • Moving: Agency for Virtual Spaces • Sitting: The Seat for Virtual Travel • Saying: Words for Electronic Discourse • Tooling: Implements for Creativity • Bending: Corn, Face, and Gender for Social Provocation
• What 3D API for Java Should I Use and Why?		

Creative Applications Lab

This new venue at SIGGRAPH 97 connects to other parts of the conference and increases opportunities for hands-on learning. The goal is to enhance learning by providing the latest computer graphics hardware and software, and highly interactive access to the techniques and ideas presented at the conference.

LOCATION

Level One | West Hall A

DAYS/HOURS

Sunday, 3 August	1 pm to 6 pm
Monday, 4 August	9 am to 6 pm
Tuesday, 5 August	9 am to 6 pm
Wednesday, 6 August	9 am to 6 pm
Thursday, 7 August	9 am to 6 pm
Friday, 8 August	9 am to 5:30 pm

CHAIR

Steve Anderson
Silicon Graphics, Inc.

COMMITTEE

Evie Rozanski
Rochester Institute of Technology

Steve May
The Ohio State University

Garry Paxinos
Metrolink Incorporated

Jeanie Taus
Silicon Graphics, Inc.

Pat Johnson

Allison Cohen
Starbelly Productions

Reservations for lab access are available to Conference Select and Full Conference registrants.

Some examples of how attendees can use the CAL:

- A course might have "homework." Attendees can continue their learning experience while the course material is still fresh in their minds.

- Technical program contributors might have "office hours" in the lab for one-on-one discussions about their research.

- A paper or panel might have demo software available in the lab so attendees can explore the technology that created examples from the presentation.

- Hands-on workshops might be presented as part of the Educators Program.

- Artists might use the software in the lab to create an image.

- Attendees might meet other attendees (or contributors) and arrange remote collaborations between their own labs.

The CAL is also a gathering space for technical session break-outs and mingling. Lots of "white board" space is available so attendees can explore concepts informally.

On Friday afternoon, a special sketch session showcases the work accomplished in the CAL. For more details, consult the lab monitors in the CAL.

Guerilla Gallery

Level Two, Room 511

Guerilla Gallery is an exciting digital studio and print shop where art can be created and printed using the latest technologies. It fosters unique collaborations among scientists, artists, and educators.

Come interact with experienced digital print artists and see artwork created during the conference. Look for impromptu presentations and educational sessions about creating art for digital printing and getting the most from your output devices. Learn some of the secrets from a master printer.

Register for hands-on access to advanced and unique equipment used for digital printing.

CAL PROGRAMS AND EVENTS

PAPERS

- Design Galleries: A General Approach to Setting Parameters for Computer Graphics and Animation
- Guaranteeing the Toplogy of an Implicit Surface Polygonization for Interactive Modeling
- A Model for Simulating the Photographic Development Process on Digital Images
- The Robust Haptic Display of Complex 3D Graphical Environments
- Virtual Voyage: Interactive Navigation in the Human Colon

PANELS

- Motion Capture and CG Character Animation
- Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In
- Narrative Environments: Virtual Reality as a Storytelling Medium
- Image-Based Rendering: Really New or Deja Vu?
- Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation
- Sounding Off on Audio: The Future of Internet Sound
- Experience with Virtual Reality Applications
- The Difference Between Here and There: What Graphic Design Brings to E-Space
- Medical Illustration and Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?

COURSES

3 Programming with OpenGL: An Introduction
7 Design and Application of Object-Oriented 3D Visualization Systems
11 Programming with OpenGL: Advanced Techniques
14 New Frontiers in Modeling and Texturing
15 Applied Virtual Reality
24 OpenGL and Window System Integration
25 Multiresolution Surface Modeling
26 3D Computer Animation Workshop
28 Authoring Compelling and Efficient VRML 2.0 Worlds
31 Principles of Volume Visualization
32 Advances in Volume Visualization

EDUCATORS PROGRAM

- Alice: Easy to Learn Interactive 3D Graphics
- Combining Art SKills with Programming in Teaching Computer Art Graphics
- NICE: Combining Constructionism and Collaboration in a Virutal Learning Environment
- Teaching Graphics through Video Games

SKETCHES

Technical

- The Haptic Lens
- Intelligent Transmission of 3D Polygonal Models
- A Low-Cost Digital Panoramic Camera
- LiveType: A Parametric Font Model Based on Features and Constraints
- Motion Tracking for Special Effects in the Film Industry
- Varying Spring Constants for Accurate Simulation of Elastic Materials
- Volumetric Modeling with Implicit Functions: A Cloud is Born

Art and Design

- Agree to Disagree Online
- Design Speech Acts: "How to do things with words" in Virtual Communities
- izzy bombus and the story of flight
- Making Caricatures with Morphing
- MultiMedia Interactive Artist's Archive and Retrospective
- Technophobia
- The Virtual Harvester Project
- A Zooming Sketchpad, a Multiscale Narrative: Pad++, PadDraw, Gray Matters

Animation

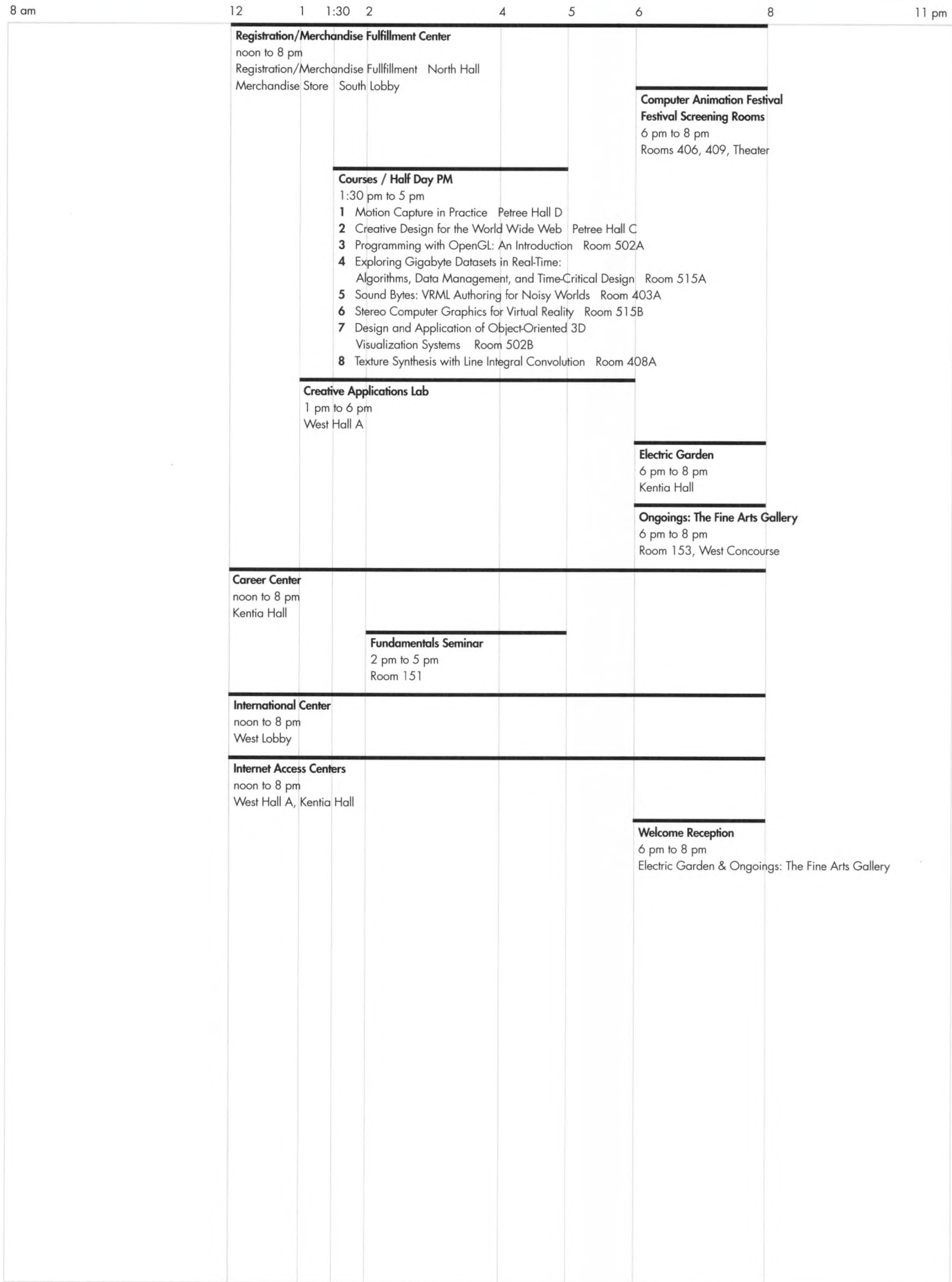
- Ubiquitous Animation: An Element-Based Concept to Make 3D Animations Commonplace
- Isaacks: From Life Forms Choreography to Animation

Applications

- Hardware-Assisted Volume Rendering for Oil and Gas Exploration

Please note: Registration and Merchandise Fullfillment are open Saturday, 2 August from 7 pm to 9 pm.

SUNDAY 3 AUGUST



Registration/Merchandise Fulfillment Center
noon to 8 pm
Registration/Merchandise Fullfillment North Hall
Merchandise Store South Lobby

Computer Animation Festival
Festival Screening Rooms
6 pm to 8 pm
Rooms 406, 409, Theater

Courses / Half Day PM
1:30 pm to 5 pm
1 Motion Capture in Practice Petree Hall D
2 Creative Design for the World Wide Web Petree Hall C
3 Programming with OpenGL: An Introduction Room 502A
4 Exploring Gigabyte Datasets in Real-Time:
Algorithms, Data Management, and Time-Critical Design Room 515A
5 Sound Bytes: VRML Authoring for Noisy Worlds Room 403A
6 Stereo Computer Graphics for Virtual Reality Room 515B
7 Design and Application of Object-Oriented 3D
Visualization Systems Room 502B
8 Texture Synthesis with Line Integral Convolution Room 408A

Creative Applications Lab
1 pm to 6 pm
West Hall A

Electric Garden
6 pm to 8 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
6 pm to 8 pm
Room 153, West Concourse

Career Center
noon to 8 pm
Kentia Hall

Fundamentals Seminar
2 pm to 5 pm
Room 151

International Center
noon to 8 pm
West Lobby

Internet Access Centers
noon to 8 pm
West Hall A, Kentia Hall

Welcome Reception
6 pm to 8 pm
Electric Garden & Ongoings: The Fine Arts Gallery

MONDAY 4 AUGUST

8 8:30 9 10 12 1 1:30 2 5 6 7 8 9 11 pm

Registration/Merchandise Fulfillment Center
8 am to 6 pm
Registration/Merchandise Fullfillment North Hall
Merchandise Store South Lobby

Computer Animation Festival
Festival Screening Rooms
9 am to 6 pm
Rooms 406, 409, Theater

Computer Animation Festival
Electronic Theater
7 pm to 9 pm
The Shrine Auditorium

Courses / Full Day
8:30 am to 5 pm
9 Introduction to VRML Room 151
10 Introduction to Computer Graphics Room 152
11 Programming with OpenGL: Advanced Techniques Room 502A
12 Interactive Walk-Through of Complex Environments Room 403A
13 Digital Color Petree Hall D
14 New Frontiers in Modeling and Texturing Petree Hall C
15 Applied Virtual Reality Room 515A
16 Interactive Movies: Techniques, Technologies, and Contents Room 515B
17 Virtual Humans: Behaviors and Physics, Acting, and Reacting West Hall B
18 Beyond Bottlenecks and Roadblocks: Internetworked Computer Graphics Room 502B
19 Physically Based Modeling: Principles and Practice Room 408A
20 Computer Animation Using Digital Video for the Web, Multimedia, and Broadcast Room 403B
21 Designing Real-Time Graphics for Entertainment West Hall A

Creative Applications Lab
9 am to 6 pm
West Hall A

Electric Garden
9 am to 6 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
9 am to 6 pm
Room 153, West Concourse

Career Center
8 am to 6 pm
Kentia Hall

International Center
8 am to 6 pm
West Lobby

Internet Access Centers
8 am to 6 pm
West Hall A, Kentia Hall

Course Reception
8 pm to 11 pm
The WaterCourt at California Plaza

TUESDAY 5 AUGUST

8 8:30 9 10 12 1 1:30 2 4 5 6 7 8 9 11 pm

Registration/Merchandise Fulfillment Center
8 am to 6 pm
Registration/Merchandise Fullfillment North Hall, Merchandise Store South Lobby

Exhibition/Startup Park
10 am to 6 pm
Exhibition Halls G, H, J, K, Kentia Hall, Startup Park Kentia Hall

Computer Animation Festival
Electronic Theater Matinée
2 pm to 4 pm
The Shrine Auditorium

Computer Animation Festival
Electronic Theater
7 pm to 9 pm
The Shrine Auditorium

Computer Animation Festival
Festival Screening Rooms
9 am to 6 pm
Rooms 406, 409, Theater

Courses / Full Day
8:30 am to 5 pm
22 Mastering Visible Wisdom: Graphic Design for Usable GUIs of Productivity Tools, Multimedia, and the Web Room 403A
23 Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality West Hall B
25 Multiresolution Surface Modeling Petree Hall C
26 3D Computer Animation Workshop Room Creative Applications Lab West Hall A
27 Scanning and Recording of Motion Picture Film Room 515B
28 Authoring Compelling and Efficient VRML Worlds Room 515A
29 Programming Virtual Worlds Room 403B
33 Principles of Visual Perception and Its Application in Computer Graphics Room 151
34 Warping and Morphing of Graphical Objects Room 152
35 Introduction to Java3D Petree Hall D

Courses / Half Day AM
8:30 am to noon
24 OpenGL and Window System Integration Room 502A
31 Principles of Volume Visualization Room 502B

Courses / Half Day PM
1:30 pm to 5 pm
30 Making Direct Manipulation Work in Virtual Reality Room 502A
32 Advances in Volume Visualization Room 502B

Creative Applications Lab
9 am to 6 pm
West Hall A

Electric Garden
9 am to 6 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
9 am to 6 pm
Room 153, West Concourse

Career Center
8 am to 6 pm
Kentia Hall

International Center
8 am to 6 pm
West Lobby

Internet Access Centers
8 am to 6 pm
West Hall A, Kentia Hall

WEDNESDAY 6 AUGUST

8 8:15 9 9:45 10 10:15 12 1 2 3:45 4 5 5:30 6 7 8 9 11 pm

Registration/Merchandise Fulfillment Center
8 am to 6 pm
Registration/Merchandise Fullfillment North Hall, Merchandise Store South Lobby

Exhibition/Startup Park
10 am to 6 pm
Exhibition Halls G, H, J, K, Kentia Hall, Startup Park Kentia Hall

Keynote Address/Awards
8:15 am to 9:45 am
West Hall B

Computer Animation Festival
Electronic Theater Matinee
2 pm to 4 pm
The Shrine Auditorium

Computer Animation Festival
Electronic Theater
7 pm to 9 pm
The Shrine Auditorium

Computer Animation Festival
Festival Screening Rooms
9 am to 6 pm
Rooms 406, 409, Theater

Creative Applications Lab
9 am to 6 pm
West Hall A

Electric Garden
9 am to 6 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
9 am to 6 pm
Room 153, West Concourse

Panels (Panels Breakout Room: CAL, West Hall A)

10:15 am to noon
Deconstructing Play: Theory and Practice
Petree Hall C

Facial Animation: Past, Present, and Future
West Hall A

2 pm to 3:45 pm
Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation
West Hall B

Narrative Environments: Virtual Reality as a Storytelling Medium
Petree Hall C

4 pm to 5:45 pm
The Differences Between Here and There: What Graphic Design Brings to E-Space
Petree Hall C

Online Panel
4 pm to 5:45 pm
Motion Capture and CG Character Animation
West Hall B

Papers (Papers Breakout Room: CAL, West Hall A)

10:15 am to noon
Virtual Reality and Applications
West Hall B

2 pm to 3:45 pm
Illumination
West Hall A

4 pm to 5:45 pm
Visibility
West Hall A

Sketches (Sketches Breakout Room: CAL, West Hall A)
10:15 am to 5:45 pm
Rooms 151/152, 515A, 515B, Petree Hall C, D

Career Center
8 am to 6 pm
Kentia Hall

Job Fair
8 am to 6 pm
Room 408

International Center
8 am to 6 pm
West Lobby

Internet Access Centers
8 am to 6 pm
West Hall A, Kentia Hall

SIGGRAPH
Get Involved
5:30 pm to 7 pm
Room 301

THURSDAY 7 AUGUST

8 8:15 9 10 10:15 12 12:15 1:45 2 3:45 4 5 5:30 6 7 8 9 11 pm

Registration/Merchandise Fulfillment Center
8 am to 6 pm
Registration/Merchandise Fullfillment North Hall, Merchandise Store South Lobby

Exhibition/Startup Park
10 am to 5 pm
Exhibition Halls G, H, J, K, Kentia Hall, Startup Park Kentia Hall

Computer Animation Festival
Festival Screening Rooms
9 am to 6 pm
Rooms 406, 409, Theater

Computer Animation Festival
Electronic Theater
7 pm to 9 pm
The Shrine Auditorium

Creative Applications Lab
9 am to 6 pm
West Hall A

Educators Program
8:15 am to 5 pm
Rooms 403A, 403B

Electric Garden
9 am to 6 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
9 am to 6 pm
Room 153, West Concourse

Panels (Panels Breakout Room: CAL, West Hall A)

8:15 am to 10 am
Interfacing Reality: Exploring Emerging Trends Between Humans and Machines
West Hall B

10:15 am to noon
What 3D API for Java Should I Use and Why?
West Hall B

Community/Content/Interface: Creative Online Journalism
Petree Hall C

2 pm to 3:45 pm
Educating the Digital Artist for the Entertainment Industry: The Collision of Academia and Business
West Hall A

Online Panels

2 pm to 3:45 pm
Medical Illustration & Visualization:Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?
Petree Hall C

4 pm to 5:45 pm
Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In
West Hall A

Papers (Papers Breakout Room: CAL, West Hall A)

8:15 am to 10 am
Fur, Film, and Light
West Hall A

10:15 am to noon
Animation
West Hall A

2 pm to 3:45 pm
Surface Simplification
West Hall B

4 pm to 5:45 pm
Image-Based Rendering and Panoramas
West Hall B

Sketches (Sketches Breakout Room: CAL, West Hall A)
8:15 am to 5:45 pm
Rooms 151/152, 515A, 515B, Petree Hall C, D

Special Session
12:15 pm to 1:45 pm
New Realities in Film Production: The Process of Creating Digital Visual Effects
West Hall B

Annual SIGGRAPH Business Meeting
5:30 pm to 7 pm
Room 502A

Career Center
8 am to 6 pm
Kentia Hall

International Center
8 am to 6 pm
West Lobby

Internet Access Centers
8 am to 6 pm
West Hall A, Kentia Hall

Papers/Panels Reception
8 pm to 11 pm
Pershing Square

FRIDAY 8 AUGUST

8 8:15 9 9:45 10 10:15 12 12:15 1 1:15 2 3 3:30 4 5 5:30 6 7 8 9 11 pm

Registration/Merchandise Fulfillment Center
8 am to 1 pm
Registration/Merchandise Fullfillment North Hall, Merchandise Store South Lobby

Computer Animation Festival
Festival Screening Rooms
9 am to 5 pm
Rooms 406, 409, Theater

Creative Applications Lab
9 am to 5:30 pm
West Hall A

Electric Garden
9 am to 1 pm
Kentia Hall

Ongoings: The Fine Arts Gallery
9 am to 1 pm
Room 153, West Concourse

Panels (Panels Breakout Room: CAL, West Hall A)

10:15 am to noon
Image-Based Rendering: Really New or Deja Vu?
West Hall A

1:30 pm to 3:15 pm
The Rhetoric of the Synthetic: Images of the Body in Technology, Business, and Culture
West Hall B

3:30 pm to 5:15 pm
Experiences with Virtual Reality Applications
West Hall B

OnLine Panel
8:15 am to 10 am
Sounding Off on Audio: The Future of Internet Sound
Petree Hall C

Papers (Papers Breakout Room: CAL, West Hall A)

8:15 am to 10 am
Geometry
West Hall A

10:15 am to noon
Hardware and Anti-Aliasing
West Hall B

1:30 pm to 3:15 pm
Devices and Multimodal I/O
Petree Hall C

Texture, Reflection, and Design
West Hall A

3:30 pm to 5:15 pm
Non-Photorealistic Rendering
West Hall A

Sketches (Sketches Breakout Room: CAL, West Hall A)
8:15 am to 5:15 pm
Rooms 151/152, 515A, 515B, Petree Hall C, D

Special Session
12:15 pm to 1:15 pm
A Framework for Realistic Image Synthesis
West Hall B

Career Center
8 am to 5 pm
Kentia Hall

International Center
8 am to 5 pm
West Lobby

Internet Access Centers
8 am to 5 pm
West Hall A, Kentia Hall (closes 1 pm)

Computer Animation Festival

The year's finest computer-generated animations on film and video: technical adventures, major movie effects, scientific visualizations, and new visions. The Computer Animation Festival presents a broad array of works in several categories in the Festival Screening Rooms. A representative selection of Festival entries in a variety of formats is also shown in the Electronic Theater, which returns to LA's historic Shrine Auditorium.

LOCATIONS

Electronic Theater
Shrine Auditorium
665 West Jefferson Boulevard
+1.213.972.7200

Festival Screening Rooms
Level Two | Rooms 406, 409, Theater

DAYS/HOURS

Electronic Theater

Monday, 4 August	7 pm to 9 pm
Tuesday, 5 August	7 pm to 9 pm
Wednesday, 6 August	7 pm to 9 pm
Thursday, 7 August	7 pm to 9 pm

Electronic Theater Matinée

Tuesday, 5 August	2 pm to 4 pm
Wednesday, 6 August	2 pm to 4 pm

Festival Screening Rooms

Sunday, 3 August	6 pm to 8 pm
Monday, 4 August	9 am to 6 pm
Tuesday, 5 August	9 am to 6 pm
Wednesday, 6 August	9 am to 6 pm
Thursday, 7 August	9 am to 6 pm
Friday, 8 August	9 am to 5 pm

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Judith Crow
Digital Domain

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Walt Disney Feature Animation

FESTIVAL SCREENING ROOM CO-PRODUCERS
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LOCATIONS

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DAY/HOURS

Half day pm

Sunday, 3 August	1:30 pm to 5 pm
Tuesday, 5 August	1:30 pm to 5 pm

Half day am

Tuesday, 5 August	8:30 am to noon

Full day

Monday, 4 August	8:30 am to 5 pm
Tuesday, 5 August	8:30 am to 5 pm

CHAIR

Barb Helfer
The Ohio State University/ Ohio Supercomputer Center

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Andy Daniel
Alliance Semiconductor

Jeffrey J. McConnell
Canisius College

Nan Schaller
Rochester Institute of Technology

Andrew Scott
Central State University

Scott Senften
Silicon Graphics, Inc.

Harry Smith
University of North Carolina

Courses Registration

Full Conference registration allows attendees access to all SIGGRAPH 97 Courses. Seating in courses is on a first-come, first-served basis. Please be sure to arrive early to get seating for the course(s) you wish to attend.

Course Notes

Full Conference registrants receive all course notes on CD-ROM. Printed course notes may be purchased at the Merchandise Store in the South Lobby.

Course Categories

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 depth. Presentations may include challenging mathematical concepts and programming examples.

1

FIX Motion Capture in Practice

Sunday | Half Day | Intermediate

Petree Hall D

Topics in this course on the practical, daily production aspects of motion capture include: integration of motion capture data into the production pipeline, animation issues, and client/creative interaction with motion capture actors.

WHO SHOULD ATTEND

The audience for this course includes those interested in examining the animation production process (from both a technical and management perspective) as it relates to motion capture.

ORGANIZER

Scott Dyer
Windlight Studios

LECTURERS

Scott Dyer
Eric Flaherty
Windlight Studios

Veronique Benquey
Medialab

2

AD Creative Design for the World Wide Web

Sunday | Half Day | Beginning

Petree Hall C

Creative interface design is essential for a successful Internet experience. By focusing on design issues that should be considered when developing content and experiences using HTML, Java, JavaScript, or VRML, this course develops visual and critical thinking skills and enables attendees to use the elements and principles of design when developing for the World Wide Web.

WHO SHOULD ATTEND

Anyone who develops, or is interested in developing interactive content for the Internet using HTML, Java, JavaScript, or VRML.

ORGANIZER

Bonnie Mitchell
Syracuse University

LECTURERS

Bonnie Mitchell
Syracuse University

Lynda Weinman
New Riders Publishing

3 CAL

API Programming with OpenGL: An Introduction

Sunday | Half Day | Beginning

Room 502A

An introduction to programming interactive graphics programs using the OpenGL API (OpenGL 1.0 and the OpenGL 1.1 additions), with an emphasis on computer graphics fundamentals.

WHO SHOULD ATTEND

Programmers who want to write interactive graphics applications and who have little or no experience with OpenGL.

ORGANIZER

Kathleen E. Danielson
Silicon Graphics, Inc.

LECTURERS

Edward Angel
University of New Mexico

Kathleen E. Danielson
Silicon Graphics, Inc.

4

BD Exploring Gigabyte Datasets in Real-Time: Algorithms, Data Management, and Time-Critical Design

Sunday | Half Day | Intermediate

Room 515A

Modern datasets arising from computational physics are extremely large and involve complex, difficult-to-exhibit phenomena. Real-time interactive interfaces are useful in analyzing these datasets, but real-time performance has been difficult to achieve with such large volumes of data. This course discusses the issues that arise in real-time interactive visualization of very large (>100 gigabytes) datasets and presents solution strategies emphasizing time-critical design, which impact architectures, interfaces, algorithms, and data management.

WHO SHOULD ATTEND

Current or potential scientific visualization system developers who wish to implement a system for visualization of very large datasets.

ORGANIZER

Steve Bryson
MRJ Technology Solutions/NASA Ames Research Center

LECTURERS

Steve Bryson
Michael Cox
David Kenwright
MRJ Technology Solutions/NASA Ames Research Center

5

Sound Bytes: VRML Authoring for Noisy Worlds

Sunday | Half Day | Beginning

Room 403A

This introduction to VRML sound capabilities and techniques covers the basics of all the VRML sound-related nodes, then uses several specific examples to cover techniques for creating worlds with realistic ambient background, local sounds, and event-related sound.

WHO SHOULD ATTEND

VRML authors who are interested in using sound or making better and more efficient use of sound in their VRML scenes.

ORGANIZER

Geoff Brown
Silicon Graphics, Inc.

LECTURERS

Geoff Brown
Ed Allard
Silicon Graphics, Inc.

6

Stereo Computer Graphics for Virtual Reality

Sunday | Half Day | Intermediate

Room 515B

This course presents an introduction to depth perception, techniques for generation of stereoscopic images, stereo displays, and discussion of stereoscopic algorithms. Many examples of stereo images are shown.

WHO SHOULD ATTEND

Computer graphics professionals, programmers of virtual reality applications, and others who need a true three-dimensional representation to disambiguate depth information and detail in complex models.

ORGANIZER

Lou Harrison
North Carolina State University

LECTURERS

Martin Dulberg
Lou Harrison
David McAllister
North Carolina State University

7 CAL

Design and Application of Object-Oriented 3D Visualization Systems

Sunday | Half Day | Intermediate

Room 502B

3D graphics and object-oriented systems have emerged as premier technologies to create flexible, extensible, and intuitive software applications. This course demonstrates how to design applications to take advantage of object-oriented techniques and methods in 3D graphics and visualization.

WHO SHOULD ATTEND

Users, developers, and researchers of 3D graphics and visualization systems, or practitioners who want to employ graphics and visualization in their own applications.

ORGANIZER

Ken Martin
General Electric Corporate R&D Center

LECTURERS

Tom Citriniti
Rensselaer Polytechnic Institute

William E. Lorensen
Ken Martin
General Electric Corporate R&D Center

Tamara Munzner
Stanford University

8

Texture Synthesis with Line Integral Convolution

Sunday | Half Day | Intermediate

Room 408A

Line Integral Convolution (LIC) is a powerful texture-based approach for conveying directional information that has numerous applications in scientific visualization, special effects, and art. This intensive course teaches the basic LIC algorithm and its optimization and provides attendees with an opportunity to interactively experiment with these implementations. It also shows how LIC techniques can be used to portray flow over arbitrary surfaces, visualize three-dimensional vector fields, and create non-photorealistic illustrations.

WHO SHOULD ATTEND

LIC has such a wide application that this course is suitable for people with an interest in visualization texture synthesis, special effects, and art.

ORGANIZER

Kwan-Liu Ma
Institute for Computer Applications in Science and Engineering

LECTURERS

Brian Cabral
Silicon Graphics, Inc.

Hans-Christian Hege
Detlev Stalling
Konrad-Zuse-Zentrum für Informationstechnik

Victoria L. Interrante
Kwan-Liu Ma
Institute for Computer Applications in Science and Engineering

9

API Introduction to VRML

Monday | Full Day | Beginning

Room 151

Attendees learn how to use VRML (the Virtual Reality Modeling Language) to author their own 3D virtual worlds on the World Wide Web. Topics include the syntax of VRML, typical usage patterns, how to avoid common mistakes, animation and scene design technique, and tricks for increasing performances and realism.

WHO SHOULD ATTEND

This course assumes a basic understanding of computers and algebra as well as a beginning-level understanding of 3D graphics concepts, such as that obtained via the SIGGRAPH beginning graphics course. No programming or advanced math background is required.

ORGANIZER

David Nadeau
San Diego Supercomputer Center

LECTURERS

Mike Heck
Template Graphics Software, Inc.

John Moreland
David Nadeau
San Diego Supercomputer Center

10

Introduction to Computer Graphics

Monday | Full Day | Beginning

Room 152

The SIGGRAPH conference is an exciting event, but the volume of new terms, new concepts, and new products can be intimidating for first-time attendees. This course is designed to ease newcomers into the SIGGRAPH conference experience by presenting the fundamental ideas and vocabulary at a level that can be readily understood.

WHO SHOULD ATTEND

Complete beginners who need to be able to understand the rest of the SIGGRAPH conference. Attendees will leave prepared to take other classes, attend the panel sessions, appreciate the Electronic Theater, and understand the concepts and products displayed in the Exhibition.

ORGANIZER

Mike Bailey
University of California at San Diego and San Diego Supercomputer Center

LECTURERS

Mike Bailey
University of California at San Diego and San Diego Supercomputer Center

Andrew Glassner
Microsoft Network

Olin Lathrop
Cognivision, Inc.

Patricia Wenner
Bucknell University

11 CAL

API Programming with OpenGL: Advanced Techniques

Monday | Full Day | Intermediate

Room 502A

This course focuses on rendering high-quality images, describes some of the more subtle OpenGL techniques, and provides a practical grounding in some of the central computer graphics concepts in use today. Attendees will:

- Gain greater insight into important OpenGL capabilities.
- Be able to use OpenGL to solve challenging rendering problems.
- Strengthen their understanding of core computer graphics concepts.
- Become familiar with graphics techniques for increasing image realism, creating special effects, and solving domain-specific imaging problems.
- Learn how to identify and evaluate multiple approaches to solving rendering problems.
- Receive code examples for generating high-quality graphics images.

WHO SHOULD ATTEND

Developers who need to generate more challenging or realistic images using OpenGL. Anyone interested in the practical application of advanced rendering techniques.

ORGANIZER

Tom McReynolds
Silicon Graphics, Inc.

LECTURERS

David Blythe
Celeste Fowle
Brad Grantham
Simon Hui
Tom McReynolds
Paula Womack
Silicon Graphics, Inc.

12

BD Interactive Walk-Through of Complex Environments

Monday | Full Day | Intermediate

Room 403A

This course focuses on interactive systems and algorithms for displaying complex geometric databases that require sophisticated scene management techniques to achieve frame rate. Beginning with a discussion of basic techniques and leading to state-of-the-art algorithms, speakers address key issues in walk-through, including visibility computations, automatic object simplification, and memory management through database subset pre-fetching. Speakers also show real applications of these algorithms to a variety of areas, including game development, visual simulation, virtual reality, architecture, and digital mockup.

WHO SHOULD ATTEND

Workers in simulation, animation, games, virtual reality, architecture, CAD, medical imaging, and scientific visualization who deal with geometric databases much larger than the interactive display capacity of their workstations.

ORGANIZER

Michael Hopcroft
Silicon Graphics, Inc.

LECTURERS

Brian Cabral
Silicon Graphics, Inc.

Ned Greene
Hewlett-Packard Laboratories

Hugues Hoppe
Microsoft Research

Michael Hopcroft
Silicon Graphics, Inc.

Ming Lin
Army Research Office

Dinesh Manoch
University of North Carolina

Turner Whitted
Numerical Design Limited

13

Digital Color

Monday | Full Day | Advanced

Petree Hall D

Computers have been used to generate synthetic images since the first SIGGRAPH conference and to generate color images for nearly that long. But only recently has it become practical to create and reproduce digital images with predictable, accurate color, and only recently has it become reasonably easy to move images from the SIGGRAPH world into video, film, and print. This course explains the science behind color reproduction, image digitalization, and image reproduction in video, film, print, and computer graphics.

WHO SHOULD ATTEND

Hardware and software engineers, and systems designers.

ORGANIZER

Charles Poynton
Poynton Vector Corporation

LECTURERS

Michael Bourgoin
Adobe Systems, Inc.

Jan De Clippeleer
Agfa-Gevaert NV

Charles Poynton
Poynton Vector Corporation

Maureen Stone
Xerox PARC

14 CAL

New Frontiers in Modeling and Texturing

Monday | Full Day | Advanced

Petree Hall C

Warning: this course contains some implicit scenes. It describes many new interactive and procedural tools for modeling and texturing surfaces, and shows how to model hands, graft branches, blow smoke, comb fur, trim shrubs, and paint dogs. The course covers advanced topics in polygonization, particle systems, constraints, texture mapping, geometric texturing, solid texturing, procedural modeling, and surface topology. One-hour presentations, 300 pages of course notes, and several megabytes of CD-ROM space allow the speakers to provide more detailed information on these techniques than is possible in their paper presentations.

WHO SHOULD ATTEND

Those who have already taken most of the other SIGGRAPH courses.

ORGANIZERS

John Hart
Washington State University

David Ebert
University of Maryland Baltimore County

LECTURERS

Jules Bloomenthal
Microsoft Corporation

David Ebert
University of Maryland Baltimore County

Kurt Fleischer
Pixar

John Hart
Washington State University

Paul Heckbert
Carnegie Mellon University

Hans Køhling Pedersen
Massachusetts Institute of Technology

Przemyslaw Prusinkiewicz
University of Calgary

15 CAL

Applied Virtual Reality

Monday | Full Day | Intermediate

Room 515A

This course addresses virtual reality from the end-user's perspective and focuses on "what we can do" with VR technology, not "how to develop" the technology, and provides attendees with criteria to identify whether or not VR technology might be a useful tool in their working environments. The course covers several working VR applications in academia and industry, and reviews their design processes.

WHO SHOULD ATTEND

Engineers, designers, scientists, product developers, artists, managers, and anyone interested in obtaining a general understanding of the concepts and design methodologies for effective virtual reality applications.

ORGANIZER

Carolina Cruz-Neira
Iowa Center for Emerging Manufacturing/
Iowa State University

LECTURERS

Carolina Cruz-Neira
Iowa Center for Emerging Manufacturing/ Iowa State University

Rudolph Darken
Naval Postgraduate School

Mary Lynne Dittmar
Advanced Computing Group

Richard Gillilan
Cornell University

Oliver Riedel
Fraunhofer Institute for Industrial Engineering

Judy Vance
Iowa State University

Frank Wood
Cornell University

16

Interactive Movies: Techniques, Technologies, and Contents

Monday | Full Day | Intermediate

Room 515B

The concept of interactive movies has existed for a long time, and recent advances in visual, sound, graphics, and interaction technologies are rapidly converging to create a new paradigm. This course gives attendees the knowledge necessary to create interactive movies and illustrates integration of these technologies to realize this new type of entertainment.

WHO SHOULD ATTEND

Researchers who are interested in interactive movies, especially those who have a background in computer vision and computer graphics.

ORGANIZERS

Ryohei Nakatsu
Edward Altman
ATR Media Integration & Communications Research Lab

LECTURERS

Ryohei Nakatsu
Naoko Tosa
ATR Media Integration & Communications Research Lab

Kristine Samuelson
Stanford University

Scott Watson
Walt Disney Imagineering

Donald Marinelli
Scott M. Stevens
Carnegie Mellon University

17

FIX Virtual Humans: Behaviors and Physics, Acting, and Reacting

Monday | Full Day | Intermediate

West Hall B

This course is intended to demonstrate the state of the art in motion synthesis for virtual humans. It covers the essential elements for interactive and real-time (synthesized, non-captured) animation via behavior, physics, signal processing, scripting, and reactive techniques.

WHO SHOULD ATTEND

Animators, managers, software developers, students, and scientists interested in synthesizing human motions in real time.

ORGANIZER

Norman Badler
University of Pennsylvania

LECTURERS

Norman Badler
University of Pennsylvania

Armin Bruderlin
ATR Media Integration & Communications Research Lab

Athomas Goldberg
Media Research Laboratory

Dimitris Metaxas
University of Pennsylvania

Ken Perlin
Media Research Laboratory

18

Beyond Bottlenecks and Roadblocks: Internetworked Computer Graphics

Monday | Full Day | Beginning

Room 502B

Although networking and computer graphics are considered distinct disciplines, they have begun to converge. For example, graphics and networking must be considered together when using 3D for collaborative explorations, information visualization, and large-scale virtual environments. This course presents an introduction to networking concepts for using and developing interactive Internet-based graphics applications.

Software and tools associated with the Multicast Backbone (MBone), hypertext transfer protocol (http), and the Virtual Reality Modeling Language (VRML) are demonstrated. A collaborative remote design project is presented as a case study. The course also includes first-hand examples of the capabilities and tradeoffs involved when interactive 3D graphics are combined with the World Wide Web and live information streams across the Internet.

WHO SHOULD ATTEND

Computer graphics users interested in understanding networking and graphics integration issues.

ORGANIZER

Theresa-Marie Rhyne
Lockheed Martin/US EPA Scientific Visualization Center

LECTURERS

Bob Barton
Mike Mccedonia
Fraunhofer Center for Research in Computer Graphics

Don Brutzman
Naval Postgraduate School

Theresa-Marie Rhyne
Lockheed Martin/US EPA Scientific Visualization Center

19

Physically Based Modeling: Principles and Practice

Monday | Full Day | Intermediate

Room 408A

A systematic introduction to physically based modeling techniques, including differential equation basics, dynamics of particles and mass/spring systems, continuum methods for simulating non-rigid objects, rigid body dynamics, kinematic and dynamic constraints, and collision and contact. Detailed examples of the application of these techniques to animation production are presented.

WHO SHOULD ATTEND

This course is targeted at computer graphics researchers and implementors who wish to develop a solid understanding of physical methods as applied to animation and modeling. It will be of particular interest to those who wish to implement physically based modeling techniques and/or read and critically appraise technical papers in the field.

ORGANIZERS

Andrew Witkin
David Baraff
Carnegie Mellon University

LECTURERS

Andrew Witkin
David Baraff
Carnegie Mellon University

Michael Blum
David Tonnesen
Walt Disney Feature Animation

Gary Monheit
Alias | Wavefront

20

Computer Animation Using Digital Video for the Web, Multimedia, and Broadcast

Monday | Full Day | Intermediate

Room 403B

Worldwide, computer animation has recently enjoyed an enormous increase of use in a wide range of video applications. Computer graphics artists, programmers, and animators need to interface with digital video systems. The World Wide Web and CD-ROM online interactive information systems have created even more outlets for digital video animations. This course provides the information that these potential video producers need to develop their video skills.

WHO SHOULD ATTEND

Anyone starting or planning to build a computer-based digital video animation recording system, or who is converting their present systems to digital video; Web-page builders who work with video information; CD-ROM designers who work with interactive video; and producers of visualization centers.

ORGANIZER

Bob Judd
Los Alamos National Laboratory

LECTURERS

Jim Costigan
University of Illinois at Chicago

Ross Guant
Lawrence Livermore National Laboratory

Bob Judd
Los Alamos National Laboratory

John Mareda
Triconix Research, Inc.

21

Designing Real-Time Graphics for Entertainment

Monday | Full Day | Intermediate

West Hall A

New arcade games, videogame consoles, personal computer games, and theme park virtual reality attractions are the most widely experienced applications of real-time computer graphics. This course offers detailed insights from developers at the forefront of this area. Topics include hardware and software design, game design and programming, rendering tricks, and themed attraction development. Attendees learn the best known practices in contemporary entertainment application development.

WHO SHOULD ATTEND

Entertainment developers who hope to enhance their skills with the latest development techniques.

ORGANIZER

Michael Jones
Silicon Graphics, Inc.

LECTURERS

John Carmack
ID Software

Sharon Clay
Silicon Graphics, Inc.

Mike Goslin
Walt Disney LBE

Michael Jones
Silicon Graphics, Inc.

Shiguru Miyamoto
Nintendo

Gary Tarolli
3Dfx

Tim VanHook
Silicon Graphics, Inc.

22

AD Mastering Visible Wisdom: Graphic Design for Usable GUIs of Productivity Tools, Multimedia, and the Web

Tuesday | Full Day | Intermediate

Room 403A

This introduction to terminology, theory, practical principles of good design, case studies, and design process provides practical guidance for research and commercial product development, and active experience through simple pen-and-paper exercises.

WHO SHOULD ATTEND

Staff members or managers in the following fields: product development engineering, software engineering, product marketing, application development for a user group, human factors design, graphic design, industrial design, and technical editing.

ORGANIZER

Aaron Marcus
Aaron Marcus and Associates, Inc.

LECTURERS

John Armitage
Aaron Marcus
Andrew Thompson
Pamela Tien
Frank Volker
Aaron Marcus and Associates, Inc.

23

VR FIX Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality

Tuesday | Full Day | Intermediate

West Hall B

This course investigates the increasingly important role that concepts from the field of artificial life are playing across the breadth of computer graphics, including image synthesis, modeling, animation, multimedia, and virtual reality. Attendees are systematically introduced to techniques for realistically modeling and animating objects that are alive. They also explore graphics techniques that emulate phenomena fundamental to biological organisms, such as biomechanics, behavior, growth, and evolution. Topics include modeling and animation of plants, animals and humans, behavioral animation, communication and interaction with autonomous agents in virtual worlds, and artificial evolution for graphics and animation.

WHO SHOULD ATTEND

Graphics researchers and practitioners, including animators and VR enthusiasts who are seeking a close encounter with "life" at the leading edge of graphics modeling.

ORGANIZER

Demetri Terzopoulos
University of Toronto

LECTURERS

Bruce Blumberg
Massachusetts Institute of Technology

Przemyslaw Prusinkiewicz
University of Calgary

Craig Reynolds
Silicon Studios

Karl Sims
Genetic Arts

Demetri Terzopoulos
University of Toronto

Daniel Thalmann
Swiss Federal Institute of Technology

24 CAL

API OpenGL and Window System Integration

Tuesday | Half Day | Intermediate

Room 502A (am)

This practical course explains the application development options for writing portable, high-performance OpenGL programs for both the X Window System and Microsoft's Windows 95 and NT. The emphasis is on Windows programming and Motif-based approaches to writing real OpenGL applications. Topics include: techniques for ensuring portability between different platforms; high-level toolkits and alternative OpenGL interfaces; and advanced areas such as stereo, printer hardcopy, effective debugging, and exotic input devices.

WHO SHOULD ATTEND

Win32, Motif, and OpenGL programmers who want to learn how to write OpenGL programs that cleanly, efficiently, and portably interface with the X Window System. Also: programmers planning to port OpenGL applications to different window systems.

ORGANIZER

Mark Kilgard
Silicon Graphics, Inc.

LECTURERS

Mark Kilgard
Silicon Graphics, Inc.

Brian E. Paul
Avid Technology

Nate Robbins
University of Utah

25 CAL

BD Multiresolution Surface Modeling

Tuesday | Full Day | Intermediate

Petree Hall C

This course summarizes the best current techniques for simplifying complex polygonal surface models in order to accelerate rendering. Topics include: use of multi-resolution models that describe 3D shapes at multiple levels of detail, and applications in CAD, Web publishing, geographic information systems, computer vision, and virtual reality.

WHO SHOULD ATTEND

Users, developers, and researchers working with complex polygonal models.

ORGANIZER

Paul Heckbert
Carnegie Mellon University

LECTURERS

Paul Heckbert
Carnegie Mellon University

Hugues Hoppe
Microsoft Research

Jarek Rossignac
Georgia Institute of Technology

Will Schroeder
General Electric Corporate R&D Center

Mark Soucy
InnovMetric Software Inc.

Amitabh Varshney
State University of New York at Stony Brook

26 CAL

3D Computer Animation Workshop

Tuesday | Full Day | Intermediate

West Hall A

This course is a hands-on workshop that introduces attendees to high-end 3D computer animation capabilities. The course is divided into several segments, each consisting of a brief lecture on specific principles of 3D animation, a brief demonstration of how those principles are implemented, and an extended exercise in which participants work on a short animation that utilizes those principles.

WHO SHOULD ATTEND

Those who have an interest in, but very limited or no experience with, 3D computer animation.

ORGANIZER

Michael O'Rourke
Pratt Institute

ASSISTANTS

Khalida Lockheed
Annie O'Donnell
Wei Yi Lin
Abbey Klotz
Lillian Shieh
Mioko Iwata
Marc Meyer
Lena Yamaguchi
Pratt Institute

SPECIAL NOTE: A limited number of course attendees will be selected to perform the exercises during the course. Other attendees will be able to schedule later times in the CAL to complete the exercises.

27

FIX Scanning and Recording of Motion Picture Film

Tuesday | Full Day | Intermediate

Room 515B

Film scanning and recording technologies enable computer graphics to reach mainstream cinema. This course presents the technology and craft of scanning motion picture film into the digital film or digital video domain for processing, and recording digital images back to motion picture film.

WHO SHOULD ATTEND

Digital cinematographers, production technicians, and computer animators.

ORGANIZERS

George Joblove
Warner Digital Studios

Charles Poynton
Poynton Vector Corporation

LECTURERS

George Joblove
Warner Digital Studios

Charles Poynton
Poynton Vector Corporation

John Brewer
Glenn Kennel
Eastman Kodak Co.

John Carlson
Monaco Video

Bill Feightner
Efilm and Composite Image Systems

Thor Olson
Management Graphics, Inc.

28 CAL

API Authoring Compelling and Efficient VRML 2.0 Worlds

Tuesday | Full Day | Intermediate

Room 515A

This course provides authors with a concrete toolset for overcoming the limitations and exploring the unique capabilities of VRML 2.0. Attendees learn creative and efficient techniques from examples created by expert authors and emerge with new tools and approaches they can use to solve their creative challenges.

WHO SHOULD ATTEND

VRML authors who are interested in creating compelling high-performance content.

ORGANIZER

David Story
Silicon Graphics, Inc.

LECTURERS

David Marsland
David Story
Silicon Graphics, Inc.

Delle Maxwell
Independent Computer Graphic Designer

29

VR Programming Virtual Worlds

Tuesday | Full Day | Intermediate

Room 403B

An introduction to virtual reality, primarily using immersive displays. Topics include: hardware system requirements, design of applications, an introduction to haptics, and implementation of virtual worlds. The emphasis is on the practical issues that must be addressed to begin working in virtual environments.

WHO SHOULD ATTEND

Those who wish to create immersive virtual environments.

ORGANIZER

Anselmo Lastra
University of North Carolina at Chapel Hill

LECTURERS

Stephen Ghee
Division Limited

Henry Fuchs
Anselmo Lastra
Russell Taylor
Hans Weber
University of North Carolina at Chapel Hill

Randy Pausch
University of Virginia

30

VR Making Direct Manipulation Work in Virtual Reality

Tuesday | Half Day | Intermediate

Room 502A (pm)

Direct manipulation interfaces are becoming increasingly important in the design of useful virtual reality applications, but poor interface hardware performance and poor understanding of human factors make them difficult to implement. This course covers the issues that arise in design of direct-manipulation interfaces for virtual reality applications. Human factors, tracker error compensation, and widget design are discussed from the perspective of task performance, with an emphasis on application design.

WHO SHOULD ATTEND

Current or potential virtual reality application developers who wish to implement a direct manipulation interface.

ORGANIZER

Steve Bryson
MRJ Technology Solutions/NASA Ames Research Center

LECTURERS

Ronald Azuma
Hughes Research Laboratories

Steve Bryson
MRJ Technology Solutions/NASA Ames Research Center

Andrew Forsberg
Brown University

Neff Walker
Georgia Institute of Technology

31 CAL

BD Principles of Volume Visualization

Tuesday | Half Day | Intermediate

Room 502B (am)

An overview of the nomenclature, the technology, and the techniques of volume visualization, with the emphasis on algorithms, software tools, and applications. Topics include: different approaches to surface extraction, volume shading, volume viewing, software tools, and applications. Slides, videos, and live demos demonstrate state-of-the-art techniques.

WHO SHOULD ATTEND

Computer scientists and professionals who develop visualization techniques for volume data, and professionals in scientific, engineering, and biomedical disciplines who use or plan to use these techniques.

ORGANIZER

Arie Kaufman
State University of New York

LECTURERS

Rick Avila
Bill Lorensen
Lisa Sobierajski
General Electric Co.

Arie Kaufman
State University of New York

Hanspeter Pfister
MERL

Roger Crawfis
The Ohio State University

32 CAL

BD Advances in Volume Visualization

Tuesday | Half Day | Intermediate

Room 502B (pm)

A closer look at some advanced topics in volume visualization. Topics include: advanced illumination models for volume rendering, the process of volume synthesis, hardware systems, and architectures for volume rendering and applications. Slides, videos, and live demos demonstrate state-of-the-art techniques.

WHO SHOULD ATTEND

Computer scientists and professionals who develop visualization techniques for volume data, and professionals in scientific, engineering, and biomedical disciplines who use or plan to use these techniques.

ORGANIZER

Arie Kaufman
State University of New York

LECTURERS

Rick Avila
Bill Lorensen
Lisa Sobierajski
General Electric Co.

Arie Kaufman
State University of New York

Hanspeter Pfister
MERL

Roni Yagel
The Ohio State University

33

Principles of Visual Perception and Its Applications in Computer Graphics

Tuesday | Full Day | Intermediate

Room 151

An introduction to the study of visual perception and its applications in computer graphics. This course surveys the field of visual psychophysics and presents fundamental findings on how we perceive light, color, pattern, motion, texture, shape, and depth. These experimental results are presented in the context of how they can be used in real applications in computer graphics, including realistic image synthesis, scientific and information visualization, virtual environments, and graphic design.

WHO SHOULD ATTEND

This course will be of interest to a wide range of graphics researchers and practitioners who want to understand how the images they create are interpreted by the human visual system.

ORGANIZERS

Victoria L. Interrante
Institute for Computer Applications in Science and Engineering

Penny Rheingans
University of Mississippi

James A. Ferwerda
Cornell University

LECTURERS

Tomas Filsinger
Independent Graphic Artist

James A. Ferwerda
Cornell University

Rich Gossweiler
Silicon Graphics, Inc.

Victoria L. Interrante
Institute for Computer Applications in Science and Engineering

Penny Rheingans
University of Mississippi

34

Warping and Morphing of Graphical Objects

Tuesday | Full Day | Intermediate

Room 152

An introductory and unified overview of morphing and warping of graphical objects with several examples and applications.

WHO SHOULD ATTEND

Students, researchers, educators, designers, and computer animators. This course is specially designed for people interested in both the theoretical and practical issues associated with the application of warping and morphing techniques in the entertainment industry.

ORGANIZER

Jonas Gomes
Instituto de Matematica Pura e Aplicada

LECTURERS

Bruno Costa
Microsoft Corporation

Lucia Darsa
Jonas Gomes
Luiz Velho
Instituto de Matematica Pura e Aplicada

Thaddeus Beier
Hammerhead Productions

35

Introduction to Java3D

Tuesday | Full Day | Intermediate

Petree Hall D

This course presents the Java3D graphics API. It introduces the basic concepts and technology used in the Java3D definition, such as the use of scene graph to define a retained-mode model, compilation of a scene graph into a compiled-retained structure, the use of behavior nodes to manipulate both types of structures (without regard to which mode is in use), and ancillary considerations that turn these concepts into a useful application or applet.

WHO SHOULD ATTEND

Programmers interested in developing applications or tools using Java3D API and those interested in learning about Java3D.

ORGANIZER

Henry A. Sowizral
Sun Microsystems Computer Company

LECTURERS

Henry A. Sowizral
Michael Deering
Kevin Rushforth
Sun Microsystems Computer Company

Mike Bailey
University of California, San Diego and San Diego Supercomputer Center

Michael Shantz
Intel Corporation

COURSE ORGANIZERS

Edward Altman
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Educators Program

Computer graphics and interactive techniques in learning environments at all levels, from pre-school through university.

LOCATION

Session I

Level Two | Room 403A

Session II

Level Two | Room 403B

DAY/HOURS

Thursday, 7 August | 8:15 am to 5 pm

CHAIR

Rosalee Wolfe
DePaul University

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Jodi Giroux
The Allen-Stevenson School

Scott Grissom
University of Illinois at Springfield

Janice Stuhlmann
Louisiana State University

Educators Program Registration

Full Conference and Conference Select registrations allow attendees access to all SIGGRAPH 97 Educators Program sessions. Seating is on a first-come, first-served basis. Please be sure to arrive early to get seating for the sessions you wish to attend.

SESSION I Room 403A

Opening | 8:15 am

Welcome, announcements, introductions

The Visual Arts | 8:30 am - 10 am (AD)

- **From Form to Meaning: The Visual Display to Formal Design Principles, Methodologies, and Contextual Issues in a Digital Interactive Environment**

  John Bowers
  Oregon State University
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- **The Creative Process of University-Level Computer Art Students**

  Dena Elisabeth Eber
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- **Instructional Strategies for Teaching Digital Arts in Academic Settings**

  Darien Small
  Images and Instruction
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  Westminster, Maryland 21158 USA
  dcsmall@bellatlantic.net

SESSION II Room 403B

Opening | 8:15 am

Welcome, announcements, introductions

VR in K-12 Education | 8:30 am - 10 am (VR)

- **NICE: Combining Constructionism, Narrative, and Collaboration in a Virtual Learning Environment** [CAL]

  Maria Roussos mroussos@eecs.uic.edu
  Andrew E. Johnson ajohnson@eecs.uic.edu
  Jason Leigh jleigh@eecs.uic.edu
  Christina A. Vasilakis cvasilakis@eecs.uic.edu
  Craig R. Barnes cbarnes@eecs.uic.edu
  Thomas G. Moher moher@eecs.uic.edu
  University of Illinois at Chicago
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- **Historical Role Playing in Virtual Worlds: VRML in the History Curriculum and Beyond**

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  Mark Cowett mcowett@newman.kl2.la.us
  Casey Charvet chaca2@newman.kl2.la.us
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- **Virtual Reality the Modular Way**

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  Educational Service Unit #3, Omaha
  6949 South 110th Street
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Funding: University Focus | 10:15 am - noon

- **The Makings of a Successful Grant Proposal**
  Reviewers discuss what they look for in a proposal while educators recount their learning experiences on the way to successfully landing a grant. Attendees will gain insights into what makes a high-quality grant proposal.

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Computer Science | 2 pm - 3:45 pm FIX API

- **Teaching a Three-Dimensional Computer Graphics Class Using OpenGL**

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- **Teaching Graphics Through Video Games** CAL

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- **Alice: Easy to Learn Interactive 3D Graphics** CAL

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Where Computer Science and Art Meet | 4 pm - 5 pm AD

- **Combining Art Skills with Programming in Teaching Computer Art Graphics** CAL

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Funding: K-12 Focus | 10:15 am - noon

- **Funding Your Dream**
  Experienced teachers talk with representatives from government and industry about effective ways of introducing or improving technology in the K-12 classroom.

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Darlene Wolfe
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Technology as Facilitator | 2 pm - 3:45 pm VR AD

- **The Wandering Eye: An Online Collaboration Between Student and Professional Creative Artists**

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- **SDSC Science Discovery**

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- **A Virtual Poem: Extending Classroom Reality**

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Web and Multimedia Design | 4 pm - 5 pm AD

- **Publishing or Programming? A Framework for the Development and Presentation of Work by Children on the World Wide Web**

Judy Keiner
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- **Teaching Students the Techniques and Tricks to Create Successful Multimedia Projects (the Easy Way)**

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Electric Garden

Art, design, and technology combine to create the world's most exciting, seductive interactive computer applications and interface designs. The Electric Garden will feature the best work from industry, education, and entertainment.

LOCATION

Lower Level | Kentia Hall

HOURS

Sunday, 3 August	6 pm to 8 pm
Monday, 4 August	9 am to 6 pm
Tuesday, 5 August	9 am to 6 pm
Wednesday, 6 August	9 am to 6 pm
Thursday, 7 August	9 am to 6 pm
Friday, 8 August	9 am to 1 pm

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Toco the Toucan

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Toco the Toucan is a synthetic creature created at the MIT Media Laboratory. Participants can walk up to the display, sit down, and begin interacting with the toucan using a combination of speech and gesture. A constrained, but not entirely predetermined, story ensures that the highly interactive experience includes some structure and an overall plot.

The Grimm Show

M.R. Petit
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The Grimm Show (or The Story of the Youth Who Went Forth to Learn What Fear Was) is a 60-minute multi-media performance/interpretation of the parable by the Brothers Grimm. The story recounts the experiences of a youth who goes forth into the world to learn the meaning of "shuddering in fear."

JPL Space Garden: Space Data Visualization

William B. Green
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The JPL Space Garden features systems in current use at JPL for processing and visualization of science data returned by instruments flown on various NASA spacecraft.

Nerve Garden

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How can we forget the fascination that our terrariums, aquariums, or chemical crystal gardens held over us when we were children? Watching beautiful and functional structures emerge and then decay taught us a great deal about life and our own ultimate destiny. The Nerve Garden allows users to plant seeds in a digital terrarium and witness the growth of familiar and strange plant and animal structures.

d-rhum

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d-rhum (drum room) is a room that responds to the presence and movement of its occupants. Computers translate sensor data into commands sent to motors. The motors stretch, push, strike with mallets, and move sections of the walls or the walls themselves. The walls are built of malleable materials such as latex and silicone.

Bodymaps: Artifacts of Touch (The Sensuality and Anarchy of Touch)

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Bodymaps: Artifacts of Touch is a computer interactive sound and video installation that subverts the visual/objective relationship between the object and the eye, between click and drag, between analysis and power, to create a relationship between participant and technology that transgresses rules of ownership and objectivity, and begs questions of experience, power, and being.

Multiple Identities MAP
Richard Yelle
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A digital map of New York City that incorporates avatars (visual embodiments of concepts, personas, identities, or intelligence in virtual reality) acting as urban guides who lead travelers through unique experiences in the metropolis.

Iamascope: An Interactive Kaleidoscope
Sidney Fels
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This interactive project introduces a multimedia experience using an interactive kaleidoscope. The Iamascope uses a video camera lens as the eye of a kaleidoscope and projects a kaleidoscopic image of the participant onto a large screen. A vision subsystem is coupled to the electronic eye to control musical tones using a sustained algorithm. A wireless microphone produces echoes corresponding to the audio analogue of the kaleidoscopic reflections.

Virtual Basketball
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In this cave-like virtual space, participants use visual, auditory, and tactile sensations to perceive and interact with objects. A new human-scale haptic device, Big SPIDAR, couples haptic sensations with vision and audition, and displays various aspects of force feedback associated mainly with contact, weight, and inertia.

ants under a mushroom
Amy Alexander
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In ants under a mushroom, the participant "paints" with moving and still images, examines the relationship between the formal elements of a non-fiction image and its content, and in the process examines the notion that an image can be real (non-fictional, representational) or non-real (abstract).

The Multi-Cultural Recycler
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When a visitor accesses the Multi-Cultural Recycler, the Recycler selects two or three camera web sites at random and captures the live or latest image from their cameras. The Recycler then performs digital image processing on these images to "recycle" them into a new image. Since the actual process used is also selected at random, each access to the Recycler site produces a unique image.

Virtual Orchestra Performance
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In a room with large-screen walls, where animated virtual players hold different musical instruments, the visitor, wearing data gloves, conducts a musical performance, leading the tempo with one hand and, with the other, directing aspects of the performance (a string crescendo, for example). The players show features of human behavior: they pay attention when the conductor begins, and they continue playing for awhile if the conductor ceases, but they soon return to playing nonsense. Through amplified speakers, the visitor can also experience the acoustics of the surrounding virtual concert hall. Alternative acoustic environments (open space, concert hall, church) and pieces in different musical styles can be selected from a menu.

Fixed-Base Driving Simulator
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This virtual reality application is used as a testbed for Intelligent Vehicle Highway Systems and virtual prototyping. One of its main goals is to investigate the level of fidelity required for various human factors studies.

Garnet Vision
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In Garnet Vision, the emphasis is on how to build a full solid-angle display in a limited space. Two criteria were established to optimize space utilization:
1. Pixel efficiency (how many pixels are projected on each polygon of a polyhedral screen).
2. Space efficiency (the ratio of displayed polyhedra to overall dead volume of the rear-projection screen).
Thorough examination of these criteria led to selection of a rhombic dodecahedron. The dodecahedron screen, in which a viewer can stand, was built with 12 projectors in a space the size of a normal room. Each projector also has a speaker that generates sound.

Journey into the Brain
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Journey into the Brain is a story-based interactive CD-ROM funded by a research grant from the National Institute of Mental Health. It takes children between seven and 11 years of age on an adventure inside the most complex and mysterious organ of all: the human brain.

Multi Mega Book in the Cave
Yesi Maharaj Singh
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The Multi Mega Book is an up-to-date electronic book sculpture – a magic and stimulating journey through some of the most intense moments of media, technology, science, architecture, and culture. It was developed as a fully immersive interactive installation with high-resolution stereoscopic images.

Users explore and freely experience the different dimensions of the 15th Century and the 20th Century through virtual reality, stereoscopic 3D sound, and holophonic effects that generate a magical interactive navigation technique.

Alice: Easy to Learn Interactive 3D Graphics
Jeff Pierce
User Interface Group
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A development environment for creating interesting and interactive 3D worlds. It is designed for ease of learning and use by non-engineering high school and undergraduate students.

Cyber Bunraku
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Cyber Bunraku is an experimental system that supports manipulation of CG characters in real time. A facial expression tracker is used by the facial performer, while the puppeteering device for body movement is used by a traditional Bunraku puppeteer. The two performers create the 3D CG character's movements, behaviors, and emotions, which allows the audience to enjoy a brand-new traditional art form.

Journey to Anahuac
Tomas J. Filsinger
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http://www.emersis.com.mx

Ensconced in a structure suggesting an Aztec ceremonial temple, participants discover a richly detailed, interactively evolving map illustrating the rise and fall of civilizations in the Valley of Mexico over 3,000 years and the ensuing ecological transformation of the basin.

Project ScienceSpace
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One objective of Project ScienceSpace is to investigate whether sensorially immersive, constructivist learning can remediate typical misconceptions in the mental models of reality held by many students. Another is to study whether mastery of traditionally difficult subjects (relativity and quantum mechanics, for example) is enhanced through learning-by-doing.

Mind Garden
Paras Kaul
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The project combines the technologies associated with EEG, digital brainwave analysis, system design, the World Wide Web, and the synthesis of digital audio, visual, and linguistic media. Participants are asked to relax and focus their attention, which generates frequency variations in their brainwave signals, which in turn determine forms, sounds, and word objects. The journey is determined by the brainwave activity derived from each user's own imagination.

Wango: COMPOST
Cassandra Lehman
The CADRE Institute
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cas@riverview.com

Wango: COMPOST (Compost) is an interactive system that places the audience in control of live video and audio feeds while they navigate through a real-time interface.

Cyber Space Adventure
Nobuo Masuda
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masuda@cyber-net.co.jp

This simulation program was developed as a children's attraction for a municipal science museum. Participants choose one of two roles. They either join a team of astronauts on an interstellar voyage or stay in Mission Control here in our Solar System, where they help the spaceship crew look for the secrets of the universe.

Dancing Fire and Water
Vigdis Holen
Vig's Kunstlab
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Dancing Fire and Water is an artistic expression of sounds and images of two of the earth's great energies: Norway's Jostedal glacier and Japan's Owakudani volcano. It is an encounter between fire and water, two of the four fundamental elements in the universe. Live communication via ISDN is maintained between Jostedalsbreen, a growing glacier; Owakudani, an active volcano in Japan's Hakone; and SIGGRAPH 97 in Los Angeles.

Fantasy^3
J. Michael Moshell
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Fantasy^3 is a year-long Senior Design Project involving 30 undergraduate students from six academic departments, four faculty members, and several graduate students. The animated film concerns a group of aliens in a tour bus/spacecraft who visit the park and have typical tourist experiences, with a twist. The virtual world is similar, and some of the same experiences are available, but the story may turn out differently.

PRoP: Personal Roving Presence
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The Electric Garden is populated with special tele-robots, including several ground-based surface cruisers and a few space-browsing airborne blimps to provide the sensation of tele-embodiment. Drivers and pilots control these PRoPs and experience their remote world through live two-way audio and video.

Advanced Technologies for Virtual Environments
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http://www.cs.unc.edu/~walk
http://www.cs.unc.edu/Research/nano.

WALKTHROUGH
In this interactive experience, the user walks through a very large, complex model. It illustrates a variety of model-management techniques, such as visibility culling, dynamic tessellation of higher-order surfaces, static and dynamic model simplification, and textured impostors, to enable rendering at interactive rates.

NANOMANIPULATOR
The nanoWorkbench adds a PHANToM force-feedback device to a rear-projected display to allow the user to touch the objects that are displayed. This overlay of the visual with haptic spaces provides the sense of a solid object that can be prodded and molded by the user.

Sunset Boulevard
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Interactive narrative hits the street. Motorists on Hollywood's legendary Sunset Boulevard activate and control a drive-by soap opera playing on two outdoor billboard-sized TVs at Billboard Live, a high-tech nightclub. Viewers at the Los Angeles Convention Center also observe and participate in the Sunset proceedings.

Faery Garden
Eben Gay
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Southboro, Massachusetts 01772
USA
eben@ergeng.com

Faery Garden uses virtual reality, MIDI sound, theatrical techniques, and real world objects to blur the real and imaginary worlds together into a compelling visit to a magical place.

The Land of Time
Youn H. Lee
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youn@sva.edu

The Land of Time is a 3D puzzle that consists of two different stages. In the game part, a puzzle is presented. The images and/or animations in the result stage are personal impressions of time and people. We are all bound to time; there are no exceptions. While time itself is rather hard for us to feel, a clock provides the illusion that it is controlling us with its own power.

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78235 USA
lexa@alhrt.brooks.af.mil

The VEAT is a three-dimensional interactive tutor designed to teach and refresh students on the fundamentals of air traffic control. It utilizes virtual environments, voice recognition, 3D sound, and artificial intelligence to provide a complete adaptive training system.

MEDIA^3: the Virtual Hologram
Masahiko Inami
Tachi Laboratory
MEIP Faculty of Engineering
University of Tokyo
7-3-1 Hongo, Bunkyo-ku
Tokyo 113, JAPAN
minami@star.t.u-tokyo.ac.jp

The MEDIA^3 (MEDIA CUBE) consists of liquid crystal displays arranged in the shape of a cubic body. In coordination with the motion of an operator's head and the MEDIA^3, synthesized images of virtual objects (an insect, a tropical fish, artworks, a medical image, etc.) located inside the MEDIA^3 appear on each LCD. The effect is exactly the opposite of that generated by an OMNIMAX or CAVE system.

Big Head Racer
Valerie Dunford
VIVID GROUP
317 Adelaide Street West,
Suite 302
Toronto, Ontario M5V 1P9
CANADA
valerie@vividgroup.com
http://www.vividgroup.com

A revolutionary, entirely new prototype, Big Head Racer has been created with the objective of personalizing video racing entertainment experiences. It allows participants to see a live video image of themselves in the cockpit of a futuristic racing machine, competing against other drivers (whose heads also appear in their cars) in a race for the finish line!

Ultra Magic Paper Interface
Hiroshi Usuda
Architecture Laboratories
Sony Corporation
6-7-35 Kitashinagawa,
Shinagawa-ku
Tokyo 141, JAPAN
usuda@sys.ptg.sony.co.jp

Currently, the personal computer is the core of most intelligent, integrated consumer electronics and communication systems. Like GUI's in the computer industry, these intelligent audio/visual, computer/communication (AVCC) systems lack a standardized, truly intuitive user interface. This presents a serious problem for novice users. Ultra Magic Paper Interface is a new type of user interface based on tactile input on plain paper, featuring ease-of-use and unified operation for AVCC systems.

Virtual Explorer
Kevin Dean
Senses Bureau
University of California,
San Diego
9500 Gilman Drive, 0339
La Jolla, California 92093 USA
kld@chem.ucsd.edu
http://www-wilson.ucsd.edu/ve/

This virtual environment simulates the viewscreen of a nanobot that has been injected into a human body. It includes detailed, biologically accurate models of cells and proteins of the immune system and bloodstream, which are rendered in real time during the simulation.

WonderSpace: Interactive 3D Animation Browser
Toshiya Naka and Yoshiyuki Mochizuki
Multimedia Development Center
Matsushita Electric Industrial Co., Ltd.
1006 Kadoma, Kadoma-shi
Osaka 571, JAPAN
naka@isl.mei.co.jp
Mochik@isl.mei.co.jp

Through human-like avatars, WonderSpace realizes voice or sound communication in multi-user cyberspace. Technical features include compression/decompression of shape data and motion data, modified motions generated from a base motion, motion connecting, and synchronizing motion with sound.

Direct Manipulation Scene Creation in 3D: Estimating Hand Postures from Multiple-Camera Images

Akira Utsumi
ATR Media Integration & Communications Research Laboratories
2-2 Hikaridai. Seika-cho, Soraku-gun
Kyoto 619-02, JAPAN
utsumi@mic.atr.co.jp

With this system, participants create virtual 3D scenes by giving pre-defined commands with their own hands, to which no sensing devices are attached. Since the virtual scenes are displayed on a 3D display, participants feel as though the virtual scenes are real 3D spaces, even though they are not encumbered by technological equipment.

HORIZONS by TeleCommunity

Robert Dunn
Arc Vertuel, Inc.
School of Education
Duquesne University School of Education
111 The Oaks
Pittsburgh, Pennsylvania 15215
USA
rd1s+@andrew.cmu.edu
http://www.telecommunity.org

In a studio atmosphere extending across time zones, students imagine and filter realities and cultures, and offer personal views on life potentials. They share art, visions, experiences, and adventures through creative efforts in animation, multimedia, Web site development, and telecommunications.

3D Imaging Sensing Technology

Atsushi Yokoyama
Hashimoto Signal Processing Lab
Sony Corporation
6-7-35 Kitashinagawa,
Shinagawa-ku
Tokyo 141, JAPAN
ayoko@ius.ptg.sony.co.jp

This project presents two 3D imaging systems:
1. A stereo camera system that acquires a dense z-map for a scene.
2. A real-time rangefinder that utilizes a dual-laser and single camera to calculate and display range information at video frame rates.

Point of Vue, Point of You / Body to Body

Elsa Mazeau
89, passage Emile Boutrais
94120 Fontenay sous Bois,
FRANCE

In these two installations, participants enter two different rooms (which can be kilometers apart from each other) and virtually interact with each other in real time.

Optical Gesture Recognition System

Seiji Kobayashi
Advanced Development Laboratories
Sony Corporation
6-7-35 Kitashinagawa,
Shinagawa-ku
Tokyo 141, JAPAN
seiji@devom.crl.sony.co.jp

In this real-time human gesture recognition system, video images of a person are sent to a recognition module. The system does not require any sensors or cables to be attached to the subject's body. The key technology here is optical information processing. In the recognition module, video images taken by a CCD camera are presented to a holographic device that generates a vector representation of the gesture. The vector is then analyzed electronically to determine the gesture in real time.

Talking Head

Gesellschaft für Mediales Gestalten GmbH
"The Virtual Company"
Kantstrasse 165
10623 Berlin, GERMANY
chris@well.com

Talking Head is a prototype product for a new generation of video conferencing. Video images projected on a bust give participants a true three-dimensional impression of their conversation partners, and implemented compensation algorithms generate eye-to-eye contact during the communication.

Traffic Control

Gesellschaft für Mediales Gestalten GmbH
"The Virtual Company"
Kantstrasse 165
10623 Berlin, GERMANY
chris@well.com

Through virtual reality, Traffic Control offers a unique, interactive, highly entertaining, and completely new way of understanding traffic in urban environments. Users navigate in a very detailed model of Berlin, interactively choose their viewpoints (birds-eye, driver, bicycle, walking adult, little child), and interactively control traffic lights, signs, and vehicles.

Magic Morphin Mirror: Face-Sensitive Distortion and Exaggeration

T. Darrell, H. Baker, F. Crow, G. Gordon, and J. Woodfill
Interval Research Corporation
1801 Page Mill Road, Building C
Palo Alto, California 94304 USA
trevor@interval.com

This system combines real-time special effects such as image morphing and texture synthesis with new advances in computer vision for face tracking and expression analysis. By distorting one or more aspects of a user's face in real time, Magic Morphin Mirror creates a self-referential experience with an image that is clearly neither really oneself nor entirely synthetic nor autonomous.

Ongoings: The Fine Arts Gallery

A representative selection of outstanding computer-based work presenting an in-depth look at each artist's ongoing creative vision. The gallery will exhibit a small number of artists, each of whom will display a body of work.

LOCATION

Level One | Room 153, West Concourse

DAYS/HOURS

Sunday, 3 August	6 pm to 8 pm
Monday, 4 August	9 am to 6 pm
Tuesday, 5 August	9 am to 6 pm
Wednesday, 6 August	9 am to 6 pm
Thursday, 7 August	9 am to 6 pm
Friday, 8 August	9 am to 1 pm

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Jeremy Gardiner
Roger Malina

John S. Banks

Rising Star Ltd.
445 East Illinois 345
Chicago, Illinois 60611 USA
jb@r-star.com

John S. Banks has been working with digital images for 16 years and with photographs for 25 years. He is currently living in Chicago, where he is on an indefinite leave of absence from his own business, Rising Star Ltd., in order to concentrate on image-making. For the previous 12 years, Banks was President or Vice President of Rising Star Ltd., a computer graphics reseller in Illinois.

Utah Portal
Iris Print, 20" x 15", 1994

Untitled 10
Iris Print, 20" x 24", 1995

Sheriann Ki-Sun Burnham

227 Ancona Drive
Long Beach, California 90803
USA
kisun@earthlink.net

Sheriann Ki-Sun Burnham was born in Seoul, Korea in 1959. She holds a BA in Art from California State University, Long Beach. She has been a professional graphic designer/illustrator since 1980 and has been involved in computer graphics since 1981. Currently, she owns a freelance art and design business. Her fine art has been presented in many exhibitions and publications in the US and abroad, including the SIGGRAPH 88 and SIGGRAPH 89 Art Shows, the 1989/90 ACM SIGGRAPH Traveling Art Show, 1990 Artware – Art and Electronics in Germany, 1995 and 1996 Fractal Design Art Expos, and 1989 and 1997 Connecticut College Biennial Symposiums for Arts and Technology.

Nomad
Iris print, 22 1/4" X 22 1/4", 1996

Cape Flora
Iris print, 28" X 28", 1996

Anna M. Chupa

Mississippi State University
Box 5182, Department of Art
Mississippi State, Mississippi
39762 USA
amc11@ra.msstate.edu

Anna Chupa received her Master of Fine Arts degree at the University of Delaware and a Master of Arts in Liberal Studies at Dartmouth College. Her primary artistic disciplines prior to working in digital media were painting, textiles, printmaking, and performance art. She has published a book and several essays on Jungian archetypes in African-American fiction. Her digital photography and mixed media installations have been exhibited at SIGGRAPH, the Digital Salon, and the Silicon Gallery in Philadelphia.

Peacock
Iris print on Translite lightbox,
17" X 17", 1995

Aengus
Iris print on Translite lightbox,
19 1/2" X 13 7/8", 1996

Assumption
Iris print on Translite lightbox,
18 3/4" X 15 1/2", 1996

Brain Cell
Iris print on Translite lightbox,
20" X 13 1/2", 1996

At the Gates 2
Iris print on Translite lightbox,
18" X 21", 1996

Descanso
Iris print on Translite lightbox,
19 1/2" X 22", 1996

Diane Fenster
287 Reichling Avenue
Pacifica, California 94044 USA
fenster@sfsu.edu
http://www.art.net/Studios/Visual/Fenster/ritofab_Home/fenster.html
http://www.sirius.com/~fenster

Diane Fenster creates both fine art and illustration using a Macintosh computer. Her style is an innovative combination of her own 35mm photography, video, still video, and scanned imagery. Fenster's fine art has been exhibited internationally, and her images appear in numerous publications and CD's on digital art including the APERTURE monograph "METAMORPHOSES: PHOTOGRAPHY IN THE ELECTRONIC AGE." She is guest lecturer at many seminars, conferences, and art schools. Her illustration style is an outgrowth of the explorations she has taken with her personal work, and her commissions range from editorial to advertising to Web sites. Fenster's clients include Apple Computer, Inc., IBM Corporation, Dell Computer Corporation, Adobe Systems, Inc., Oracle, Inc., and Silicon Graphics, Inc.

Canto Five/Union of Opposites
Iris print, 34" X 47", 1995

Canto Six/In the Shadow of the Cathedral
Iris print, 47" X 34", 1995

Canto Seven/The Path of Lightning as it Descends from the Sky
Iris print, 47" X 34", 1995

Canto Nine/Nine Nights I Hung on a Windy Tree
Iris print, 47" X 34", 1996

Canto Ten/Perhaps You Might Remember Me
Iris print, 47" X 34", 1996

Canto Thirteen/The Interior Life of the Dead
Iris print, 47" X 34", 1996

Phillip George
11 Miller Street
Bondi, AUSTRALIA
p.george@uws.edu.au

Phillip George was trained as a painter at the National Art School, graduating with a diploma in art in 1979. He received a masters degree with first-class honours in painting and digital imaging from the University of New South Wales in 1996, and he is currently a lecturer in digital imaging at the University of Western Sydney Macarthur.

Tangent @ 23 X, Tangent @ 23 Fire
Mixed media on canvas,
130 cm X 100 cm, 1996

Madge Gleeson
Western Washington University
Department of Art
Bellingham, Washington 98225
USA
mgleeson@henson.cc.wwu.edu

Madge Gleeson lives and works in Bellingham, Washington. She teaches at Western Washington University and has maintained a studio in Seattle for the past decade. She holds degrees from Brown University and Washington State University. Most of her exhibition work in the past decade has been computer-related. She has shown a number of times at both SIGGRAPH and ISEA.

Artist's Garden
Laser print/mixed media,
22" X 36" X 6", 1996

Endangered Species
Mixed media, 48" X 48", 1995

Golden Parachute
Laser print/mixed media, 23" X 25", 1996

High Flyer
Laser print/mixed media, 22" X 35", 1996

Road Warrior
Laser print/mixed media,
22" X 25" X 10", 1996

Mirror, Mirror
Laser print/mixed media, 30" X 30" X 5", 1996

Ken Gonzales-Day
7712 Lexington Avenue
West Hollywood, California
90046 USA
kday@scrippscol.edu

Currently an Associate Professor at Scripps College, Ken Gonzales-Day received a WESTAF/NEA award in New Genres in 1996. In 1995, he received an MFA from the University of California, Irvine. In 1993, he was a Van Leer fellow in the ISP at the Whitney Museum of American Art. He holds an MA in Art History from Hunter College, C.U.N.Y. and a BFA from Pratt Institute in Brooklyn.
He has exhibited at: White Columns & Christinerose Gallery in New York, the New Orleans Contemporary Art Center, Los Angeles' Foundation for Art Resources at Full Moon Gallery, L.A.C.P.S. Re:solution Gallery, Spaces in Cleveland, the Hallwalls Contemporary Art Center in Buffalo, and the New Museum of Contemporary Art, among others.

Untitled #33, From the Museum of Broken Identities (After Goya's Black Paintings)
C-print from digital negative, 40" X 30", 1996

Untitled #35, From the Museum of Broken Identities (After Goya's Black Paintings)
C-print from digital negative, 30" X 36", 1996

Jean-Pierre Hébert
4647 Via Huerto
Santa Barbara, California 93110
USA
jph@solo.com

Jean-Pierre Hébert was born in France in 1939. He was trained as an engineer and has always been interested in drawing and water color painting. His first hands-on experience with computers was in 1959, and he has been involved with computers ever since. He began his first experimentations with computer drawings in 1979 and began a serious exploration in 1986. Along with Helaman Ferguson, Ken Musgrave, and Roman Verostko, Hébert founded the Algorists group in August 1995.

Gris de Payne & Ochre
Ink on paper, 56 cm X 36 cm, 1996

Deux Lignes Ochres
Ink on paper, 60 cm X 46 cm, 1996

Chris S. Johnson
Northern Arizona University
1385 West University Avenue
#164
Flagstaff, Arizona 86001 USA
c.s.johnson@nau.edu

After the Ache
Duratrans, fluorescent lights (lightbox), 36" X 28", 1996

Cabrito
Duratrans Fluorescent lights (lightbox), 13.5" X 30", 1996

Tammy Knipp
Florida Atlantic University
Art Department, Room 106
777 Glades Road
Boca Raton, Florida 33431-0991
USA
tknipp@fauvms.acc.fau.edu

Tammy Knipp is an artist and a Professor of Art at Florida Atlantic University. She holds an MFA degree in Imaging and Digital Arts from the University of Maryland, Baltimore County and an MFA degree in Sculpture from Washington University, St. Louis. She was a 1995-1996 fellow recipient of Art Matters. Her work has been shown in New York, Indianapolis, Austin, Los Angeles, Chicago, and the Alexandria Museum of Art, Alexandria, Louisiana.

CASE STUDY 118 (documentation)
Mixed-media collage/9" video monitor, 3' X 5' X 1', 1996

CASE STUDY 2442
Computer-aided video/sculpture, 5' X 4' X 6', 1994

CASE STUDY 2442 (detail view)
Computer-aided video/sculpture, 5' X 4' X 6', 1994

CASE STUDY 2442
Mixed-media collage/9" video monitor, 4' X 4' X 1', 1996

CASE STUDY 107
Computer-aided video/sculpture, 1994

CASE STUDY 107 (detail views)
Computer-aided video/sculture, 1994

CASE STUDY 107
Mixed-media collage/9" video monitor, 4' X 4' X 1', 1996

Michael O'Rourke
Pratt Institute
44 Tompkins Place, #1
Brooklyn, New York 11231 USA
morourke@interport.net

Michael O'Rourke studied sculpture and computer graphic art for his MFA at the University of Pennsylvania, producing both physical sculpture and real-time interactive virtual sculpture between 1979 and 1982. He subsequently worked for seven years as a Senior Research Staff Artist at the New York Institute of Technology, where he produced computer-aided sculpture, animation and graphics. He now teaches at Pratt Institute, and continues working in a variety of media, both digital and traditional, producing graphic works and animation. His work has been exhibited widely and internationally since 1983.

À La Recherche du Centre Exact: Amsterdam Ave
Iris print on paper, 43" X 35", 1997

À La Recherche du Centre Exact: Arastradero
Iris print on paper, 43" X 35", 1996

À La Recherche du Centre Exact: Portola Valley
Iris print on paper, 13" X 10", 1996

À La Recherche du Centre Exact: Santa Cruz
Iris print on paper, 43" X 35", 1996

Icon #1
Ink, charcoals, pastels on paper, 22" X 30", 1987

Icon #4
Ink, pastels, chalks on paper, 22" X 30", 1987

Anna Ullrich
P.O. Box 975
Notre Dame, Indiana 46556
USA
Ullrich.1@nd.edu
http://www.nd.edu/~aullrich

Anna Ulrich earned her BFA in photography at the University of Washington in Seattle and is now a graduate student of photography at the University of Notre Dame. She teaches Web design at Andrews University and introductory workshops on Photoshop and the World Wide Web at Notre Dame. In November of 1996, she and six other artists opened the Steelhead Gallery in South Bend, Indiana with their first exhibition. She expects to receive her MFA in the spring of 1998.

The Decorative Arts of the Mariner
Cibachrome print, 35" X 77" X 1", 1996

The Judgement of Lyon
Cibachrome print, 35" X 93" X 1", 1996

Roman Verostko
5535 Clinton Avenue South
Minneapolis, Minnesota 55419
USA
roman@mcad.edu
http://www.mcad.edu/home/faculty/verostko/roman.html

Roman Verostko has pioneered the development and creative use of an artist's personal expert system. Recipient of the Golden Plotter First Prize (1994, Gladbeck, Germany) and an Ars Electronica honorable mention (1993), his work has been exhibited in major art and technology exhibitions on five continents. A past Board Member of the Inter-Society for Electronic Art and Program Director for the Fourth International Symposium on Electronic Art, Verostko has published articles and lectured internationally on the subject of Art and Algorithm. Recent work includes a binary version of a Universal Turing Machine illuminated with algorithmically generated designs. A Professor Emeritus of the Minneapolis College of Art and Design, he currently resides in South Minneapolis, where he maintains an experimental studio with one work station reserved for research and development.

Carnival, Pathway Series
Ink on paper, 36" X 24", 1989

Pathway Series
Ink on paper, 44" X 30", 1993

Heaven and Earth
Ink on paper, 36" X 24", 1991

Nested Swallow
Ink on paper, 44" X 30", 1995

Diamond Lake Apocalypse: Buddha
Ink on paper, 22" X 30", 1992

Scarab Series
Ink on paper, 30" X 22", 1993

Papers

Research, systems, and applications papers in the world's most respected forum for advanced work in computer graphics and interactive techniques. Following each paper presentation, attendees and presenters are invited to meet in the Papers breakout room for continued discussion.

LOCATIONS

See pages 47–53 for papers locations.

Panels Breakout Room | CAL, West Hall A

DAYS / HOURS

Wednesday, 6 August	10:15 am to 5:45 pm
Thursday, 7 August	8:15 am to 5:45 pm
Friday, 8 August	8:15 am to 5:15 pm

Panels

Debate, dispute, and Q&A on the past, present, and future of computer graphics. Several Panels will be available online before the conference on the SIGGRAPH 97 Web site. Following each Panel presentation, attendees and presenters are invited to meet in the Panels breakout room for continued discussion.

LOCATIONS

See pages 47–53 for panels locations.

Panels Breakout Room | CAL, West Hall A

DAYS / HOURS

Wednesday, 6 August	10:15 am to 5:45 pm
Thursday, 7 August	8:15 am to 5:45 pm
Friday, 8 August	8:15 am to 5:15 pm

PAPERS CHAIR

Turner Whitted
Numerical Design Limited

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Celia Pearce
momentum media group

Theresa-Marie Rhyne
Lockheed Martin Technical Services

Carl Rosendahl
Pacific Data Images

Alan Turransky
USA Today Information Network

Mary Whitton
University of North Carolina, Chapel Hill

Keynote Address/Awards

Wednesday, 6 August | 8:15 am - 9:45 am | West Hall B

Bran Ferren, Executive Vice President for Creative Technology and Research & Development, Walt Disney Imagineering, delivers the SIGGRAPH 97 keynote address.

Immediately before the keynote, SIGGRAPH presents two awards:

- Przemyslaw Prusinkiewicz receives the 1997 Computer Graphics Achivement Award for his work pertaining to modeling and visualizing biological structures.
- James Foley receives the 1997 Steven A. Coons Award for Outstanding Creative Contributions for his strong and sustained leadership in computer graphics education and research, and for his dedication to the profession.

Papers

Wednesday, 6 August | 10:15 am - noon | West Hall B

VR Virtual Reality and Applications

CHAIR
Frederick P. Brooks University of North Carolina, Chapel Hill

- **Quantifying Immersion in Virtual Reality**
  Randy Pausch, Dennis Proffitt, George Williams University of Virginia
- **Moving Cows in Space: Exploiting Proprioception as a Framework for Virtual Environment Interaction**
  Mark R. Mine, Frederick P. Brooks University of North Carolina, Chapel Hill
  Carlo H. Sequin University of California, Berkeley
- **Virtual Voyage: Interactive Navigation in the Human Colon** CAL
  Lichan Hong State University of New York at Stony Brook
  Shigeru Muraki Electrotechnical Laboratory
  Arie Kaufman State University of New York at Stony Brook
  Dirk Bartz Universität of Erlangen-Nuremberg
  Taosong He Bell Laboratories, Lucent Technologies
- **Interactive Simulation of Fire in Virtual Building Environments**
  Richard William Bukowski, Carlo Sequin University of California, Berkeley

Panel

Wednesday, 6 August | 10:15 am - noon | Petree Hall C

Deconstructing Play: Theory and Practice

Play is more than make believe. It is a transformational activity that facilitates every individual's cognitive, affective, and social development. This panel of theorists and practitioners addresses important issues and opposing stances regarding aspects of play and human development, especially as they relate to design of computational toys that high-technology content providers might never think about.

ORGANIZER
Bill Kolomyjec Pixar

PANELISTS
Justine Cassell MIT Media Lab
Yasmine B. Kafai University of California, Los Angeles
Mary Williamson University of California, Berkeley

Panel

Wednesday, 6 August | 10:15 am - noon | West Hall A

Facial Animation: Past, Present, and Future

Not surprisingly, facial animation is now attracting more attention than ever before in its 25 years as an identifiable area of computer graphics. Imaginative applications of animated graphical faces are found in sophisticated human-computer interfaces, interactive games, multimedia titles, VR telepresence experiences, and, as always, in a broad variety of production animations. Graphics technologies underlying facial animation now run the gamut from keyframing to image morphing, video tracking, geometric and physical modeling, and behavioral animation. Supporting technologies include speech synthesis and artificial intelligence. Following a brief historical perspective, this panel assesses the state of the art and speculates about the exciting future directions of facial animation.

MODERATOR
Fred Parke Texas A&M University

PANELISTS
Beth Hofer Pacific Data Images
Doug Sweetland Pixar
Demetri Terzopoulos University of Toronto
Keith Waters Digital Equipment Corporation

Papers

Wednesday, 6 August | 2 pm - 3:45 pm | West Hall A

FIX Illumination

CHAIR
Eugene Fiume University of Toronto

- **Fitting Virtual Lights for Non-Diffuse Walkthroughs**
  Bruce Walter, Gun Alppay, Eric Lafortune, Sebastian Fernandez, Donald P. Greenberg
  Cornell University
- **Instant Radiosity**
  Alexander Keller Universität Kaiserslautern
- **Interactive Update of Global Illumination Using Line-Space Hierarchy**
  George Drettakis, Francois Sillion iMAGIS/GRAVIR-INRIA
- **Metropolis Light Transport**
  Eric Veach, Leonidas J. Guibas Stanford University

Panel

Wednesday, 6 August | 2 pm - 3:45 pm | West Hall B

FIX Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation CAL

Cloth and clothing have been part of the human experience for thousands of years. Why is the design of cloth and clothing not fully computerized? This panel looks at the state of the art in cloth and clothing modeling, design, and animation and explores the technical, economic, and marketing hurdles that prevent wider deployment of this technology. The panelists bring wide-ranging perspectives and experience from graphics research labs, an animation studio, an engineering lab, and the apparel CAD industry.

ORGANIZER
David E. Breen California Institute of Technology

PANELISTS
Jeffrey W. Eischen North Carolina State University
Michael Kass Pixar
Nadia Magnenat Thalmann University of Geneva
Maurizio Vecchione ModaCAD Inc.

Panel

Wednesday, 6 August | 2 pm - 3:45 pm | Petree Hall C

AD VR Narrative Environments: Virtual Reality as a Storytelling Medium CAL

Simply put, a VRML environment is a space that tells a story. In the world of matter, this art has been perfected by theme park designers, who have created some of the finest real narrative environments in the world. But in the virtual world, exploration of space as a narrative medium is just beginning. Current applications focus on three dimensions and ignore the fourth: time. This panel discusses the potential and challenges of using virtual reality to tell a story and features examples from designers and artists who have been putting these ideas into practice.

ORGANIZER
Celia Pearce Momentum Media Group

PANELISTS
Brad deGraf Protozoa, Inc.
C. Scott Young Dimensional Graphics
Jim Ludtke CD-ROM Artist
Athomas Goldberg New York University

Papers

Wednesday, 6 August | 4 pm - 5:45 pm | West Hall A

BD Visibility

CHAIR
Thomas Funkhouser Bell Laboratories

- **Visibility Culling Using Hierarchical Occlusion Maps**
  Hansong Zhang, Dinesh Manocha, Thomas Hudson, Kenneth Hoff
  University of North Carolina at Chapel Hill
- **The Visibility Skeleton: A Powerful and Efficient Multi-Purpose Global Visibility Tool**
  Fredo Durand, George Drettakis, Claude Puech iMAGIS/GRAVIR-INRIA
- **Algorithms for Coherent Ray Tracing**
  Matt Pharr, Craig Kolb, Reid Gershbein, Pat Hanrahan Stanford University
- **Illustrating Surface Shape in Volume Data via Principal Direction-Driven 3D Line Integral Convolution**
  Victoria L. Interrante Institute for Computer Applications in Science and Engineering

Panel ***online panel***

Wednesday, 6 August | 4 pm - 5:45 pm | West Hall B

FIX Motion Capture and CG Character Animation CAL

Are classical animation techniques better suited to imparting life to computer-animated characters than performances captured from an actor or puppeteer via motion capture or digital input devices? The panel focuses on the application and value of the many forms of motion-capture technology in CG character animation: full-body motion capture systems, digital and stop-motion armatures, and other real-time physical input media.

ORGANIZER
Gordon Cameron Softimage, Inc.

PANELISTS
Andre Bustanoby Digital Domain
Steph Greenberg Independent Animator
Olivier Ozoux Softimage, Inc.
Craig Hayes Tippett Studios

Panel

Wednesday, 6 August | 4 pm - 5:45 pm | Petree Hall C

AD The Differences Between Here and There: What Graphic Design Brings to E-Space CAL

In the fluid medium of e-space, the primary difference between Web sites, broadcasts, and other forms of communication is visual structure. What do the history and practice of graphic and information design have to offer to a medium created within the technical-scientific community? In this panel, designers discuss the process involved in creating interfaces and the need for a shared vocabulary and set of conventions for electronic spaces.

MODERATOR
Lisa Koonts Graphic and Digital Designer

PANELISTS
Andrew Blauvelt North Carolina State University
Natalie Buda Flagler College
Anne Burdick The Offices of Anne Burdick
Laura Kusumoto LVL Interactive
Edwin Utermohlen North Carolina State University

Papers

Thursday, 7 August | 8:15 am - 10 am | West Hall A

Fur, Film, and Light

CHAIR
Holly Rushmeier IBM TJ Watson Research Center

- **Non-Linear Approximation of Reflectance Functions**
  Eric P.F. Lafortune, Sing-Choong Foo, Kenneth E. Torrance, Donald P. Greenberg Cornell University
- **Fake Fur Rendering**
  Dan B. Goldman Industrial Light & Magic
- **A Model for Simulating the Photographic Development Process on Digital Images** CAL
  Joe Geigel The George Washington University
  F. Kenton Musgrave Digital Domain
- **A Model of Visual Masking for Computer Graphics**
  James A. Ferwerda, Sumant Pattanaik Cornell University
  Peter Shirley University of Utah
  Donald P. Greenberg Cornell University

Panel

Thursday, 7 August | 8:15 am - 10 am | West Hall B

Interfacing Reality: Exploring Emerging Trends Between Humans and Machines

The spontaneous growth of the World Wide Web over the past several years has resulted in a plethora of remote-controlled mechanical devices, all of them accessible from any networked computer in the world. This panel brings together a diverse collection of pioneers who are actively engaged in exploring future directions and implications of Internet-based robots and machinery – in essence, the newly emerging human-machine interface. The panel discusses current and future applications of such technology and several extremely relevant social issues, including: cultural impact, human acceptance, interaction, authenticity, responsibility, privacy, and security.

MODERATOR
Eric Paulos University of California, Berkeley

PANELISTS
John Canny University of California, Berkeley
Eduardo Kac University of Kentucky
Ken Goldberg University of California, Berkeley
Mark Pauline Survival Research Laboratories
Stelarc Performance Artist

Papers

Thursday, 7 August | 10:15 am - noon | West Hall A

Animation

CHAIR
Andy Witkin Carnegie Mellon University

- **Physically Realistic Morphing**
  Jessica K. Hodgins, Nancy S. Pollard Georgia Institute of Technology
- **Anatomy-Based Modeling of the Human Musculature**
  Ferdi Scheepers CSIR
  Richard E. Parent, Wayne E. Carlson, Stephen F. May The Ohio State University
- **Anatomically Based Modeling**
  Jane Wilhelms, Allen Van Gelder University of California, Santa Cruz
- **Modeling the Motion of Hot, Turbulent Gases**
  Nick Foster, Dimitri Metaxas University of Pennsylvania

Panel

Thursday, 7 August | 10:15 am - noon | West Hall B

What 3D API for Java Should I Use and Why?

The Java slogan ("Write once, run anywhere.") has attracted a great deal of attention. Today, 3D graphics professionals are wondering if the slogan can also apply to 3D graphics applications development. This panel brings together representatives from groups that are developing 3D APIs for Java and challenges them to compare and contrast their products' features, differences, performance, portability, and limitations.

ORGANIZER
Dave Nadeau San Diego Supercomputer Center

PANELISTS
Brad Grantham Silicon Graphics, Inc.
Colin McCartney Microsoft RenderMorphics Ltd.
Mitra ParaGraph International
Henry Sowizral Sun Microsystems, Inc.

Panel

Thursday, 7 August | 10:15 am - noon | Petree Hall C

Community/Content/Interface: Creative Online Journalism

The age of information has opened wide ideological doors on the Internet for online journalism. New topics, new forms, and revised (often updated) formats of traditional print media have sprung up around the world like digital weeds. The Web is determined by the cultural fabric of our moment – a product of the zeitgeist of the age of information. How does the technology of the Web determine the quality of online journalism?

MODERATOR
Mark Tribe Rhizome Internet

PANELISTS
Armin Medosch Telepolis Journal
Kathy Rae Huffman pop~TARTS
Lev Manovich University of California, San Diego
Gary Wolf HotWired

Special Session

Thursday, 7 August | 12:15 pm - 1:45 pm | West Hall B

New Realities in Film Production: The Process of Creating Digital Visual Effects

Creative leaders and innovators from The Industry confront realistic production challenges at various stages of the development process, from concept through post-production, and explore solutions that rely on today's (and tomorrow's) technologies.

Papers

Thursday, 7 August | 2 pm - 3:45 pm | West Hall B

BD Surface Simplification

CHAIR
Greg Turk Georgia Institute of Technology

- **View-Dependent Refinement of Progressive Meshes**
  Hugues Hoppe Microsoft Research
- **View-Dependent Simplification of Arbitrary Polygonal Environments**
  David Luebke, Carl Erikson University of North Carolina at Chapel Hill
- **Surface Simplification Using Quadric Error Metrics**
  Michael Garland, Paul S. Heckbert Carnegie Mellon University
- **Progressive Simplicial Complexes**
  Jovan Popovic Carnegie Mellon University
  Hugues Hoppe Microsoft Research

Panel

Thursday, 7 August | 2 pm - 3:45 pm | West Hall A

Educating the Digital Artist for the Entertainment Industry: The Collision of Academia and Business

The explosive growth of digital technology applied to special visual effects and animation has created a desperate need for digital artists to work in film and television. Deeper issues may reflect the different goals of academia and business. This panel addresses these issues, so that each side can better understand the other.

MODERATOR
Charles S. Swartz UCLA Extension

PANELISTS
Ed Catmull Pixar
Robin King Sheridan College
Carl Rosendahl Pacific Data Images
Jane Veeder San Fransisco State University
Richard Weinberg University of Southern California

Panel ***online panel***

Thursday, 7 August | 2 pm - 3:45 pm | Petree Hall C

AD Medical Illustration & Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?

Creating effective illustration requires a clear grasp of the information to be conveyed as well as a visual strategy for making the message clear to the audience. As visualizers, medical illustrators may spend as much time gathering information as finding ways to make the message captivating to particular audiences. With access to high-end 3D animation technology and development tools for creating interactive and simulation products, medical illustrators can create a greater variety of visual solutions than they can with traditional art media. This roundtable discussion promotes critique and evaluation of how computer graphics has made a difference in presenting visual information.

ORGANIZERS
Virginia McArthur Engineering Animation Inc.
Carrie DiLorenzo Engineering Animation Inc.

PANELISTS
Jane Hurd Medical Illustrator
Carol Donner Medical Illustrator
Casey Herbert Flying Foto Factory
Pat Lynch Yale University School of Medicine

Papers

Thursday, 7 August | 4 pm - 5:45 pm | West Hall B

Image-Based Rendering and Panoramas

CHAIR
Michael Cohen Microsoft Corporation

- **Tour Into the Picture**
  Youichi Horry, Ken Anjyo, Kiyoshi Arai Hitachi, Ltd.
- **Rendering with Coherent Layer**
  Jed Lengyel, John Snyder Microsoft Research
- **Multiperspective Panoramas for Cel Animation**
  Daniel Wood University of Washington
  Adam Finkelstein Princeton University
  John Hughes Brown University
  Craig Thayer Disney Feature Animations Studios
  David Salesin University of Washington
- **Creating Full-View Panoramic Mosaics and Texture-Mapped 3D Models**
  Richard Szeliski, Heung-Yeung Shum Microsoft Research

Panel ***online panel***

Thursday, 7 August | 4 pm - 5:45 pm | West Hall A

VR Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In CAL

Who do you want to be today? As thousands of Internet users begin new lives as "avatars" in virtual worlds, a new design industry is emerging. Panelists describe the technologies underlying avatars, design tools for and approaches to building avatars and the worlds they live in, and the psychological relationship between users and their avatars. The discussion features live interaction with multi-user avatar worlds.

MODERATOR
Bruce Damer Contact Consortium

PANELISTS
Steve DiPaola OnLive! Technologies
Ioannis Paniaras University of Art and Design
Kirk Parsons Black Sun Interactive
Bernie Roel University of Waterloo
Moses Ma Internet Game Inc.

Papers

Friday, 8 August | 8:15 am - 10 am | West Hall A

Geometry

CHAIR
John M. Snyder Microsoft Corporation

- **Interactive Multiresolution Mesh Editing**
  Denis Zorin California Institute of Technology
  Wim Sweldens Bell Laboratories
  Peter Schröder California Institute of Technology
- **Interactive Boolean Operations for Conceptual Design of 3D Solids**
  Ari Rappoport The Hebrew University
  Steven Spitz University of Southern California
- **Guaranteeing the Topology of an Implicit Surface Polygonization for Interactive Modeling** CAL
  Barton T. Stander Strata Inc.
  John C. Hart Washington State University
- **Fast Construction of Accurate Quaternion Splines**
  Ravi Ramamoorthi California Institute of Technology
  Al Barr California Institute of Technology

Panel

online panel

Friday, 8 August | 8:15 am - 10 am | Petree Hall C

AD Sounding Off on Audio: The Future of Internet Sound CAL

This panel addresses current breakthrough developments in music and sound for the Internet. Beginning with presentations from several Net audio pioneers, the session evolves into an active discussion between the panelists and the audience. Issues include: 3D sound on the net; levels of detail in Web audio; Avatars and their voices; the move toward an interactive audio specification; general music on the Web; and sound communities. Examples of the panelists' work will be presented on high-end audio systems. This rare opportunity to join the leading developers in defining and understanding the issues and effects of music and audio on the Internet is not a "how-to" session. It addresses: "What's up, what's next, and why?"

ORGANIZER
Paul Godwin New Dog Music

PANELISTS
James Grunke MIDI Manufacturers Association
Eythor Arnalds Oz Interactive Inc.
William Martens University of Aizu
Tim Cole SSEYO Ltd.
David Rivas Sun Microsystems Inc.

Papers

Friday, 8 August | 10:15 am - noon | West Hall B

Hardware and Anti-Aliasing

CHAIR
Frank Crow Interval Research Corporation

- **InfiniteReality: A Real-Time Graphics System**
  John S. Montrym, Daniel R. Baum, David L. Dignam Silicon Graphics, Inc.
- **Efficient Bump Mapping Hardware**
  Mark Peercy, John Airey, Brian Cabral Silicon Graphics, Inc.
- **Hardware Accelerated Rendering of Antialiasing Using a Modified A-Buffer Algorithm**
  Stephanie Winner Apple Computer, Inc.
  Michael Kelley Silicon Graphics, Inc.
  Brent Pease, Alex Yen Apple Computer, Inc.
  Bill Rivard 3Dfx Interactive
- **Anti-Aliasing of Curves by Discrete Pre-Filtering**
  A.E. Fabris Universidade de São Paulo
  A.R. Forrest University of East Anglia

Panel

Friday, 8 August | 10:15 am - noon | West Hall A

Image-Based Rendering: Really New or Deja Vu? CAL

Image-based rendering (IBR), techniques that generate new images from other images rather than geometric primitives, appeared to burst onto the computer graphics scene in the last few years. This panel of pioneering IBR researchers defines IBR and places this emerging technology in a continuum of developments, then speculates on the long-term impact of IBR on computer graphics by addressing issues such as: What is IBR good for? Will IBR replace polygons? What could IBR mean for graphics on the Internet? What are the implications of IBR for hardware design?

ORGANIZER
Michael Cohen Microsoft Corporation

PANELISTS
Eric Chen RealSpace
Marc Levoy Stanford University
Leonard McMillian Massachusetts Institute of Technology
Jitendra Malik University of California, Berkeley

Special Session

Friday, 8 August | 12:15 pm - 1:15 pm | West Hall B

A Framework for Realistic Image Synthesis

Donald P. Greenberg, James Arvo, Eric LaFortune, Kenneth E. Torrance, James A. Ferwerda, Bruce Walter, Peter Shirley, Sumanta Pattanaik, Sing-Choong Foo
Cornell University

The goal is to develop physically based lighting models and perceptually based rendering procedures for computer graphics that will produce synthetic images that are visually and measurably indistinguishable from real-world images. Fidelity of the physical simulation is of primary concern.

The proposed research framework subdivides the system into three sub-sections: the local light reflection model, the energy transport simulation, and the visual display algorithms. The first two subsections are physically based, and the last is perceptually based.

This group's objective is to help establish a more fundamental, scientific approach for future rendering algorithms.

Papers

Friday, 8 August | 1:30 pm - 3:15 pm | Petree Hall C

Devices and Multimodal I/O

CHAIR
Mike Moshell University of Central Florida

- **The Two-User Responsive Workbench: Support for Collaboration Through Individual Views of a Shared Space**
  Maneesh Agrawala, Andrew C. Beers, Bernd Frohlich, Pat Hanrahan Stanford University
  Ian McDowall, Mark Bolas Fakespace, Inc.
- **SCAAT: Incremental Tracking with Incomplete Information**
  Greg Welch, Gary Bishop University of North Carolina at Chapel Hill
- **The Robust Haptic Display of Complex 3D Graphical Environments** CAL
  Diego C. Ruspini, Oussama Khatib Stanford University
  Krasimir Kolarov Interval Research Corporation
- **Video Rewrite: Speaking Through the Mouths of Others**
  Christoph Bregler, Malcolm Slaney, Michele Covell Interval Research Corporation

Papers

Friday, 8 August | 1:30 pm - 3:15 pm | West Hall A

FIX Texture, Reflection, and Design

CHAIR
Demetri Terzopoulos University of Toronto

- **Multiresolution Sampling Procedure for Analysis and Synthesis of Texture Images**
  Jeremy S. DeBonet Massachusetts Institute of Technology
- **Recovering High Dynamic Range Radiance Maps from Photographs**
  Paul E. Debevec, Jitendra Malik University of California, Berkeley
- **Object Shape and Reflectance Modeling from Observation**
  Yoichi Sato Carnegie Mellon University
  Mark D. Wheeler Apple Computer, Inc.
  Katsushi Ikeuchi University of Tokyo
- **Design Galleries: A General Approach to Setting Parameters for Computer Graphics and Animation** CAL
  J. Marks MERL
  B. Andalman Harvard University
  P. Beardsley, W. Freeman, S. Gibson MERL
  J. Hodgins Georgia Institute of Technology
  T. Kang CMU
  B. Mirtich, H. Pfister MERL
  W. Ruml, K. Ryall Harvard University
  J. Seims University of Washington
  S. Shieber Harvard University

Panel

Friday, 8 August | 1:30 pm - 3:15 pm | West Hall B

The Rhetoric of the Synthetic: Images of the Body in Technology, Business, and Culture

What is it that makes Barbie, the Terminator, and the cyborg icons of popular culture? How and why are we using these symbols to represent the human body as beautiful, invincible, and immortal? How does cyberpunk, which exists only as literature, become an actual subculture with its own fashion, language, and values? This panel explores the rhetoric of synthetic images as they appear in technology, business, and culture. The panelists discuss representations of the body in their respective professions as a way of understanding what may be happening to us in the emerging world of digital culture.

ORGANIZER
Lorne Falk ARCHEON

PANELIST
Heidi Gilpin University of Hong Kong
Val Marmillion Pacific Visions
Mark Resch Xerox Corporation
Bill Kroyer Warner Digital Studios

Papers

Friday, 8 August | 3:30 pm - 5:15 pm | West Hall A

AD Non-Photorealistic Rendering

CHAIR
Julie Dorsey Massachusetts Institute of Technology

- **Orientable Textures for Image-Based Pen-and-Ink Illustration**
  Mike Salisbury, Michael Wong University of Washington
  John F. Hughes Brown University
  David H. Salesin University of Washington

- **Processing Images and Video for an Impressionist Effect**
  Peter Litwinowicz Apple Computer, Inc.

- **Real-Time Nonphotorealistic Rendering**
  Lee Markosian, Michael A. Kowalski, Sam Trychin, Lubomir Bourdev, Daniel Goldstein, John F. Hughes Brown University

- **Computer-Generated Watercolor**
  Cassidy J. Curtis University of Washington
  Sean E. Anderson Stanford University
  Kurt W. Fleischer Pixar
  David H. Salesin University of Washington

Panel

Friday, 8 August | 3:30 pm - 5:15 pm | West Hall B

VR Experiences with Virtual Reality Applications CAL

Research in virtual reality is turning the corner from being focused primarily on technology to focusing more and more on what can be done using VR – the content. This panel brings together developers of VR applications in a variety of fields, from education to manufacturing. Panelists discuss how they have applied VR to a specific task, including the choices made during development (visual display paradigms, methods of travel, representation techniques, and technical implementation) and assess the benefits of VR in specific projects.

MODERATOR
William Sherman National Center for Supercomputing Applications

Panelists
Bowin Loftin University of Houston
Benjamin Britton University of Cincinnati
Rita Addison Massachusetts Institute of Technology
Donna Cox National Center for Supercomputing Applications
Robert Patterson National Center for Supercomputing Applications
Nina Adams Adams Consulting Group

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Sketches

Early insights, intellectual adventures, and tentative results. Sketches are presented in four categories:

TECHNICAL
Room 515A, Petree Hall C, Petree Hall D

Late-breaking results, fresh ideas, useful insights, and works in progress. Technical Sketches are lively, less formal gatherings that delve deeply into technical issues.

APPLICATIONS
Room 515A

Computer graphics applied to real-world problems. Application areas include education, industry, government, and research labs.

ART AND DESIGN
Room 515B

Graphic designs and artwork that utilize unique and interesting ideas. Art and Design Sketches provide a forum for creative exchange of ideas among artists.

ANIMATION
Room 151/152

The latest animation techniques, tales of production, and tricks of the trade. Animation Sketches also provide an opportunity to discover how selected pieces from the Computer Animation Festival were created.

Following each Sketches presentation, attendees and presenters are invited to meet in the Sketches Breakout Rooms located in the Creative Applications Lab, West Hall A, for continued discussion.

CHAIR

David Ebert
University of Maryland
Baltimore County

ANIMATION SKETCHES

Jonathan Luskin (Chair)
Franz, Inc.

Pauline Ts'o
Rhythm & Hues Studios

Chris Wedge
Blue Sky Studios

APPLICATION SKETCHES

Roger Crawfis (Chair)
The Ohio State University

Chuck Hansen
University of Utah

Lloyd Treinish
IBM TJ Watson Research Center

ART & DESIGN SKETCHES

Diane Gromala (Chair)
University of Washington

Thecla Schiphorst
Credo Multimedia Software Inc.

Tim Binkley
School of Visual Arts

TECHNICAL SKETCHES

Rick Parent (Chair)
The Ohio State University

Steve Feiner
Columbia University

Andrew Glassner
Microsoft Network

Holly Rushmeier
IBM TJ Watson Research Center

SKETCHES ADMINISTRATIVE ASSISTANT

Susan Wrights
University of Maryland
Baltimore County

TECHNICAL SKETCHES

FIX SIMULATION AND NATURAL PHENOMENA

Wednesday, 6 August | 10:15 am to noon | Petree Hall D | Chair: Holly Rushmeier

Visual Simulation of Waterfalls and Other Water Phenomena

Ashley T. Howes, A.R. Forrest
Computational Geometry Project
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A set of relatively simple rules for use in modeling falling water, using a three-dimensional particle system. The rules have been applied to waterfalls, fountains, and rain.

Volumetric Modeling with Implicit Functions: A Cloud is Born CAL

David S. Ebert
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A new, flexible, natural, intuitive, volumetric modeling and animation technique that combines implicit functions with turbulence-based procedural techniques. A cloud is modeled to demonstrate its advantages.

A Fast Algorithm for Illumination From Curved Reflectors

Gustavo A. Patow
LIFIA - UNLP - ARGENTINA
La Plata
Busenos Aires 1900 ARGENTINA
dagush@sol.info.unlp.edu.ar

Indirect illumination of a surface from a curved mirror is computed by considering the reflector as another light source. The illumination values are computed using only fast scan-line techniques.

A General Model for Simulation of Room Acoustics Based On Hierarchical Radiosity

Nicolas Tsingos, Jean-Dominique Gascuel
iMAGIS-GRAVIR/IMAG
BP53, F-38041
Grenoble, Cedex 09 FRANCE
Nicolas.Tsingos@imag.fr
Jean-Dominique.Gascuel@imag.fr

A new method to compute the impulse response of a given virtual room based on hierarchical radiosity. Unlike previous work, this approach treats complex geometries and is listening-position-independent.

MODELING

Wednesday, 6 August | 2 pm to 3:45 pm | Petree Hall D | Chair: Kevin Weiler

Radial Basis Function Interpolation Surface On Space Mesh

Baocai Yin
Beijing Polytechnic University
Beijing 100022, China
ybc@jdl.mcel.mot.com

Wen Gao
Department of Computer Science
Harbin Institute of Technology
Harbin 150001, CHINA

An algorithm for constructing a smooth interpolation surface on space mesh. The algorithm is a generalization of a radial basis function interpolation surface defined on an approximation surface.

Automatic Reconstruction of Complex 3D Models from a Set of Polylines

Toshi Chang, Luis Canales, Tom Ledoux
CogniSeis Development
2401 Portsmouth
Houston, Texas 77098 USA
toshi@cogniseis.com

A rapid, precise, and efficient algorithm for computation of 3D models such as those used by the CAD, medical, and scientific visualization industries.

Using CSG Representations of Polygons for Practical Point-in-Polygon Tests

Robert Walker and Jack Snoeyink
University of British Columbia
2366 Main Mall
Vancouver, British Columbia
V6T 1Z4 CANADA
walker@cs.ubc.ca

A CSG representation for polygons is used to perform point-in-polygon tests and is compared to existing methods. It is far less memory-intensive than the grid method and faster than basic methods.

Varying Spring Constants for Accurate Simulation of Elastic Materials CAL

Allen Van Gelder and Jane Wilhelms
University of California
Santa Cruz
Santa Cruz, California 95064
USA
avg@cs.ucsc.edu
wilhelms@cs.ucsc.edu

A formula for varying the spring constants in an irregular triangulated spring mesh so that it accurately simulates an elastic membrane. Two QuickTime movies present test results.

ILLUMINATION AND TONE MAPPING

Wednesday, 6 August | 4 pm to 5:45 pm | Petree Hall D | Chair: David Ebert

Display of High-Contrast Images using Models of Visual Adaptation

Jack Tumblin and Jessica Hodgins
Georgia Institute of Technology
ccsupjt@cc.gatech.edu

Brian Guenter
Microsoft Research

Two techniques for display of high contrast images: layering scales three image layers independently, and foveal display for best display of a region indicated by the mouse.

A Visibility Matching Tone Reproduction Operator for High Dynamic Range Scenes

Gregory Ward Larson
(the computer artist formerly known as Greg Ward)
Silicon Graphics, Inc.
2011 North Shoreline Boulevard
M/S 07U-553
Mountain View, California 94043
USA
gregl@sgi.com

Holly Rushmeier
IBM TJ Watson Research Laboratory

Christine Piatko
JHU/APL

A tone-reproduction operator that preserves visibility in high dynamic range scenes. The method incorporates models for human contrast sensitivity, glare, spatial acuity, and color sensitivity.

Validating Global Illumination Algorithms and Software

Karol Myszkowski
University of Aizu
k-myszk@u-aizu.ac.jp

Andrei Khodulev, Edward A. Kopylov
Keldysh Institute of Applied Mathematics
Russian Academy of Sciences

Photographic images of real-world environments were compared to synthetic images of those environments in order to evaluate the accuracy of our lighting simulation both qualitatively and quantitatively.

Composite Lighting Simulations with Lighting Networks

Philipp Slusallek, Marc Stamminger, Wolfgang Heidrich
Jan-Christian Popp, Hans-Pieter Seidel
Computer Graphics Group - IMMD IX
University of Erlangen
Am Weichselgarten 9
91058 Erlangen, Germany
slusallek@informatik.uni-erlangen.de

This extension to multi-pass global illumination algorithms allows flexible combination of the advantages of several algorithms by connecting them in the form of a dataflow graph.

AD PAPERS, LINES, AND LETTERS

Thursday, 7 August | 8:15 am to 10 am | Petree Hall D | Chair: Andrew Glassner

Live Web Stationery: Virtual Paper Aging

Doree Duncan Seligmann, and
Stephan Vladimir Bugaj
Bell Laboratories of Lucent Technologies
101 Crawfords Corner Road
Holmdel, New Jersey 07733 USA
doree@bell-labs.com
bugaj@bell-labs.com
http://www.multimedia.bell-labs.com

Visualization of a Web page's life on the net by automatically generating a background image of paper subjected to a hostile environment and human handling.

An Improvement on Line Scan-Conversion

Jim X. Chen
George Mason University
jchen@leibniz.cadsim2.gmu.edu

A scan-converted straight line may contain many pixel segments of identical shapes. Therefore, instead of scan-converting the whole line step by step, multiple segments of a line can be scan-converted through copying and replicating.

LiveType: a Parametric Font Model Based on Features and Constraints CAL

Ariel Shamir and Ari Rappoport
The Hebrew University
Jerusalem 91904, ISRAEL
{arik,arir}@cs.huji.ac.il
http://www.cs.huji.ac.il

A new font model based on features, parameters, and constraints. Glyphs are composed of typographic features including constraints defined between geometric elements. Parameter modifications lead to real-time constraint evaluation.

IMAGING

Thursday, 7 August | 10:15 am to noon | Petree Hall D | Chair: Bill Lorenson

Texture Maps from Orthographic Video

Brian Jones
Georgia Institute of Technology
GCATT Building, Suite M14
250 14th Street NW
Atlanta, Georgia 30332-0130
USA
brian.jones@oip.gatech.edu

An attempt to enhance virtual spaces by providing a method for producing photographic-like texture maps from captured video.

Disparity Morphing for Automatic Generation of Stereo Panoramas for Image-Based VR

Ho-Chao Huang, Yi-Ping Hung
Academia Sinica
Taipei, Taiwan, ROC
jet@iis.sinica.edu.tw
hung@iis.sinica.edu.tw

High-quality stereo panoramas are difficult to achieve. This sketch describes a disparity morphing technique to correct the image disparities of adjacent images and produce high-quality stereo panoramas.

Interactive Contour Modeling Applied to Image Querying

Zhibin Lei, David B. Cooper
Brown University
Providence, Rhode Island 02912
USA
zbl@lems.brown.edu

An interactive contour modeling technique using implicit polynomial representations, and its application to content-based image querying.

Curvelet Feature Extraction and Matching for Image Retrieval

Zhibin Lei
Brown University
Providence, Rhode Island 02912
USA
zbl@lems.brown.edu

Yin Chan
Princeton University
Princeton, New Jersey 08540
USA

A prototype image-query-by-sketch system that automatically extracts prominent geometric shape structures from images and uses them to compute the similarity values between images.

FIX ANIMATION

Thursday, 7 August | 2 pm to 3:45 pm | Petree Hall D | Chair: Norm Badler

Visual Behavior Programming with Automatic Script Code Generation
Shigeo Nakagawa
Hirofumi Ishida
NEC Corporation
4-1-1 Miyazaki Miyamae-ku
Kawasaki 216 JAPAN
naka@mmp.cl.nec.co.jp
ishida@mmp.cl.nec.co.jp

A VRML2.0 content authoring tool with an intuitive visual behavior programming interface.

Making Them Behave
John Funge and Xiaoyuan Tu
University of Toronto
10 King's College Road
Toronto, Ontario M5S 3G4
CANADA
{funge,tu}@cs.toronto.edu
http://www.cs.toronto.edu/~funge

A logic representation to simplify specifying high-level behaviors for animated characters, including a character design workbench with examples of "merpeople" engaged in pursuit and evasion behaviors.

Learning Fast Neural Network Emulators for Physics-Based Models
Radek Grzeszczuk, Demetri Terzopoulos, Geoffrey Hinton
University of Toronto
radek@vis.toronto.edu

Generation of physically realistic animation using trained neural networks that can emulate non-trivial physics-based models one or two orders of magnitude faster than conventional numerical simulation.

Combining Active and Passive Simulations for Secondary Motion
Jessica K. Hodgins, James F. O'Brien, Victor B. Zordan
Georgia Institute of Technology
jkh@cc.gatech.edu

Secondary motion is generated by coupling active and passive simulations, and demonstrated with animations of jumping on a trampoline, vaulting onto a mat, and swinging while wearing a skirt.

FIX FUR, FILM, AND TEXTURES

Thursday, 7 August | 4 pm to 5:45 pm | Petree Hall D | Chair: Brian Wyvill

Rendering with Paintstrokes
Ivan Neulander
University of Toronto
ivan@dgp.utoronto.ca
http://www.dgp.utoronto.ca/people/ivan/ivan.html

A rendering meta-primitive based on the generalized cylinder and an algorithm that dynamically tesselates it into optimal arrangements of polygons relative to the viewer's position and orientation.

Motion Tracking for Special Effects in the Film industry CAL
Maria Lando
BOSS Film Studios
13335 Maxella Avenue
Marina Del Rey, California
90292 USA
maria@boss.com

Application of computer vision algorithms (particularly motion tracking) in the film industry, including an advantageous architecture for a 2D/3D tracking module and optimal motion recovery algorithms.

Textured Rulers and Arcs
Chris Shaw
University of Regina
3737 Wascana Parkway
Regina, Saskatchewan, S4S 0A2
CANADA
cdshaw@cs.uregina.ca
http://www.cs.uregina.ca/~cdshaw

Texture maps representing linear and arc measurement scales provide a visually accessible set of measurements without adding scene clutter or auxiliary measurement widgets.

Texturing Implicit Surfaces with Particle Systems
Ruben Zonenschein, Jonas Gomes, Luiz Velho
IMPA
110 - Jardim Botanico
Rio de Janeiro, BRAZIL
ruben@visgraf.impa.br

Luiz Henrique de Figueiredo
Laboratorio Nacional de Computação Cientifica

An intuitive yet effective method to apply bidimensional texture onto implicit surfaces. Unlike other methods, this approach includes effective tools for controlling the placement of the applied texture.

BD LEVEL OF DETAIL

Thursday, 7 August | 4 pm to 5:45 pm | Petree Hall C | Chair: Jules Bloomenthal

Fast Polygonal Simplification with Vertex-Cluster Trees
Joshua D. Mittleman, Jai Menon
IBM TJ Watson Research Center
Yorktown Heights, New York
10598 USA
{mittle,menon}@watson.ibm.com

A new data structure and algorithm for fast computation of static levels of detail, using vertex clustering and allowing adaptive simplification based on various geometric and topological criteria.

Model Simplification Using Directional Clustering
Dana Marshall, A.T. Campbell, III, and Donald S. Fussell
The University of Texas at Austin
Austin, Texas 78712 USA
dane@cs.utexas.edu

Enhancement of model simplification with a non-topographic metric and a directional clustering algorithm that uses both geometry compression and real-time, animation-dependent calculation.

A Wavelet-Based Multiresolution Polyhedral Object Representation
Mike M. Chow, Marek Teichmann
Massachusetts Institute of Technology
{mchow,marekt}@graphics.lcs.mit.edu
http://graphics.lcs.mit.edu/~mchow

Wavelet compression of a volumetric representation of polyhedral surfaces, which are represented by the zero set of a distance function.

Intelligent Transmission of 3D Polygonal Models CAL
Peter Brown
University of Cambridge
Cambridge CB2 3QG
UNITED KINGDOM
Peter.Brown@cl.cam.ac.uk
http://www.cl.cam.ac.uk/users/pjcb2/

A framework offering improved Level of Detail handling in VRML. Models are decomposed into fragments, which are transmitted and rendered as required to meet user-specified resolution requirements.

HARDWARE

Friday, 8 August | 8:15 am to 10 am | Petree Hall D | Chair: Turner Whitted

Delivering High Quality 3D to Every Desk
Rick Humphrey
Fujitsu Microelectronics, Inc.
3545 North First Street
San Jose, California 95134 USA
rhumphre@fmi.fujitsu.com

Agha Ahsan
MultiDimensional Consulting, Inc.

The Talisman 3D graphics architecture was designed for scaleability. This sketch describes integration of Talisman into a cost-effective ASIC for high-volume Windows PC applications in 1998.

Practical SIMD
William Bryant
Engineering Manager,
New-Media Software
Sun Microsystems, Inc.
2550 Garcia Avenue,
MSSUN02-104
Mountain View, California
94043-1100 USA
william.bryant@eng.sun.com

Multimedia instruction sets using SIMD technology enable significant multimedia performance improvements. A low-level library like mediaLib offers easier use and accessibility to new media developers.

The Haptic Lens CAL
Michael Sinclair
Georgia Institute of Technology
250 14th Street NW
Atlanta, Georgia 30332-0130
USA
michael.sinclair@oip.gatech.edu

3D sensor and supporting software that enables real-time visualization of the haptic sense of pressure. Applications include palpation, robotics, and a novel 3D input device.

A Low-Cost Digital Panoramic Camera CAL
Michael Sinclair
Georgia Institute of Technology
250 14th Street NW
Atlanta, Georgia 30332-0130
USA
michael.sinclair@oip.gatech.edu

A method to convert a commercially available digital hand scanner to a digital panoramic camera. High-quality 360-degree images are produced for use in presentations like QuickTime VR.

VR 3D UIs AND VE

Friday, 8 August | 10:15 am to noon | Petree Hall D | Chair: Steven Feiner

3D Digitizing Made Easier by Unstructured Sketching
Song Han and Gerard Medioni
Integrated Media Systems Center
and Institute for Robotics and
Intelligent Systems
University of Southern California
Los Angeles, California 90089
USA
han@seer.usc.edu

The user sketches a few strokes and sees a 3D "clay" prototype. When the user adds more random strokes, the prototype surface automatically adapts to follow the pen, and the crease and corner features are automatically detected and aligned.

Feature Based Haptic Rendering: Architecture, Protocol, and Application
Juli Yamashita, Cai Yi, Yukio Fukui
National Institute of Bioscience
and Human Technology
1-1, Higashi
Tsukuba, Ibaraki, 305 JAPAN
juli@nibh.go.jp
fukui@nibh.go.jp
ycai@nibh.go.jp

Since haptic rendering requires very high control rate (~kHz), it must be separated from graphic rendering and modeling processes. Feature based haptic rendering is a new, general protocol for data exchanging between such decoupled processes.

A Model for Managing Level of Detail with Head-Tracked Peripheral Degradation
Benjamin Watson, Larry Hodges,
Neff Walker
Georgia Institute of Technology
801 Atlantic Drive
Atlanta, Georgia 30332-0280
USA
watsonb@cc.gatech.edu
neff.walker@psych.gatech.edu
larry@cc.gatech.edu

A psychophysically based model for reducing peripheral detail with head-tracking. The model indicates that central detail of 30 horizontal and vertical degrees is adequate. This sketch presents experimental confirmation.

Virtual Backdrops
Daniel G. Aliaga, Anselmo A.
Lastra
Computer Science Department
University of North Carolina at
Chapel Hill
Chapel Hill, North Carolina
27599-3175
aliaga@cs.unc.edu

Simplification of architectural, CAD, and other indoor models by dynamically inserting textures into the model. This approach eliminates many of the geometric and temporal discontinuities present in texture-based simplification.

AD ARTISTIC RENDERING

Friday, 8 August | 1:30 pm to 3:15 pm | Petree Hall D | Chair: F. Kenton Musgrave

Linear Colour Contouring for Fine Art Printmaking
Peter Lee
15 Mayhill Road, Charlton
London SE7 7JG
UNITED KINGDOM
george@camwell.demon.co.uk

A method to facilitate creation of colour-contoured depictions of 3D-modeled compositions and their subsequent transfer to traditional fine art print media.

Integrating Digital Media and Autographic Fine Art Printmaking
Raz Barfield
28 Monkridge
Crouch End Hill
London N8 8DE
UNITED KINGDOM
george@camwell.demon.co.uk

A method for traditional printmakers to combat inexpressive output media and maintain a sense of creative freedom up to the moment of printing, with a more formally satisfying end result.

Microscopic Structural Modeling of Colored Pencil Drawings
Saeko Takagi, Issei Fujishiro
Ochanomizu University
Bunkyo-ku
Tokyo, JAPAN
{takagi,fuji}@imv.is.ocha.ac.jp

In order to realize a next-generation digital painting system, the functionality of colored pencil drawings, 3D microscopic structures of superficial layers of drawing papers, and pigment distribution are modeled.

Rendering With Streamlines
Richard Coutts
Donald P. Greenberg
580 Rhodes Hall
Cornell University
Ithaca, New York 14852 USA
rcoutts@graphics.cornell.edu

In this technique for generating pen-and-ink drawings, vector field streamlines are used to approximate the hatch marks of traditional artists. The streamlines are calculated by a new one-pass algorithm.

CAL: CREATIONS FROM AND LESSONS LEARNED IN THE CREATIVE APPLICATIONS LAB

Friday, 8 August | 1:30 pm to 3:15 pm | Room 515A | Chair: Steve Anderson

DISPLAY TOOLS

Friday, 8 August | 3:30 pm to 5:15 pm | Petree Hall D | Chair: Larry Gritz

Genetic Shaders: Interactive and Automatic Shader Generation
Aladin M. Ibrahim and
Donald H. House
Texas A&M University
College Station, Texas 77843
USA
aladin@viz.tamu.edu
house@viz.tamu.edu

A system that generates procedural textures or shaders using genetic algorithm techniques. The system operates in both artist-directed or automatic texture matching modes.

Sampling Procedural Shaders Using Affine Arithmetic
Wolfgang Heidrich, Philipp Slusallek, Hans-Peter Seidel
University of Erlangen
Am Weichselgarten 9
91058 Erlangen, Germany
heidrich@informatik.uni-erlangen.de

By evaluating procedural shaders with affine arithmetic instead of normal floating-point arithmetic, it is possible to obtain tight, conservative error bounds for area samples of the shader.

InvenTcl: Making Open Inventor Interpretive with Tcl/[incr Tcl]
Sidney Fels, Silvio Esser, Armin Bruderlin, Kenji Mase
ATR Media Integration & Communication
Seika-cho Soraku-gun
Kyoto 619-02, JAPAN
fels@mic.atr.co.jp

An interpretive implementation of Open Inventor using Tcl/Tk that provides interpretive access to Open Inventor for object creation, object interaction, and animation.

The Contour Spectrum
Chandrajit L. Bajaj, Valerio Pascucci, and Daniel R. Schikore
1398 Computer Sciences Building
Purdue University
West Lafayette, Indiana 47906
USA
{bajaj,pascucci,schikore}@cs.purdue.edu

A new user interface component for scientific visualization: a signature consisting of a variety of scalar data and contour attributes, presented to the user as 1D/2D plots for static/time-varying data.

BD VISUALIZATION

Thursday, 7 August | 8:15 am to 10 am | Room 515A | Chair: Lloyd Trenish

Computer-Generated Physical Models for Scientific and Engineering Visualization: VR - V = R

Michael J. Bailey and Dru Clark
University of California at San Diego and San Diego Supercomputer Center
P.O. Box 85608
San Diego, California 92186
USA
mjb@sdsc.edu
dru@sdsc.edu
http://www.sdsc.edu/tmf

A project that uses physical model making as an everyday aspect of scientific and engineering visualization. The equipment is interfaced to the Internet to make it easier to access remotely.

Hardware-Assisted Volume Rendering for Oil and Gas Exploration CAL

Alan Y. Commike and Scott Senften
Silicon Graphics, Inc.
11490 Westheimer, Suite 100
Houston, Texas 77077 USA
{senften,commike}@sgi.com

Using 3D textures to both volume render a survey and map survey data onto embedded surfaces: a natural progression from massively parallel software volume renderers.

WormPlots

Geoffrey Matthews
Western Washington University
Bellingham, Washington 98225
USA
matthews@cs.wwu.edu

Mike Roze
Applied Software Technology, Inc.
25 Central Way, STE 333
Kirkland, Washington 98003
USA
roze@astnet.com

A technique for visualizing multivariate time series. Time slices are summarized by group into polygons and the slices connected over time to make worm-like spacetime projections.

A Visualization of Music

Sean M. Smith
Glen N. Williams
Texas A&M University
College Station, Texas 77843
USA
seans@stlnet.com
williams@cs.tamu.edu

The most popular method of visualizing music is music notation. However, most listeners are unfamiliar or uncomfortable with the complex nature of music notation. The goal of this project is to present an alternate method of visualizing music.

VR VIRTUAL ENVIRONMENTS

Thursday, 7 August | 10:15 am to noon | Room 515A | Chair: Chuck Hansen

The Mirror: Reflections on Inhabited TV

Graham Walker
BT Laboratories
Admin 2/op6b, BT Laboratories
Martlesham Heath, Ipswich
IP5 7RE UNITED KINGDOM
graham.walker@bt-sys.bt.co.uk

Rodger Lea
Sony Distributed Systems Lab
Suite 1140 Regency Plaza
2350 Mission College Boulevard
Santa Clara, California 95054
USA
rodger@csl.sony.co.jp

The Mirror was a ground-breaking collaborative experiment in Inhabited TV. Six shared online VRML2.0 worlds were available to over 2,000 viewers of the BBC2 series "The Net" in early 1997.

Peloton: A VRML-Based Bicycling Simulator

J. Robert Ensor
Gianpaolo U. Carraro
Bell Laboratories
101 Crawfords Corner Road
Holmdel, New Jersey 07733 USA
jre@dnrc.bell-labs.com
paolo@dnrc.bell-labs.com

A simulator, suitable for athletic competition, that creates virtual environments for bicycle rides. It is an experiment to discover ways to build virtual reality systems on the Web.

The Electric Body Project

Thecla Schiphorst
Sang Mah
Credo Multimedia Software Inc.
1128 Rose Street
Vancouver, British Columbia
V5L 4K8 CANADA
thecla@cs.sfu.ca
sang@cs.sfu.ca

A software tool for creating choreography using gestural sampling and mapping techniques. Movement is sampled using Ascension Technologies Flock of Birds and then metaphorically treated with user-defined filters and maps. This project has been sponsored by the Media Arts Section of the Canada Council.

EDUCATION AND INFORMATION

Friday, 8 August | 8:15 am to 10 am | Room 515A | Chair: Roger Crawfis

Visualization of the Best Approximation
Li Chao
University of Houston Victoria
2506 East Red River
Victoria, Texas 77901 USA
chaol@cobalt.vic.uh.edu

A computer graphics project that visualizes the best approximation process in a linear algebra class. Given a subspace spanned by vectors U and V, a mouse or slider is used to search the projection of a vector W onto the subspace.

RenderComp: The New Video Editing Workflow Paradigm for Digital Video Publishing
Marcus Julian
Vibrint Technologies
23 Crosby Drive
Bedford, Massachusetts 01730
mfj@vibrint.com

RenderComp is an application that allows image rendering and MPEG compression to occur as a single real-time process, providing superior quality titles when compared to video constructed and compressed in separate systems.

Text-Driven Deaf-Mute Sign Language Synthesis System
Yibo Song, Wen Gao, Baocai Yin, Ying Liu, Lin Xu, Jie Yan, Haito Chen, and Jian Zhou
Harbin Institute of Technology
Harbin 150001, CHINA
syb@vilab.hit.edu.cn
wgao@jdl.mcel.mot.com
ybc@jdl.mcel.mot.com

A text-driven sign language synthesis system that improves the kinetic control model of a 3D human hand and arm, a 3D human body geometric model, and experiment results.

AD ART APPLICATIONS

Friday, 8 August | 10:15 am to noon | Room 515A | Chair: Lloyd Trenish

Virtual Arts Therapies
Rebecca Mercuri
Ranjit Bhatnagar
University of Pennsylvania
P.O. Box 1166 - CSMT
Philadelphia, Pennsylvania 19105 USA
mercuri@acm.org

A combination of traditional arts therapy techniques with computer technology to alleviate symptoms, enhance creativity, induce relaxation, and promote client well-being.

Working within the Grid: Interactive Foundations Design Problems Using Grid Structures
Patricia Nelson
Barbara Giorgio-Booher
Ball State University
Muncie, Indiana 47306 USA
pnelson@wp.bsu.edu
bgiorgio@wp.bsu.edu

Loren Mork
Cool Software Inc.
355 NW 200th
Seattle, Washington 98177 USA
lmork@aol.com

Using short interactive programs authored in Director to explore visible and invisible grids.

WordNozzle: Painting With Words
Jason Lewis
Interval Research Corporation
1801c Page Mill Road
Palo Alto, California 94103 USA
lewis@interval.com

An experiment in "painting" with text that enables the user to select any text-only file as input to the "nozzle" and spray words in a continuous stream while controlling the font, size, style, and color of the text.

Visualizing the Midway Face of the Dixie National Forest
Donald House, Scott Arvin, and Greg Schmidt
Visualization Lab
Texas A&M University
College Station, Texas 77843 USA
gschmidt@cs.tamu.edu
http://www-viz.tamu.edu/students/greg/greg.html

Midori Kitagawa DeLeon
The Ohio State University

The process used to create a highly realistic animated walk-through of an existing forest.

ART AND DESIGN SKETCHES

AD ARTIST SESSION 1 –
ONGOINGS: THE SIGGRAPH 97 FINE ARTS GALLERY

Wednesday, 6 August | 10:15 am to noon | Room 515B

Chair: Jeremy Gardiner

John S. Banks
Rising Star Ltd.

Anna M. Chupa
Mississippi State University

Diane Fenster

Chris S. Johnson
Northern Arizona University

Michael O'Rourke
Pratt Institute

Anna Ullrich

AD ARTIST SESSION 2 –
ONGOINGS: THE SIGGRAPH 97 FINE ARTS GALLERY

Wednesday, 6 August | 2 pm to 3:45 pm | Room 515B

Chair: Roger Malina, Leonardo

Sheriann Ki-Sun Burnham

Phillip George

Madge Gleeson
Western Washington University

Ken Gonzales-Day

Jean-Pierre Hibert

Tammy Knipp
Florida Atlantic University

Roman Verostko

AD VR MOVING: AGENCY FOR VIRTUAL SPACES

Wednesday, 6 August | 4 pm to 5:45 pm | Room 515B | Chair: Thecla Shiphorst

Using Video to Create Avatars in Virtual Reality
Joseph A. Insley, Daniel J. Sandin, and Thomas A. DeFanti
University of Illinois at Chicago
851 South Morgan Street, 1120
Chicago, Illinois USA 60607 USA
uinsley@evl.uic.edu

A collection of functions that can be used to add static, photo-realistic, three-dimensional representations of remote users, as well as other objects or agents, to virtual reality applications. The process involves obtaining views from 360 degrees around the person, then selecting two of these images, one for each eye, to represent the user in 3D space.

Dream Grrrls: Metaphors
Margaret Dolinsky, Grit Sehmisch
Electronic Visualization Laboratory
University of Illinois at Chicago
851 South Morgan Street, 1120
Chicago, Illinois USA 60607 USA
dolinsky@evl.uic.edu

A virtual environment created in the CAVE that focuses on the immersive nature of dreams, Dream Grrrls allows users to experience their world in a new and dynamic way, much like an active or lucid dream.

CyberHuman Dance Series: An Articulation of Body, Space, and Motion in Performance
Katie Salen and Yacov Sharir
University of Texas at Austin
Austin, Texas 78712 USA
zed@mail.utexas.edu

An experimental dance work exploring: simulations of physical and virtual phenomena in the context of performance, metaphors of virtual spaces and bodies, and exchange and modification of narrative identities.

Disability in the Arts
Jon Berge
The Ohio State University
753 Oak Street
Columbus, Ohio 43205 USA
jberge@cgrg.ohi-state.edu

Educating and encouraging people – regardless of prior experience, physical limitations, age, or ethnicity – to examine the relevance of art and accessibility in their own lives.

AD SITTING: THE SEAT FOR VIRTUAL TRAVEL

Thursday, 7 August | 10:15 am to noon | Room 515B | Chair: Diane Gromala

Multimedia Metamorphosis (or making the medium shoe fit)
M.R.Petit
104 Suffolk Street
New York, New York 10002 USA
http://www.weirdos.com
http://www.echonyc.com/~mrp
http://www.somewhere.org
petit@echonyc.com

A large portion of the author's work has entailed taking a theme or story and giving it life in a variety of media. This sketch examines the implications of traversing media (performance, CD-ROM, Web sites).

Technophobia CAL
Dooley Le Cappellaine
284 Mott Street #9K
New York, New York 10012 USA
dooley@thing.net
http://www.thing.net/dooley

An interactive exhibition of original multimedia art. In addition to the original multimedia artwork, the CD also provides access to studio visits with the artists.

izzy bombus and the story of flight CAL
Sandy Lowrance
Art Department
Campus Box 526715
The University of Memphis
Memphis, Tennessee 38152 USA
sllowrnc@memphis.edu

A prototype CD-ROM consisting of an animated story with associated games and educational activities for children ages four through seven.

An American Gothic ... or a Pound of Prevention
Elliott Peter Earls
The Apollo Program
82 East Elm Street
Greenwich, Connecticut 06830 USA
elliott@theapolloprogram.com

Music, poetry, images, and QuickTime movies in two dual-format CD-ROMs.

VR VIRTUAL REALITY BD BIG DATA FIX ANIMATION & SPECIAL EFFECTS AD ART & DESIGN API API CAL CREATIVE APPLICATIONS LAB

AD SAYING: WORDS FOR ELECTRONIC DISCOURSE

Thursday, 7 August | 2 pm to 3:45 pm | Room 515B | Chair: Tim Binkley

Design Speech Acts: "How to do things with words" in Virtual Communities CAL

Anna Cicognani
University of Sydney
New South Wales 2006
AUSTRALIA
anna@arch.usyd.edu.au
http://www.arch.usyd.edu.au/~anna

A first model for structuring and defining speech acts for design, so that a meta-language for design can be subsequently developed.

Agree to Disagree Online CAL

Janet Cohen, Keith Frank, Jon Ippolito
345 Greenwich Street, #5A
New York, New York 10013 USA
cohen@interport.net
http://www.interport.net/~gering

A series of arguments, beginning with the inflammatory statement: "In the future, books will be replaced by maps," in both time and space.

Gradus: Revealing the Shape of the English Language

Matt Grenby
MIT Media Lab
20 Ames Street
Cambridge, Massachusetts
02139 USA
grenby@media.mit.edu

In this visual representation of the English language, dictionary headwords are plotted along three dimensions: alphabetic, time, familiarity. The emergent shape offers insight into the nature of the language.

Computer Graphics as Stainless Steel Output

Ronald Carraher
University of Washington
Seattle Wasington 98195-3440
USA
rgc@u.washington.edu

Computer graphics that incorporate typography for output on stainless steel using chemical machining. Examples illustrate resolution, fenestrations, surface qualities, scale considerations, and conceptual possibilities.

AD TOOLING: IMPLEMENTS FOR CREATIVITY

Friday, 8 August | 8:15 am to 10 am | Room 515B | Chair: Louise Sandhaus

Hand Held Tools for Navigating Information

David Small
MIT Media Lab
20 Ames Street
Cambridge, Massachusetts
02139 USA
dsmall@media.mit.edu

Two mechanical interfaces (one concrete, one highly abstract) control computer graphics, not simply to produce a pretty picture, but to forge a deeper understanding of the subject matter.

Dynamic3: Interactive Physics and Physicality In Three Dimensions

Reed Kram and John Maeda
MIT Media Lab
20 Ames Street
Cambridge, Massachusetts
02139 USA
kram@media.mit.edu

In this study, two physical cubes control a malleable hierarchical data structure. By using interactive particle physics, objects react in ways that correspond to our existing assumptions about our physical world.

A Zooming Sketchpad, a Multiscale Narrative: Pad++, PadDraw, Gray Matters CAL

Noah Wardrip-Fruin, Jon Meyer, Ken Perlin
New York University
719 Broadway, 12th Floor
New York, New York 10003 USA
noah@cat.nyu.edu

Ben Bederson, Jim Hollan
University of New Mexico

Pad++ is a substrate for zooming applications. PadDraw is a zoomable sketchpad. Gray Matters is a collaborative multiscale visual hyperfiction.

Multimedia Interactive Artist's Archive and Retrospective CAL

Josepha Haveman
A/PIX computer art center
P.O. Box 9053
Berkeley California 94708 USA
JosephaH@aol.com
http://www.illuminated.com/JH_ArtArchive/

A portfolio and a form of catalog: an artist-produced CD-ROM, arranged by media category and presented in dynamic formats. Hyperlinks connect with animations, texts, etc.

AD BENDING: CORN, FACE, AND GENDER FOR SOCIAL PROVOCATION

Friday, 8 August | 10:15 am to noon | Room 515B | Chair: Anne Burdick

Genderbender, Smartstall, The Automatic Confession Machine

Gregory Patrick Garvey
Concordia University
1455 de Maisonneuve Boulevard West
Montréal, Québec H3GA 1M8
CANADA
ggarvey@vax2.concordia.ca

A review of three works: *Genderbender, Smart Stall* (exhibited in The Bridge: SIGGRAPH 96 Art Show), and *The Automatic Confession Machine* (exhibited in Machine Culture, SIGGRAPH 93).

'The Virtual Harvester Project CAL

Johann van der Schijff
MEDIA-GN
Hoendiepskade 23 A
9718 BG Groningen
THE NETHERLANDS
schijff@scan.media-gn.nl
http://www.media-gn.nl/people/johannvdS/index.html

An attempt to address the need for global commitment and action to fight one of human society's most basic problems: food insecurity.

Making Caricatures with Morphing CAL

Ergun Akleman
Texas A&M University
College Station, Texas 77843
USA
ergun@viz.tamu.edu
http://www-viz.tamu.edu/faculty/ergun/artworks/artworks.html

When using an interactive morphing tool, there is no need for the special talent of a caricaturist. This sketch introduces a new procedure for using morphing to make caricatures from photographs.

FIX FULL BODY ANIMATION

Wednesday, 6 August | 2 pm to 3:45 pm | Room 151/152 | Chair: David Novak

Performance Capture and Character Animation
André Bustanoby
Digital Domain
300 Rose Avenue
Venice, California 90291
apb@d2.com

Using performance capture techniques and cutting-edge computer graphics to bring the performance art of Michael Jackson and Andre Agassi into the realm of digital characters.

Motion Capture and Puppetry
Emre Yilmaz
Protozoa, Inc.
2727 Mariposa Street
Studio 100
San Francisco, California 94110
USA
emre@protozoa.com

It is possible to do a wider range of work with motion capture than is generally recognized, by using it more like puppetry and less like acting.

Ubiquitous Animation: An Element-Based Concept to Make 3D Animations Commonplace CAL
Ralf Dörner, Volker Luckas, Ulrike Spierling
Fraunhofer Institute for Computer Graphics
Rundeturmstrasse 6
D-64283 Darmstadt
GERMANY
{doerner,luckas,ulisp}@igd.fhg.de
http://www.igd.fhg.de

First results of, and examples made in an industrial context with, CASUS Base, a universal animation elements library that allows everyone to create animations for everything.

Isaacks: From Life Forms Choreography to Animation CAL
Jimmy Gamonet de Los Heros
The Miami City Ballet Company

Sang Mah
Credo Interactive, Inc.
sang@cs.sfu.ca

Performance animation in a different mode: a three-minute animation with 18 dancers choreographed with virtual performers.

FIX VISUAL STYLES

Wednesday, 6 August | 4 pm to 5:45 pm | Room 151/152 | Chair: Jonathan Luskin

The Tapir: Combining Myth and Contemporary Musical Structures to Create a Personal Perspective with 3D Computer Animation
Raquel Coelho
Blue Sky Studios
One South Road
Harrison, New York 10528 USA
raquel@ns.blueskystudios.com

How 3D computer animation can expand the idea of storytelling: using the 3D environment and computer-generated images to embody a personal vision.

"Hercules:" The 30-Headed Hydra
Roger L. Gould
Walt Disney Feature Animation
2100 Riverside Drive
Burbank, California 91521 USA
rogerg@fa.disney.com

For Disney's "Hercules," a team of artists and technical directors collaborated to animate a 30-headed Hydra, the first computer-animated character ever to co-star in a traditionally animated film.

Turner Classic Movies: "Hopper"
Tom McClure, Jeffery Roth, Colin Miller, Ingrid Overgard, Jance Allen, Jana Canellos
Colossal Pictures
2800 Third Street
San Francisco, California 94107
USA
jeffrey@colossal.com

A literal example of animated art: digitally manipulated traditional animation combined with 3D environments brings Edward Hopper's art to life.

Up...Down...Up
Betsy de Fries, Jerry van de Beek
Little Fluffy Clouds
Pier 29 Annex
San Francisco, California 94111
USA
betsy@littlefluffyclouds.com

A 30-second animation that seamlessly combines traditional cel animation with new and unique techniques in 3D digital animation, creating an elegant black-and-white, two-dimensional, woodcut look.

DYNAMICS AND CHARACTER MOTION

Thursday, 7 August | 8:15 am to 10 am | Room 151/152 | Chair: Tom Porter

Dynamically Simulated Characters in Virtual Environments
David C. Brogan, Ronald A. Metoyer, Jessica K. Hodgins
Georgia Institute of Technology
Atlanta, Georgia 30332 USA
jkh@cc.gatech.edu

Two virtual environments populated by dynamically simulated characters: an interactive game with one-legged robots and a model of the 1996 Atlanta Road Race Course with virtual bicyclists.

Transitions Between Dynamically Simulated Motions: Leaping, Tumbling, Landing, and Balancing
Wayne L. Wooten
Jessica K. Hodgins
Georgia Institute of Technology
Atlanta, Georgia 30332 USA
wlw@cc.gatech.edu

Transitions between parameterized control systems for leaping, tumbling, landing, and balancing produce a diverse set of behaviors for dynamically simulated male and female characters.

Animating Quadrupeds with Footprints
Nick Torkos, Michiel van de Panne
University of Toronto
torkos@dgp.toronto.edu
http://www.dgp.utoronto.ca/people/torkos

A system for generating animations of quadrupeds from sets of footprints. The animation is built in stages by combining trajectory optimization, inverse kinematics, and passive dynamics.

MUTTS, MACHINES, AND MOLTEN MONSTERS: THE MAKING OF . . .

Thursday, 7 August | 4 pm to 5:45 pm | Room 151/152 | Chair: Tim McGovern

General Motors EV-1: "Appliances"
Alex Seiden
Industrial Light & Magic
P.O. Box 2459
San Rafael, California 94912
USA

How would a toaster walk, if it could? A vacuum cleaner? Character design issues like these were critical in the development of a commercial for the first car in history designed from the ground up as a mass-production electric vehicle.

"The Relic"
John (DJ) DesJardin
VIFX
5333 McConnell Avenue
Los Angeles, California 90066
USA

Computer graphics solutions were essential for getting a rampaging performance from a fantastic creature – for the heavy action shots such as a fiery monster chasing the heroine as well as detailed elements like the monster's six-foot tongue, which lovingly licks the heroine.

"Dante's Peak"
David Isyomin
Digital Domain
300 Rose Avenue
Venice, California 90291 USA
david@d2.com

Beginning with a series of digital matte paintings of the volcano, this project proceeded to creation of digital CG lava composited into various locations and terrain, even inside a mountain cabin.

"101 Dalmations"
Daniel Jeanette, Doug Smythe
Industrial Light & Magic
P.O. Box 2459
San Rafael, California 94912
USA

The breakthroughs achieved in Disney's "101 Dalmatians": creation of up to 90 believable CG stunt-doubles for man's best friend.

TRACKING AND TALKING

Friday, 8 August | 10:15 am to noon | Room 151/152 | Chair: Mark Schafer

Passive 3D Human Motion Capture
Ioannis A. Kakadiaris
Dimitris Metaxas
GRASP Lab and Center for Modeling and Simulation
University of Pennsylvania
Philadelphia, Pennsylvania 19104 USA
ioannisk@grip.cis.upenn.edu

Computer vision and computer graphics formulations and techniques for three-dimensional, model-based motion capture and animation of unconstrained human movement from multiple cameras.

Visual Tracking and Pose Recovery for Special Effects
Michael Isard, Andrew Blake
University of Oxford
Parks Road
Oxford OX1 3PJ
UNITED KINGDOM
misard@robots.ox.ac.uk

Using computer vision-based tracking to separate a complex moving object from unknown background clutter and recover object pose, allowing computer graphics to be superimposed on the object.

Lip Synchronization for Animation
David F. McAllister, Robert D. Rodman, Donald L. Bitzer, Andrew S. Freeman
Box 8206
North Carolina State University
Raleigh, North Carolina 27695-8206 USA
dfm@adm.csc.ncsu.edu

Research into lip synchronization of speech that has not been preprocessed into phonetic units. Computers can achieve this without the necessity of speech recognition or electromechanical devices attached to the jaw.

Layered Compositing of Facial Expression
Ken Perlin
Media Research Laboratory
New York University
719 Broadway, 12th Floor
New York, New York 10003
USA
perlin@cat.nyu.edu

An algorithm for real-time interactive facial animation based on a stratified approach. Animators layer degrees of freedom recursively to relate lower-level facial movements to higher-level moods and intentions.

Career Center

At the SIGGRAPH 97 Career Center, registered attendees can make résumés available to the industry's leading employers.

LOCATION

Lower Level | Kentia Hall

DAYS/HOURS

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 5 pm

All registered attendees are eligible to post a résumé in the SIGGRAPH 97 Career Center. You will need at least two copies of your résumé (one of which will be kept for SIGGRAPH 97 permanent records). Résumés are posted by category. If you want your résumé posted in more than one category (three maximum) please provide an additional copy for each category.

Résumés are posted in the following categories:

- Educator
- Engineer
- Film/Video/Animator
- Graphic/Fine Artist
- Multimedia
- Scientist/Researcher
- Software Developer/Analyst
- Other

Registered attendees can review the job postings and ask the Career Center staff to give résumés to specific employers. Staff members also help attendees and employers schedule interviews and show demo tapes. Interview sign-up sheets are available in the Career Center beginning Sunday, 3 August.

Career Center job posting services are provided free of charge to SIGGRAPH 97 exhibitors. Please bring at least two copies of your posting to the Career Center. Organizations that are not exhibiting at SIGGRAPH 97 must pay a $500 fee to participate in the Career Center. For complete information, stop by the Career Center. After SIGGRAPH 97, contact:

SIGGRAPH 97 Conference Management
Smith, Bucklin & Associates
401 North Michigan Avenue
Chicago, Illinois 60611 USA
+1.312.644.6610
+1.312.321.6876 fax
siggraph97@siggraph.org

Job Fair

SIGGRAPH 97 is pleased to announce the first SIGGRAPH Job Fair, a one-day event that gives organizations and job seekers the opportunity to meet in an informal setting and discuss career opportunities.

LOCATION

Level Two | Room 408

DAY/HOURS

Wednesday, 6 August | 8 am to 6 pm

Job Fair Participants (as of 30 June 1997)
Adobe Systems Incorporated
The Aerospace Corporation
Alias | Wavefront
Animation Science
Battelle
Buildup, Inc.
CineSite
Dynamic Pictures, Inc.
Engineering Animation, Inc.
Evans & Sutherland Computer Corporation
FRAMESTORE
MegaDrive Systems, Inc.
Microsoft Corporation
Premier Search, Inc.
Realtime Associates, Inc.
Silicon Graphics, Inc.
Softimage
Sony Pictures Imageworks
SQUARE USA, INC.
Tippett Studio
VIFX
WETA DIGITAL EFFECTS
Xaos Tools, Inc.
For a more complete listing of the Job Fair participants see the SIGGRAPH 97 Conference Locator.

Purpose

The purpose of the Job Fair is to allow organizations to meet potential employees in an informal setting. The Job Fair also gives job seekers the opportunity to learn more about your company and the opportunities available. This is not an extension of the exhibit floor. The focus is on the sharing of information between organizations and job seekers.

Space is still available. If your organization is interested in participating in the Job Fair, please stop by the Career Center for detailed information.

Mentors

During the Job Fair, members of the SIGGRAPH 97 Committee and other volunteers will be available to discuss the current job situation in the computer graphics industry, job descriptions and responsiblities, and how to approach prospective employers.

International Outreach

SIGGRAPH 97 and Los Angeles welcome thousands of international computer graphics scientists, developers, and practitioners to this year's worldwide celebration. Members of the SIGGRAPH 97 International Committee and a multi-lingual staff of student volunteers are available to help international attendees take full advantage of all the programs and events, and the Exhibition.

BILINGUAL PANELS

This year, for the first time, the SIGGRAPH conference provides a bilingual environment in one of its major programs. Panels will be simultaneously interpreted into Japanese.

INTERNATIONAL CENTER

All international attendees are invited to make the SIGGRAPH 97 International Center their home away from home. During the conference, student volunteers provide assistance and conference information. Look for their yellow vest with flags that indicate their language fluency.

LOCATION

Level One | West Lobby

DAYS/HOURS

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 5 pm

INTERNATIONAL COMMITTEE

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Special Interest Groups

Special Interest Groups (SIGs) are for attendees who think and work in similar technologies and environments. Special Interest Groups 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 meetings are impromptu gatherings. 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 South Lobby where late additions and revisions to the Special Interest Groups and Birds of a Feather schedule are posted.

SIGs schedule as of 25 June 1997

SATURDAY 2 AUGUST

SIGGRAPH Professional Chapters Leadership Workshop
8 am to 5:30 pm
Wilshire B/C, Omni Los Angeles
Scott Lang
+1.201.343.6000

SUNDAY 3 AUGUST

Hardware Workshop
8 am to 4:30 pm
Golden State Room
Omni Los Angeles
Bengt-Olaf Schneider
+1.914.945.1585

Kinetix Developer Conference
8 am to 8 pm
Garden Room, Omni Los Angeles
Jill Baradat
+1.415.507.6505

Component-Based Visualization and Interaction Environments
5 pm to 6 pm
Los Angeles Room
Omni Los Angeles
Michael Pique
+1.619.784.9775

Kinetix Developer Conference Reception
5:30 pm to 8 pm
Poolside, Omni Los Angeles
Jill Baradat
+1.415.507.6505

SIGGRAPH Round the Clock
9 pm to 4 am
Board Room, Omni Los Angeles

MONDAY 4 AUGUST

Hardware Workshop
9 am to 5 pm
Golden State Room
Omni Los Angeles
Bengt-Olaf Schneider
+1.914.945.1585

3D Benchmarks
5 pm to 6:30 pm
Sierra Room, Omni Los Angeles
Greg Passmore
+1.206.861.9422

Massively Parallel Rendering SIG
5:30 pm to 6:30 pm
Omni Los Angeles, Los Angeles
Patricia Crossno
+1.505.845.7506

VRML Demo SIG
6 pm to 8 pm
Room 151, LACC
Don Brutzman
+1.408.656.2149
Note: No busing from the LACC will be provided after 6:30pm

SIGGRAPH Round the Clock
9 pm to 4 am
Board Room, Omni Los Angeles

TUESDAY 5 AUGUST

OpenGL
10 am to 11 am
Malibu A, Hyatt Regency
John Schimpf
+1.415.933.3062

OpenGL for Game Developers
noon to 3 pm
Malibu AB, Hyatt Regency
Lisa Vieira
+1.415.933.4063

Large Model Visualization API Consortium (LMVAC)
1 pm to 3 pm
San Francisco Room, Holiday Inn City Center
Larry McDonough
+1.415.933.6165

Numerical Algorithms Group Inc. Iris Explorer User Group
4 pm to 5 pm
DelMar/Verdugo Rooms
Omni Los Angeles
Tony Nilles
+1.630.971.2337

IMAX Computer Animation
5 pm to 8:15 pm
Garden East, Omni Los Angeles
Steve Welch
+1.415.730.5037

SIGGRAPH Education Committee Visualization Education Meeting
5 pm to 6 pm
Glenwood Room
Omni Los Angeles
Marc Barr
+1.615.898.5628

SGI IRIS Performer
6 pm to 8:30 pm
Manhattan A, Hyatt Regency
Chrysa Caulfield
+1.415.933.6549

VRML Tech SIG
6 pm to 8 pm
Petree Hall D, LACC
Don Brutzman
+1.408.656.2149
Note: No busing from the LACC will be provided after 6:30 pm

Java 3D and Java Media SIG
7 pm to 9:30 pm
Sierra Room, Omni Los Angeles
Barton Fiske
+1.508.442.2560

Performance Animation Roundup
8 pm to 10 pm
Monaco Room, Beverly Hilton
Linda Jacobson
+1.415.933.6398

IMAX Computer Animation - Screening
9 pm to 11:30 pm
California Museum of Science and Industry
700 State Drive
Steve Welch
+1.415.730.5037

SIGGRAPH Round the Clock
9 pm to 4 am
Board Room, Omni Los Angeles

WEDNESDAY 6 AUGUST

Binary Biker Artists Exploration of Motorcycles, Art & Technology
8 am to 10 am
Fernwood Room
Omni Los Angeles
Rick Barry
+1.718.686.3693

OpenGL Developments Over the Past Year
9 am to noon
Malibu AB, Hyatt Regency
Lisa Vieira
+1.415.933.4063

Graphics Performance Characterization Group
noon to 2 pm
Delmar/Verdugo Rooms
Omni Los Angeles
Jennifer Gangi
+1.919.481.4599

ACM SIGGRAPH Carto Project
1 pm to 2 pm
Room 305, Los Angeles Convention Center
Dave Taylor
+1.919.541.0207

Molecular Graphics
1:30 pm to 3 pm
Malibu Rooms AB, Hyatt Regency
Michael Pique
+1.619.784.9775

SIGGRAPH Education Committee - Annual Meetings
2 pm to 3 pm
Del Mar/Verdugo Rooms
Omni Los Angeles
Marc Barr
+1.615.898.5118

SIGGRAPH Education Committee Breakout – Art
3 pm to 4 pm
Del Mar/Verdugo Rooms
Omni Los Angeles
Marc Barr
+1.615.898.5118

SIGGRAPH Education Committee Breakout – Computer Science
3 pm to 4 pm
Balboa Room, Omni Los Angeles
Marc Barr
+1.615.898.5118

SIGGRAPH Education Committee Breakout – K-12
3 pm to 4 pm
Sawtelle Room, Omni Los Angeles
Marc Barr
+1.615.898.5118

Tokyo ACM/SIGGRAPH Reception
4 pm to 5:30 pm
Sierra Room, Omni Los Angeles
Masa Inakage
+81.467.32.7941

Sun Microsystems Inc. Developing Visual Applications
5 pm to 7 pm
Redondo A Room, Hyatt Regency
Alexandra Ohlson
+1.415.336.1004

SIGGRAPH Get Involved – Meet the SIGGRAPH 98 Committee and Executive Committee
5:30 pm to 7 pm
Room 301, LACC

University of North Carolina, Chapel Hill Graphics Reunion
6 pm to 8 pm
Ciao Trattoria, The Galleria
815 West 7th Street
Sherry Palmer
+1.919.962.1740

Computer Graphics Pioneers Reception
6 pm to 9 pm
Los Angeles Room
Omni Los Angeles
Sherry Keowen
+1.818.347.2210

Stony Brook Center for Visual Computing Visualization Lab Reunion
6:30 pm to 9:30 pm
Rexford Room, Omni Los Angeles
Arie Kaufman
+1.516.632.8441

SIGGRAPH Round the Clock
9 pm to 4 am
Board Room, Omni Los Angeles

THURSDAY 7 AUGUST

SIGGRAPH T-Shirt Contest
noon to 1 pm
Room 407, LACC
Joe Lohmar
+1.217.244.5573

SIGGRAPH Public Policy Activities
1 pm to 3 pm
Room 305, LACC
Judy Brown
+1.319.335.5552

CG-CHAIR (Computer Graphics Character Animation)
2 pm to 4:30 pm
Manhattan ABC, Hyatt Regency

Production Management Frameworks
2 pm to 3:30 pm
Rexford Room, Omni Los Angeles
Roger Rohrbach
+1.510.649.9711

Annual SIGGRAPH Business Meeting
5:30 pm to 7 pm
Room 502A, LACC

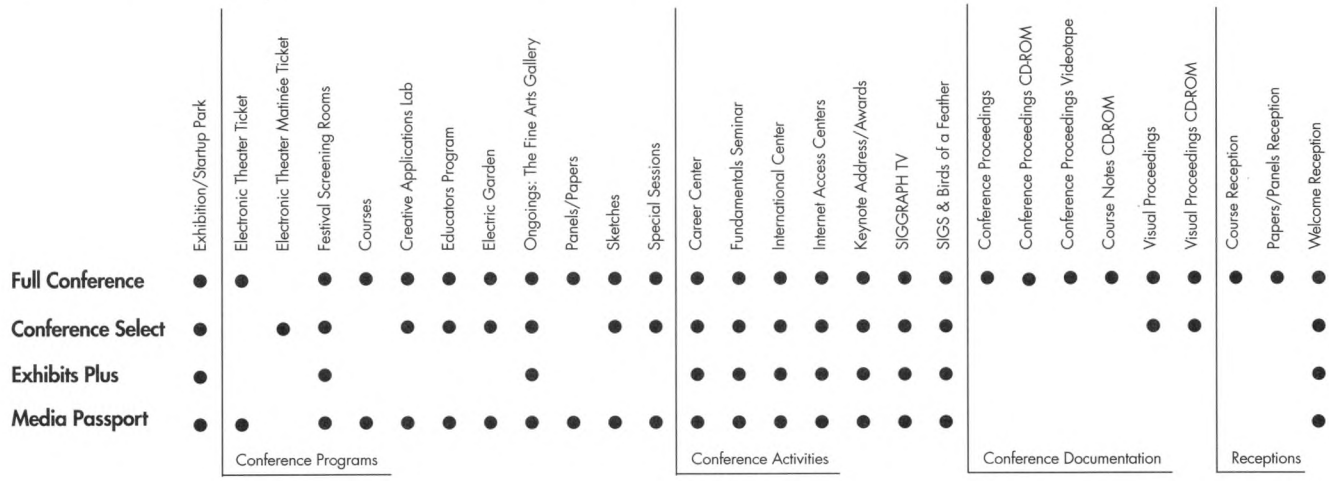
IEEE Trans. on Visualization & Computer Graphics
6 pm to 8 pm
Larchmont Room
Omni Los Angeles
Arie Kaufman
+1.516.632.8441

Ray Tracing Roundtable
6:30 pm to 7:45 pm
Cocker Room
Hotel InterContinental
Eric Haines
+1.607.266.7000

Avatars and the Virtual Worlds They Live In
7:30 pm to 10 pm
Garden East/West
Omni Los Angeles
Bruce Damer
+1.408.338.9400

SIGGRAPH Round the Clock
9 pm to 4 am
Board Room, Omni Los Angeles

Programs, activities, and conference documentation included with your registration.



Member Rate

You must provide your ACM or SIGGRAPH membership number. Local or regional SIGGRAPH memberships are not eligible for registration discounts.

Student Rate

You must attach a copy of your 1997 ACM student membership card or your valid 1997 student identification card to your registration form. In addition to your student identification card, you must attach a letter on college or university stationery verifying that you are a student. The letter must include your registrar's name, address, and phone number, so we can verify your student status. At SIGGRAPH 97, you must present the ID card (not a copy). If you do not provide student verification, you will be charged the full non-member registration fee.

Registration Hours

If you registered by Tuesday, 15 July, please go to Advance Registration, North Hall, Los Angeles Convention Center. Otherwise proceed to On-site Registration, also in North Hall.

REGISTRATION HOURS

Saturday, 2 August	7 pm to 9 pm
Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 1 pm

MEDIA HEADQUARTERS HOURS

Level One | Room 150A

Sunday, 3 August	10 am to 6 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 5 pm
Friday, 8 August	8:30 am to 1 pm

Media Registration

Media representatives must register in the Media Headquarters Office. You must submit full and proper media credentials for a media pass. No exceptions will be made.

Media-Only Information and Events

MEDIA BRIEFING

Level Two | Theater

Tuesday, 5 August	8:15 am to 8:50 am

EXHIBITION FLOOR TOUR

Immediately following the Media Briefing

Tuesday, 5 August	9 am to 10 am

The official SIGGRAPH media briefing is the place for you to hear about what's new and what's hot at SIGGRAPH 97. Preview the Electronic Theater and receive insight into SIGGRAPH 97 programs and venues.

The SIGGRAPH 97 Exhibition, a benchmark for the diversity and exponential growth of digital technologies, showcases over 300 exhibitors in more than 185,000 net square feet. Gain access to the exhibit floor before its opening to the public for a "sneak preview" of the latest products and applications. Small groups of media representatives will be escorted onto the exhibit floor.

Media Tours

ELECTRIC GARDEN TOUR

Level Two | Room 301B

Monday, 4 August	9 am to 10:30 am
Thursday, 7 August	9 am to 10:30 am

Enter into a new dimension of gardens, as Electric Garden Chair, Rick Hopkins, guides you through the garden where art, design, and technology have blended to create the world's most exciting and seductive interactive computer applications and interface design.

ONGOINGS: THE FINE ARTS GALLERY TOUR

Level Two | Room 301B

Monday, 4 August	2 pm to 3:30 pm

Ongoings: The Fine Arts Gallery Chair, Lynn Pocock, has assembled an outstanding collection of computer-based artwork. Meet the contributing artists and gain an in-depth look into their ongoing creative vision.

Exhibitor Media Events

A schedule of various exhibitor media events will be available in the Media Headquarters Office, Room 150A.

Special Policies

- Children under 16 are not permitted in the Exhibition.
- No cameras or recording devices are permitted at SIGGRAPH 97.
- SIGGRAPH 97 will record all, or portions of, conference programs and events.
- Food and beverages cannot be brought into the Electronic Theater performances at the Shrine Auditorium.

Housing and Airline Desk

A representative from Flying Colors is available to assist you with your travel or housing-related questions.

HOUSING AND AIRLINE DESK LOCATION

Lower Level	Kentia Hall

HOUSING AND AIRLINE DESK HOURS

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 1 pm

If you wish to rent a car, special discounted rates have been arranged with Avis Rent A car, Inc. Ask your Flying Colors representative to reserve an Avis car when you make your airline reservations or call Avis directly at 800.331.1600 and mention SIGGRAPH ID #D001064.

Shuttle Service

SIGGRAPH 97 provides complimentary shuttle service between most conference hotels, University of Southern California dormitory, the Los Angeles Convention Center, and the Electronic Theater at the Shrine Auditorium. Check your hotel for signs indicating pick-up times and locations at the hotels. See the Conference Locator for more details on shuttle service. For assistance with handicap service, please call 800.543.6332. SIGGRAPH 97 provides buses with wheelchair lifts and tiedowns.

LOS ANGELES CONVENTION CENTER SHUTTLE HOURS

Saturday, 2 August	5 pm to 9:30 pm
Sunday, 3 August	10 am to 8:30 pm
Monday, 4 August	7 am to 6:30 pm
Tuesday, 5 August	7:30 am to 6:30 pm
Wednesday, 6 August	7:30 am to 6:30 pm
Thursday, 7 August	7:30 am to 6:30 pm
Friday, 8 August	8 am to 6 pm

Los Angeles Convention Center Shuttles to Receptions and the Electronic Theater

COURSE RECEPTION

The WaterCourt at California Plaza	
Monday, 4 August	8 pm to 11 pm

Beginning at 7:30 pm coaches will shuttle from all hotels (except the Intercontinental and the Biltmore) to/from the WaterCourt. Last coach will depart the WaterCourt at 11:30 pm.

PAPERS/PANELS RECEPTION

Pershing Square	
Thursday, 7 August	8 pm to 11 pm

Beginning at 7:30 pm coaches will shuttle from all hotels (except the Biltmore and the Intercontinental) to/from Pershing Square. Last coach will depart Pershing Square at 11:30 pm.

ELECTRONIC THEATER

Shrine Auditorium	
Monday, 4 August	7 pm to 9 pm
Tuesday, 5 August	2 pm to 4 pm
Tuesday, 5 August	7 pm to 9 pm
Wednesday, 6 August	2 pm to 4 pm
Wednesday, 6 August	7 pm to 9 pm
Thursday, 7 August	7 pm to 9 pm

Tuesday and Wednesday matinée shuttles will run to/from the LACC beginning at 1 pm through 4:30 pm.

Service for evening shows Monday–Thursday will run to the Shrine Auditorium from the LACC only beginning at 5:30 pm. Following the show shuttles will run to all hotels, the LACC (for people with cars only–cars may exit the LACC parking lots until 11 pm) and the Course and Papers/Panels Reception.

Airport Shuttle

+1.310.782.6600

LOCATION

Level One	South Lobby

BOOTH HOURS

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

If you make your return reservation at the Airport Shuttle Desk, you will receive $1 off. Return reservations should be made at least one day prior to your departure. You may call Airport Shuttle direct at +1.310.782.6600.

Headquarters Hotel
1 Omni Los Angeles
930 Wilshire Boulevard
Los Angeles, California 90017
+1.213.688.7777
+1.213.612.3989 fax

2 Best Western Colorado Inn
2156 East Colorado Boulevard
Pasadena, California 91107
+1.818.793.9339
+1.818.568.2731 fax

3 Best Western Mayfair Hotel
1256 West Seventh Street
Los Angeles, California 90017
+1.213.484.9789
+1.213.484.2769 fax

4 Best Western Pasadena Inn
3570 East Colorado Boulevard
Pasadena, California 91107
+1.818.796.9100
+1.818.405.9948 fax

5 Best Western Pasadena Royale
3600 East Colorado Boulevard
Pasadena, California 91107
+1.818.793.0950
+1.818.568.2827 fax

6 Beverly Hills Plaza
10300 Wilshire Boulevard
Los Angeles, California 90024
+1.310.275.5575
+1.310.278.3325 fax

7 The Beverly Hilton
9876 Wilshire Boulevard
Los Angeles, California 90210
+1.310.274.7777
+1.310.285.1313 fax

8 Biltmore Los Angeles
506 South Grand Avenue
Los Angeles, California 90071
+1.213.624.1011
+1.213.612.1545 fax

9 Comfort Inn Pasadena
2462 East Colorado Boulevard
Pasadena, California 91101
+1.818.405.0811
+1.818.796.0966 fax

10 Crowne Plaza Hotel
3540 South Figueroa Street
Los Angeles, California 90007
+1.213.748.4141
+1.213.746.3255 fax

11 Doubletree Hotel Pasadena
191 North Robles Avenue
Pasadena, California 91101
+1.818.792.2727
+1.818.792.3755 fax

12 Holiday Inn City Center
1020 South Figueroa Street
Los Angeles, California 90015
+1.213.748.1291
+1.213.748.6028 fax

13 Holiday Inn Downtown
750 Garland Avenue at Eighth Street
Los Angeles, California 90017
+1.213.628.5242
+1.213.628.1201 fax

14 Holiday Inn Express
10330 West Olympic Boulevard
Los Angeles, California 90064
+1.310.553.1000
+1.310.277.1633 fax

15 Holiday Inn Express-Pasadena
3321 East Colorado Boulevard
Pasadena, California 91107
+1.818.796.9291
+1.818.796.9780 fax

16 Holiday Inn Pasadena
303 East Cordova Street
Pasadena, California 91101
+1.818.449.4000
+1.818.584.1390 fax

17 Holiday Inn Select Beverly Hills
1150 South Beverly Drive
Los Angeles, California 90035
+1.310.553.6561
+1.310.277.4469 fax

18 Hotel Figueroa
939 South Figueroa
Los Angeles, California 90015
+1.213.627.8971
+1.213.689.0305 fax

19 Hotel Inter-Continental
251 South Olive Street
Los Angeles, California 90012
+1.213.617.3300
+1.213.617.3399 fax

20 Hotel Nikko at Beverly Hills
465 South La Cienega Boulevard
Los Angeles, California 90048
+1.310.247.0400
+1.310.247.0315 fax

21 Hotel Sofitel
8555 Beverly Boulevard
Los Angeles, California 90048
+1.310.278.5444
+1.310.657.2816 fax

22 Hyatt Regency Los Angeles
711 South Hope Street
Los Angeles, California 90017
+1.213.683.1234
+1.213.629.3230 fax

23 Hyatt West Hollywood
8401 Sunset Boulevard
Los Angeles, California 90069
+1.213.656.1234
+1.213.650.7024 fax

24 InTown Hotel
913 South Figueroa Street
Los Angeles, California 90015
+1.213.628.2222
+1.213.623.1350 fax

25 Kawada Hotel
200 South Hill Street
Los Angeles, California 90012
+1.213.621.4455
+1.213.687.4455 fax

26 Los Angeles Athletic Club
431 West Seventh Street
Los Angeles, California 90014
+1.213.625.2211
+1.213.689.1194 fax

27 Marriott (Courtyard by Marriott–Century City)
10320 West Olympic Boulevard
Los Angeles, California 90064
+1.310.556.2777
+1.310.203.0563 fax

28 Miyako Inn
328 East First Avenue
Los Angeles, California 90012
+1.213.617.2000
+1.213.617.2700 fax

29 New Otani Hotel & Gardens
120 South Los Angeles Street
Los Angeles, California 90012
+1.213.629.1200
+1.213.622.0980 fax

30 Park Plaza Hotel
607 South Park View Road
Los Angeles, California 90057
+1.213.384.5281
+1.213.480.1928 fax

31 Pasadena Hilton
150 South Los Robles Avenue
Pasadena, California 91101
+1.818.577.1000
+1.818.584.3148 fax

32 Radisson Wilshire Plaza
3515 Wilshire Boulevard.
Los Angeles, California 90010
+1.213.381.7411
+1.213.386.7379 fax

33 Ramada Inn Downtown
611 South Westlake Avenue
Los Angeles, California 90057
+1.213.483.6363
+1.213.483.0088 fax

34 Ramada Inn Pasadena
3500 East Colorado Boulevard
Pasadena, California 91107
+1.818.792.1363
+1.818.792.9213 fax

35 Ramada West Hollywood
8585 Santa Monica Boulevard
West Hollywood, California 90069
+1.310.652.6400
+1.310.652.6207 fax

36 Ritz-Carlton Huntington
1401 South Oak Knoll Avenue
Pasadena, California 91106
+1.818.568.3900
+1.818.568.3700 fax

37 Saga Motor Inn
1633 East Colorado Boulevard
Pasadena, California 91101
+1.818.795.0431
+1.818.792.0559 fax

38 Sheraton Grande
333 South Figueroa Street
Los Angeles, California 90071
+1.213.617.1133
+1.213.613.0291 fax

39 Summerfield Suites
1000 Westmount Drive
West Hollywood, California 90069
+1.310.657.7400
+1.310.854.6744 fax

40 Travelodge
2131 East Colorado Boulevard
Pasadena, California 91107
+1.818.796.3121
+1.818.793.4713 fax

41 University of Southern California
620 West 35th Street
Los Angeles, California 90089-0871
+1.213.740.5956
+1.213.740.9366 fax

42 Vagabond Inn Los Angeles
3101 South Figueroa Street
Los Angeles, California 90007
+1.213.746.1531
+1.213.746.9106 fax

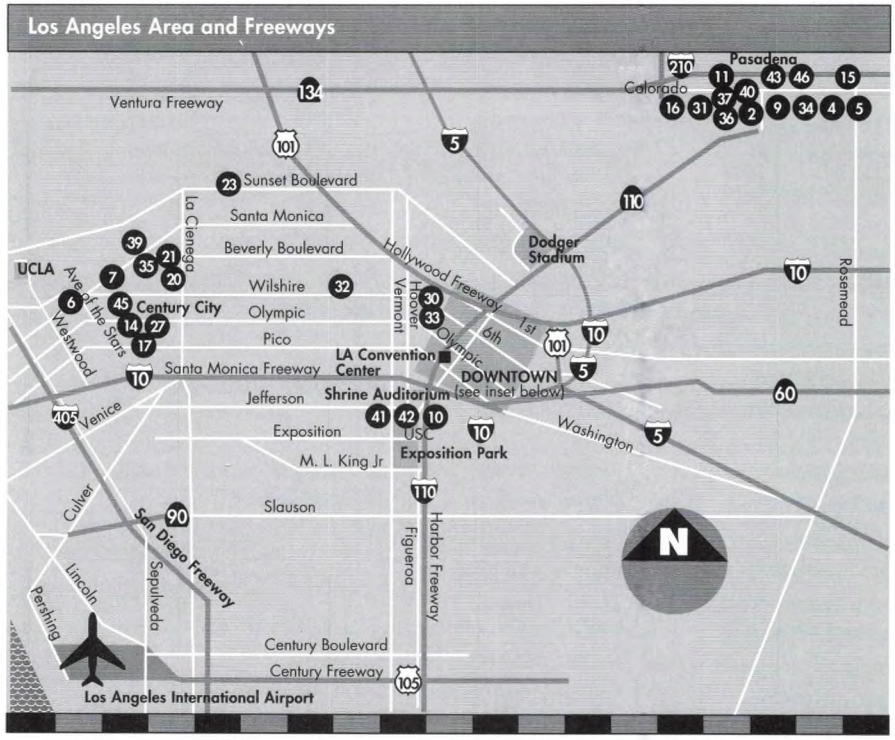
43 Vagabond Inn Pasadena West
1203 E. Colorado Boulevard
Pasadena, California 91106
+1.818.449.3170
+1.818.577.8873 fax

44 Westin Bonaventure
404 S. Figueroa Street
Los Angeles, California 90071
+1.213.624.1000
+1.213.612.4800 fax

45 Westin Century Plaza
2025 Avenue of the Stars
Century City
Los Angeles, California 90067
+1.310.277.2000
+1.312.551.3355 fax

46 Westway Inn
1599 East Colorado Boulevard
Pasadena, California 91106
+1.818.304.9678
+1.818.449.3493 fax

47 Wyndham Checkers
535 South Grand Avenue
Los Angeles, California 90071
+1.213.624.0000
+1.213.626.9906 fax


Los Angeles Area and Freeways
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La Cienega
Santa Monica
Beverly Boulevard
Hollywood Freeway
Dodger Stadium
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10
Rosemead
UCLA
Ave of the Stars
Wilshire
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Vermont
Pico
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DOWNTOWN
Westwood
Santa Monica Freeway
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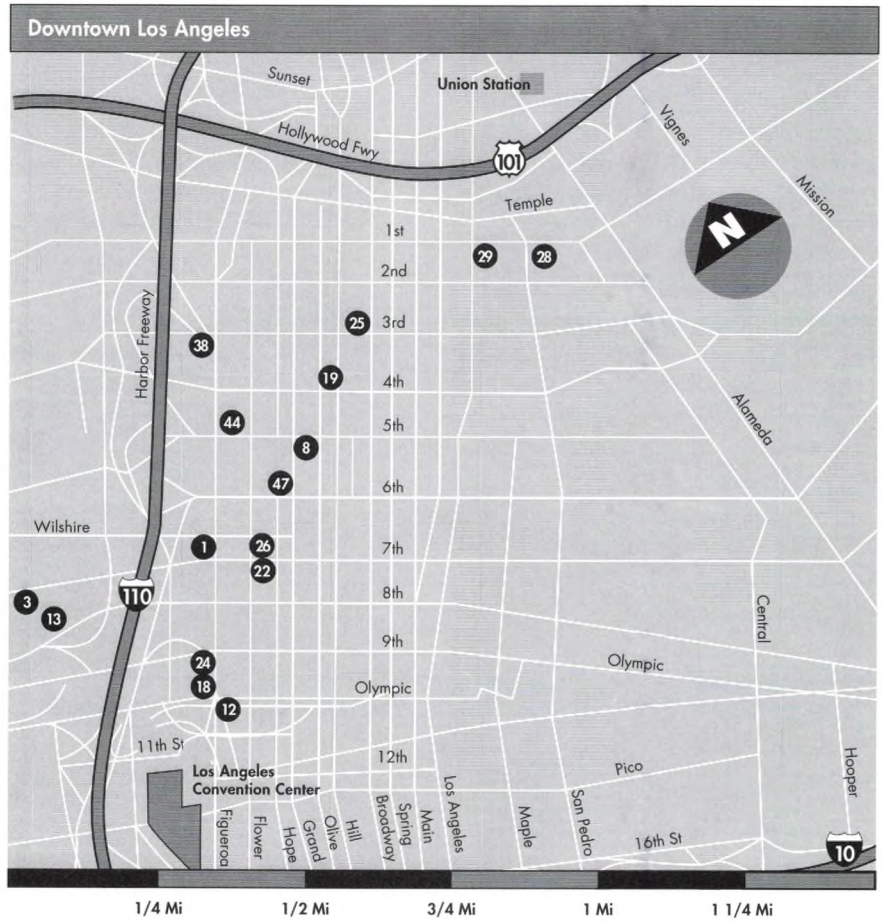
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Union Station
Hollywood Fwy
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8th
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Olympic
Olympic
Harbor Freeway
Alameda
Central
Wilshire
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11th St
12th
Pico
16th St
Hooper
Los Angeles Convention Center
Figueroa
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Hope
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GraphicsNet

GraphicsNet is the SIGGRAPH 97 conference intranet. It serves as the link among the many conference programs and events, and as the gateway to the global graphics community.

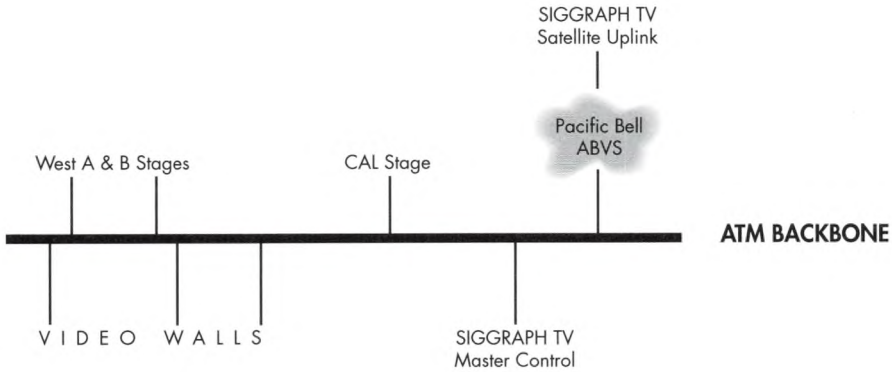
For the first time, GraphicsNet includes two different optical fiber backbones.

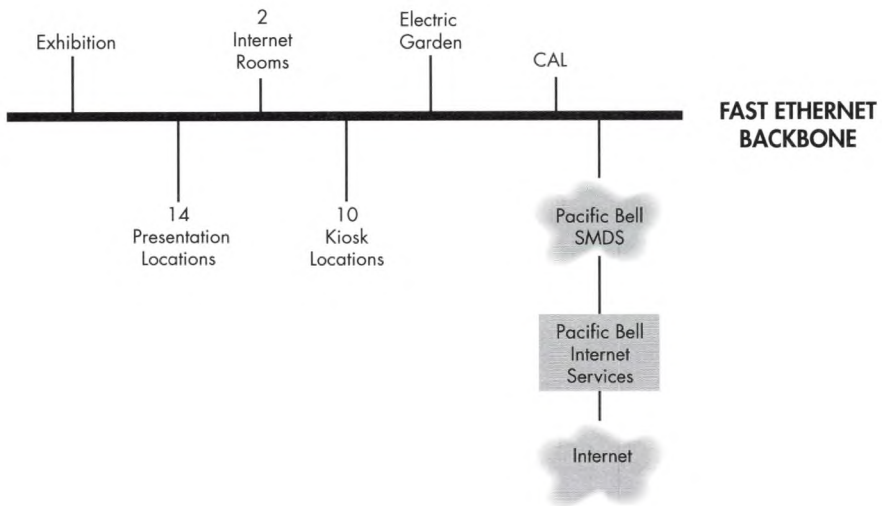
A production backbone based on Fast Ethernet (100 Mbps) links the Exhibition; the Internet Access Centers; the 14 presentation rooms for Papers, Panels, Courses, Sketches, and the Educators Program; the Electric Garden; 10 information kiosk locations; and the Creative Applications Lab (CAL). The production backbone is built with products from Cisco Systems, LANCAST, and others. It is connected to the Internet through a Switched Multimegabit Data Service (SMDS) circuit on the Pacific Bell optical fiber Synchronous Optical Network (SONET) ring that serves the Los Angeles Convention Center. The SMDS circuit provides a 34 Mbps path to Pacific Bell Internet Services and their multiple Internet backbone providers.

The other GraphicsNet backbone is based on ATM (155 Mbps, OC-3) and is designed primarily to serve as the high-performance video network for SIGGRAPH TV. It connects presentation venues with three video walls and with SIGGRAPH TV Master Control. The ATM network is built using switches and video encoding and decoding products from FORE Systems. An external link to the ATM backbone that uses Pacific Bell's Advanced Broadcast Video Service (ABVS) feeds the SIGGRAPH TV satellite uplink provider during SIGGRAPH TV's live broadcast on Friday.

GraphicsNet also includes several dedicated optical fiber links that are used by exhibitors to distribute digital video and for other applications.

The primary network management workstations and servers used in the Network Operations Center (NOC) are supplied by Sun Microsystems.





I wish to extend a special thank-you to each of the following volunteers and their employers for their immense contribution to GraphicsNet and SIGGRAPH 97. Without their expertise, creativity, dedication, and teamwork, GraphicsNet simply could not have been realized.

NETWORKING COMMITTEE
David Evans
Sandia National Laboratories

CJ Murzyn
University of Illinois at Chicago

Keith Nesson
FORE Systems

Ralph Orlick
University of Illinois at Chicago

David Spoelstra
MediaMachine

Bruce Whittet
Sandia National Laboratories

ON-SITE SUPPORT
Joe Cychosz
WorldServer

Larry Des Jardines
Abacus Commerce Group

Jeff Jortner
Sandia National Laboratories

Larry Kauffman
USA Group

Sanjay Lall
California Institute of Technology

Alan Verlo
University of Illinois at Chicago

All of us on the GraphicsNet team owe a tremendous debt of gratitude to the following people, who provided professional support to the team.

Robin Myran
Larry Rummens and the staff of the Los Angeles Convention Center
Tim Gebelin and the crew at United Contractors

Grateful acknowledgement is extended for the support of the following companies. Through generous loans of equipment and personnel, they helped to ensure the success of GraphicsNet and SIGGRAPH 97.

Cisco Systems
Fluke
FORE Systems
LANCAST
Microsoft Corporation
Shomiti Systems
Silicon Graphics, Inc.
Sun Microsystems Inc.
Tripp Lite

And I wish to thank the many SIGGRAPH 97 committee members, contributors, exhibitors, and attendees who inspired us to build GraphicsNet.

Steven M. Van Frank
SIGGRAPH 97 Networking Chair

SIGGRAPH 97 and the Los Angeles Convention Center (LACC) offer a number of services during the conference to make your week more enjoyable.

Audio/Visual Services
West Hall
+1.213.765.4624

Sunday, 3 August	7 am to 7 pm
Monday, 4 August	7 am to 7 pm
Tuesday, 5 August	7 am to 7 pm
Wednesday, 6 August	7 am to 7 pm
Thursday, 7 August	7 am to 7 pm
Friday, 8 August	7 am to 2 pm

Direct all questions about audio/visual needs to this office. For more information on audio/visual services for speakers, see Speaker Prep Room, page 80.

Automated Teller Machines (ATMs)
There is an ATM located inside the LACC in the concourse between the West and South Lobbies directly in front of the Business Center.

Bookstore
Kentia Hall

new Business Outreach Books is offering computer-graphics-related books at the Los Angeles Convention Center during SIGGRAPH 97. Titles will also be available online after SIGGRAPH 97. See the SIGGRAPH 97 Web site for further details: www.siggraph.org/s97/

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 5 pm

Note: Bookstore refunds will only be processed during the conference. All bookstore policies are those of Business Outreach Books and not SIGGRAPH 97.

Busing
See Shuttle Services, page 73.

Check Room
South & West Lobby

SIGGRAPH 97 provides complimentary luggage check services for briefcases, backpacks, and other small items during conference hours. SIGGRAPH 97 is not responsible for items left in the Check Room overnight. Items left after hours will be left unattended.

Child Care
Rooms 517, 518, 519
+1.213.765.4630

Accent on Arrangements provides age-appropriate child care activities for children from three months to 16 years of age at the Los Angeles Convention Center. Children must be registered for a minimum of three hours. Individualized evening child care is also available on a limited, first-come, first-served basis.

If you need to cancel a registration, you must call 24 hours in advance to qualify for a full refund of your child care fees. The Accent on Arrangements staff is certified in infant and child CPR. Child care services are guaranteed to be available during the following hours:

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 6 pm

Costs: $10 per hour for the first child per family; all others from the same family $8 per hour per child.

Fees include snacks and beverages in the morning and afternoon for children over 30 months. Parents are responsible for their children's main meals.

Computer Animation Festival Office
Room 410
+1.213.743.6201

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

Conference Management Office
Room 304
+1.213.765.4630

If you have questions regarding SIGGRAPH 97, call or stop by this office at anytime.

Electric Garden Office
Kentia Hall, Electric Garden
+1.213.743.6202

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

Electronic Theater Tickets
One ticket per person is included with Full Conference and Conference Select registrants. Every attempt is made to accommodate your requested Electronic Theater evening. All performances contain the same material.

Badged attendees may purchase up to four Electronic Theater tickets (subject to availability) at On-Site Registration in North Hall beginning at 7 pm Saturday, 2 August. Last-minute tickets are generally available. They will be sold at the Shrine Auditorium.

Exhibition Management Office
Room 303
+1.213.765.4640

If you have questions regarding the SIGGRAPH 97 Exhibition, feel free to call or visit a staff member here.

Exhibitor Registration
Outside Kentia Hall

Exhibitors should pick up their badges at the exhibitor registration counter, which is open during registration hours. See Registration, page 79.

First Aid Offices
West Hall
+1.213.741.1151 ext. 5133

South Hall
+1.213.741.1151 ext. 5136

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

Food Services
The Los Angeles Convention Center operates several food concession areas, including a barbecue, for the convenience of SIGGRAPH 97 attendees. Food carts, casual seating, are also available throughout the convention center.

Information Desks
South Lobby, North Hall, West Lobby

For answers to your questions about SIGGRAPH 97, stop by the information desks. They can provide information on conference programs and events and Los Angeles attractions.

Internet Access Centers
West Hall A & Kentia Hall

Two fully networked areas in the LACC provide complete Internet access to your home, office, and colleagues around the world. The Internet Access Centers are available to all attendees during registration hours beginning Sunday, 3 August. The Internet Access Center in Kentia Hall closes at 1 pm Friday.

LACC Accessibility
The convention center is wheelchair accessible. It has no curbs, and there are elevators to the upper levels. A special-assistance-equipped shuttle bus operates during SIGGRAPH 97 shuttle hours. For special pick-up services, call: 800.543.6332.

LACC Business Center
Concourse between West and South Lobby

A variety of services are offered by the Business Center including:
- computer time rental
- faxing services
- photocopying
- special finishing services (including hand stapling, collating, folding, binding and reduction/enlargement).

The Business Center also sells office supplies and U.S. stamps.

LACC Parking
SIGGRAPH 97 attendees can park at the Los Angeles Convention center for $6 per day. Enter the parking areas from either of the convention center's two main entrances. The parking lots close at 8 pm for cars to enter, however cars may exit until 11 pm.

Lost and Found
Security

After the conference, all items will be turned over to the LACC security office. To inquire about lost items during and after the conference, call LACC security at +1.213.741.4605.

Merchandise Fulfillment Center
North Hall

The following material must be picked up at the Fulfillment Center located in the North Hall of the LACC:
- Advance-ordered technical materials
- Advance-ordered merchandise
- Conference documentation (included with registration)

All on-site registrants must pick up the conference documentation included with their registration at the Fulfillment Center.

Technical materials, merchandise, and conference documentation will not be shipped, nor will refunds be given for any material that is not picked up at the conference.

Saturday, 2 August	7 am to 9 pm
Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 1 pm

Merchandise Store
South Lobby

new SIGGRAPH 97 introduces a conference store for casual browsers and serious shoppers. Stop by to purchase additional technical materials plus gifts for your family, co-workers, and yourself.

Technical material and conference documentation are available for purchase at the store. SIGGRAPH 97 merchandise is available on a first-come, first-served basis.

Merchandise vouchers are only valid in the Fulfillment Center located in the North Hall of LACC.

Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 1 pm

Merchandise Sold After the Conference
SIGGRAPH 97 Conference Proceedings contains the permanent record of the technical papers and panels program from SIGGRAPH 97.

SIGGRAPH 97 Proceedings CD-ROM contains the electronic version of the conference proceedings, including papers, images, and additional material not found in the printed version including QuickTime movies and extended versions of papers.

SIGGRAPH 97 Conference Proceedings Videotape contains videotape supplements to technical papers and panels.

SIGGRAPH 97 Visual Proceedings contains the permanent record of images from Ongoings: The Fine Arts Gallery, Electric Garden, Computer Animation Festival, Electronic Theater, Sketches (Technical, Art & Design, Animation and Applications).

SIGGRAPH 97 Visual Proceedings CD-ROM contains selections from the Visual Proceedings, Slide Sets, Computer Animation Festival, Electronic Theater, Ongoings: The Fine Arts Gallery, Electric Garden, Sketches (Technical, Art & Design, Animation and Applications), and the SPACE Electronic Gallery.

SIGGRAPH 97 Course Notes CD-ROM contains the electronic version of the course notes.

SIGGRAPH 97 Educators Program CD-ROM contains the proceedings of the SIGGRAPH 97 Educators Program and a directory of funding sources for educators.

SIGGRAPH Video Review contains animations presented in the Electronic Theater and Festival Screening Rooms.

To order, contact:
ACM Order Department
P.O. Box 12114
Church Street Station
New York, New York 10257 USA
800.342.6626
+1.212.626.0500
+1.212.944.1318 fax
orders@acm.org

Message Center
South Lobby
+1.213.765.4200

Here you will find kiosks corresponding to each letter of the alphabet. You may leave a note for a friend pinned to one of the kiosks.

Ongoings: The Fine Arts Gallery Office
Room 153A
+1.213.743.6200

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

Receptions
Badged attendees may purchase additional tickets for the Course Reception and Papers/Panels Reception at On-Site Registration in North Hall.

Registration
Advance Registration
North Hall
+1.213.743.6230

On-Site Registration
North Hall
+1.213.743.6240

Saturday, 2 August	7 pm to 9 pm
Sunday, 3 August	noon to 8 pm
Monday, 4 August	8 am to 6 pm
Tuesday, 5 August	8 am to 6 pm
Wednesday, 6 August	8 am to 6 pm
Thursday, 7 August	8 am to 6 pm
Friday, 8 August	8 am to 1 pm

Restaurant Information Desks
South Lobby/West Lobby

There are two restaurant desks located in the Los Angeles Convention Center, one in the South Lobby and one in the West Lobby. Both are staffed with individuals happy to assist you in making reservations at local Los Angeles restaurants. These desks are open during registration hours. The Restaurant Information desk is closed on Saturday.

Shipping Desks
South Lobby & North Hall

There are shipping desks located in the South Lobby of the LACC and North Hall Registration area. Staff can assist you in shipping your merchandise, course notes, and other conference materials. For your convenience, the shipping desks provide next-day air, second-day air, and regular ground shipping services to destinations throughout the world. These desks are open during registration hours. The South Lobby shipping desk is closed on Saturday.

Speaker Prep Room
Room 501A
+1.213.743.6260

Saturday, 2 August	2 pm to 8 pm
Sunday, 3 August	7 pm to 7 pm
Monday, 4 August	7 am to 7 pm
Tuesday, 5 August	7 am to 7 pm
Wednesday, 6 August	7 am to 7 pm
Thursday, 7 August	7 am to 7 pm
Friday, 8 August	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 contributor registration desk in North Hall to pick up registration credentials and obtain conference information.

Speaker ribbons are available only in the Speaker Prep Room.

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
North Hall (Registration Area)

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
- Registration forms submitted without payments
- Substitute registration (only if authorized on company letterhead)

Telephone Numbers

Audio/Visual Services
+1.213.765.4624

Conference Management Office
+1.213.765.4630

Computer Animation Festival Office
+1.213.743.6201

Electric Garden Office
+1.213.743.6202

Exhibition Management Office
+1.213.765.4640

First Aid Offices
West Hall
+1.213.741.1151 ext. 5133

South Hall
+1.213.741.1151 ext. 5136

Flying Colors (Housing and Airline Desk)
+1.213.765.4622

International Center
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Los Angeles Convention & Visitors Bureau (Spanish, French, Japanese, German, and English)
+1.213.689.8822

Media Headquarters
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Message Center
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LOCATION

Exhibition	Halls G, H, J, K, Kentia Hall
Startup Park	Kentia Hall

DAYS/HOURS

Tuesday, 5 August	10 am to 6 pm
Wednesday, 6 August	10 am to 6 pm
Thursday, 7 August	10 am to 5 pm

Please fold out for exhibition hall floor plan

Exhibits Plus Registration

With Exhibits Plus, you receive admission to the Exhibition, Startup Park, Festival Screening Rooms, Ongoings: The Fine Arts Gallery, Career Center, Fundamentals Seminar, International Center, Internet Access Centers, Keynote Address/Awards, SIGGRAPH TV, Special Interest Groups, Birds of a Feather, and the Welcome Reception. Exhibits Plus registration is non-refundable.

Space Reservation

To purchase exhibition space for SIGGRAPH 98, contact:

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Software
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Terminals, Monitors, and Displays
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EXHIBITION FLOOR PLAN

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Startup Park

3D Construction Company
Booth 1543

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Relations Manager

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Booth 518

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Marketing Coordinator

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Marketing Vice President

4DVISION is a publisher/developer of 2D and 3D software: Modeling Software–Sculptor Pro NURBS modeler for NT/95; Paint Software–4D Paint for NT/95; Image Compositing– Digital Fusion NT/95; Softimage Plugins–Image processing and modeling extensions for IRIX and NT.

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Please stop by the AP booth to see such new titles as: Fractal Imaging, by Ning Lu; Visualization and Modeling, edited by Rae Earnshaw, John Vince, and How Jones; The Internet and 3D, edited by Rae Earnshaw and John Vince; and the Fourth Edition of Curves and Surfaces for Computer-Aided Geometric Design by Gerald Farin.

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Gina Herlihy
Marketing Specialist

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Shannon Joyce
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Advanced Media Production at California State University, Long Beach, offers continuing education programs on a variety of animation software packages. Students using SGI or Pentium Pro workstations can get hands-on experience learning software from Alias | Wavefront, Microsoft Softimage, and Kinetix. Facilities are also available for demo reel creation.

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Booth 2258

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PC Graphics & Video magazine is the only publication offering video editors, animators, multimedia content creators, and graphic artists exclusive information about products and trends in creative tools for the Windows platform. NT Studio magazine tracks the Windows NT revolution and its impact on broadcast, animation, special effects, and post-production facilities for the creative professionals behind each workstation.

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See Interactive Effects

American Cinematographer Magazine
Booth 3426

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http://cinematographer.com

Stephen Pizzello
Editor

American Cinematographer seeks to keep readers abreast of advancements in all facets of motion picture imaging technology and to inform them of visually extraordinary productions, explaining the technical means used to realize an artistic vision on film and video, or with computers.

Ampex Corporation
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Animation Magazine
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http://animag.com

Frankie Kowalski
Marketing Director

Animation Magazine promotes the art and the business behind the field of animation, focusing on the very heart and soul of the animation industry including: studios, production companies, films, the creators, the artists, the designers, post houses, and the effects teams, to name but a few.

Animation Science
Booth 3307

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EVP of Sales and Marketing

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Kira Glass
Marketing Manager

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Appian Graphics
Booth 3606

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Kerry Howe

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Ellen Sandor
Director

(Art)^n Laboratory invented the digital process for creating animation and 3D hard-copy products. Applications include QDI reflective lenticular items, Picker International's epi-View, fine art, display advertising, and desktop options for Virtual Reality and the WWW.

Artbeats
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JoAnn Brien
Marketing Communications

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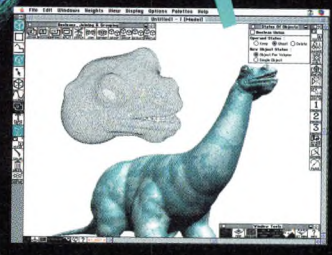

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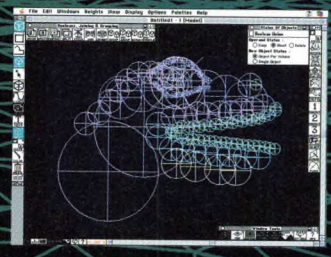

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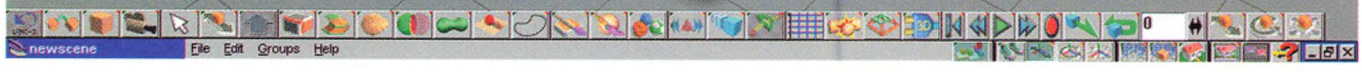

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http://www.d2.com

Digital Domain, Inc. is the largest full-service digital production studio in Los Angeles. The company has been honored for its innovative work on features, commercials, theme-park attractions, and CD-ROM titles, all of which distinctly personify the company's mandate to create an environment that empowers directors, producers, and artists.

Digital Equipment Corporation
Booth 1121

129 Parker Street, PK003/01/19-H
Maynard, Massachusetts 01754 USA
+1.508.493.2365
+1.508.493.1450 fax
garrity@mail.dec.com
http://www.workstation.digital.com

Sharyn Garrity
Graphics & Web Site Manager

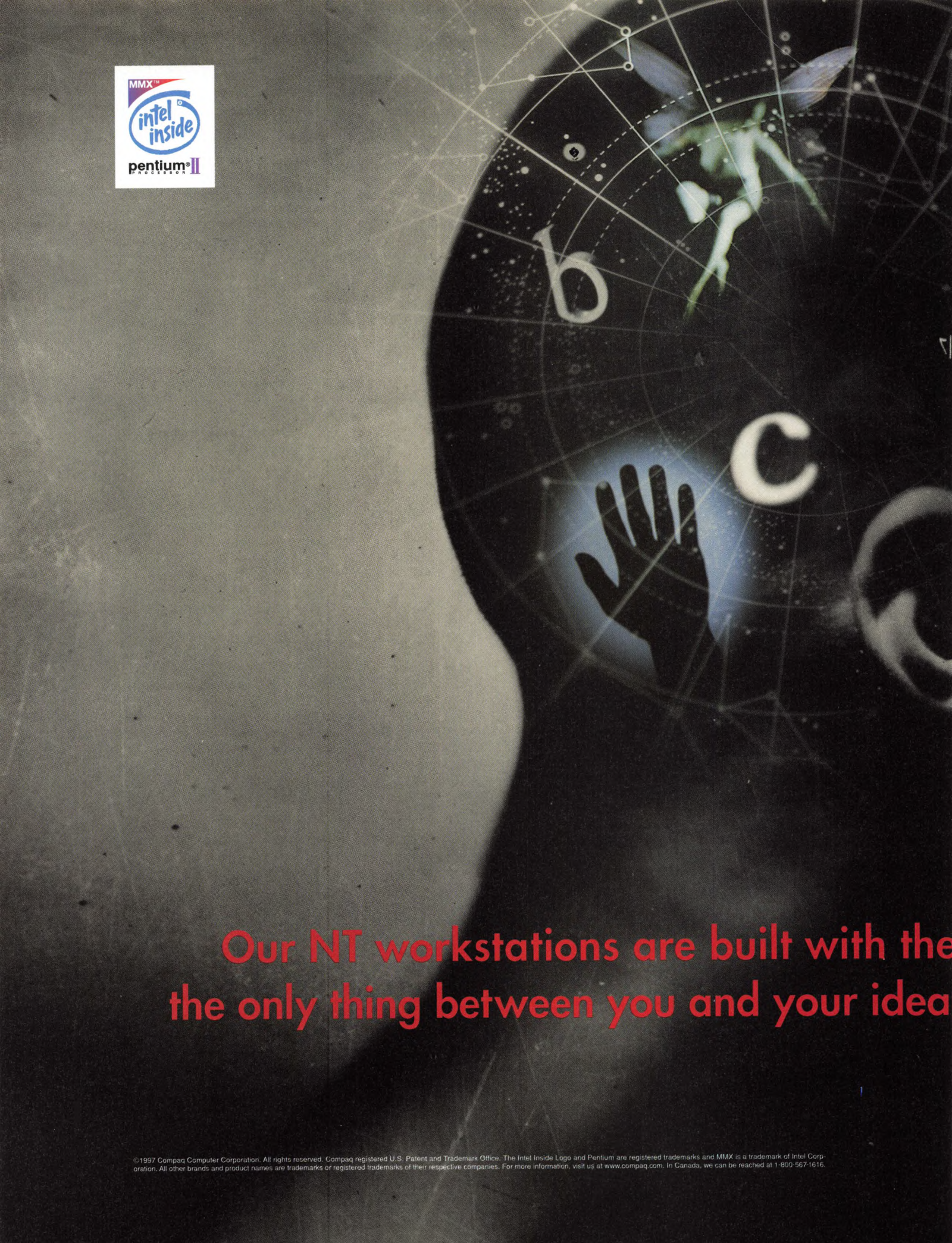
Digital Equipment Corporation offers a complete range of workstations, servers, and services for Visual Computing Environments. The Digital booth will showcase Intel and Alpha-based systems, high-performance graphics, and a number of applications from leading software providers.

Digital Marketing International / TEI
Booth 1500

One North Avenue
Burlington, Massachusetts 01803 USA
+1.617.229.6900
+1.617.229.7706 fax
dmi@techexport.com
http://www.techexport.com

Mike Skibra
Vice President, General Manager

Digital Marketing International is the North American distributor for a host of profes-sional digital video products, including CFE's DVES based Gallea videographics engine, a single slot PCI adapter with programmable pixel depth, spatial resolution, and color space. Capable of uncompressed video capture at data rates ranging from 23 to 41 MB. Gallea's on board display memory is expandable to 128 MB.



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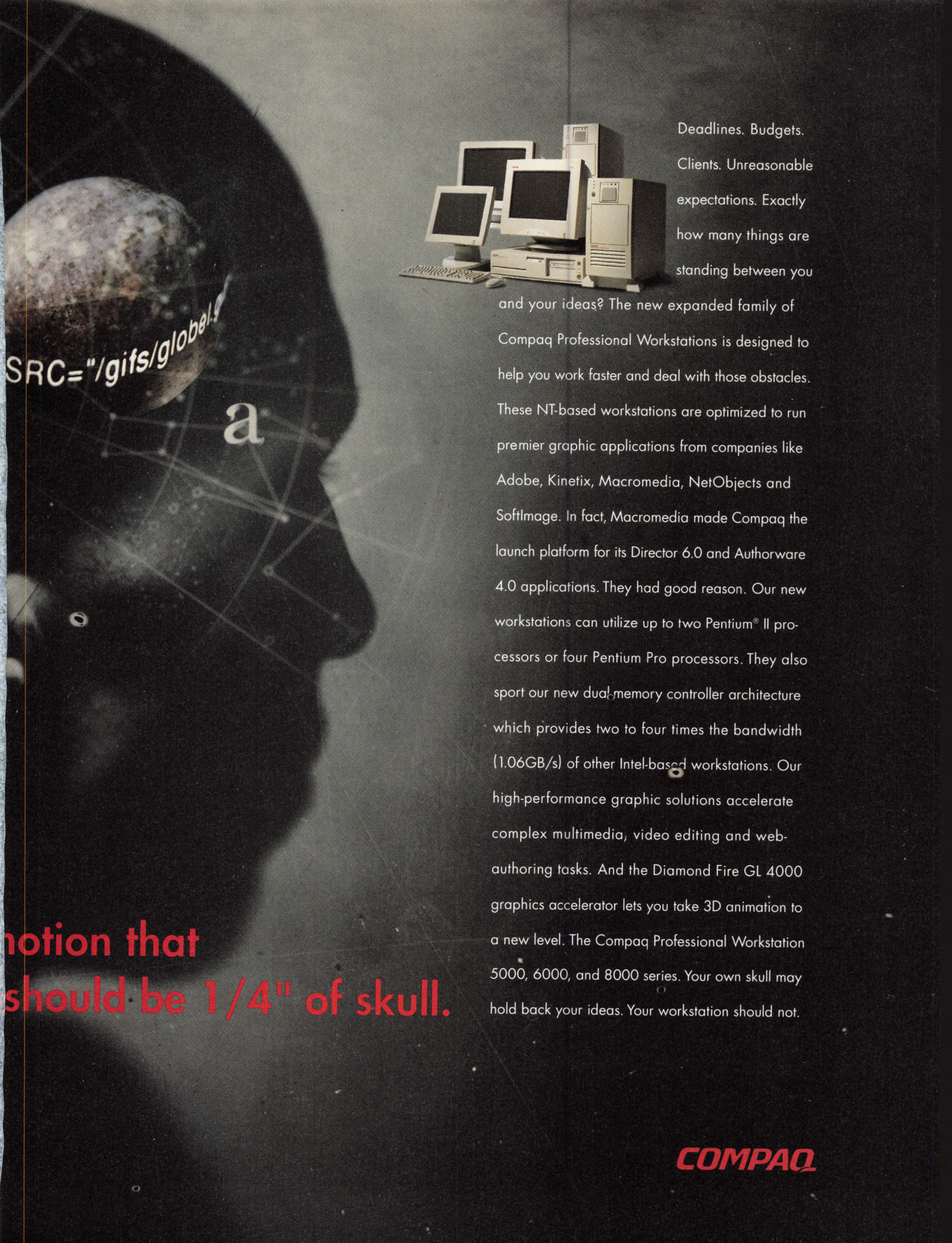

notion that should be 1/4" of skull.

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COMPAQ

Digital Processing Systems
Booth 405

11 Spiral Drive, Suite 10
Florence, Kentucky 41042 USA
+1.606.371.5533
+1.606.371.3729 fax
info@dps.com
http://www.dps.com

Brad Nogar
President

DPS products at SIGGRAPH 97 include DPS Hollywood, a 100-percent uncompressed DI Video Disk Recorder and DPS Spark, a direct DV (FireWire) editing system for PC and Mac systems. The DPS Perception family of non-linear editing and animation products and Eyeon Digital Fusion Non-Linear Compositing Software are also demonstrated.

Digital Semiconductor
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http://www.DigitalVideoSystems.com

Tore B. Nordahl
Vice President

DVS is showing its full range of uncompressed HDTV, D5, and D1 digital video disk and RAM recorders, including ProntoVideo, ProntoVision, ProntoServer, MovieVideo, ClipStation NT, PCI/Studio uncompressed video capture card, and the HD multi-channel multi-standard ISP500 RAM recorder.

Digital Wisdom Inc.
Booth 2242

300 Jeanette Drive
P.O. Box 2070
Tappahannock, Virginia 22560-2070
USA
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+1.804.443.9000
+1.804.443.3632 fax
maps@digiwis.com
http://www.digiwis.com

David Broad
President

Digital Wisdom's collection of Mountain High Maps Version 2.5 sets a new standard in spectacular and accurate cartography now used worldwide in video, television, Web, government agencies, educational, travel, publishing, and multimedia production. Mountain High Maps provides a number of tools, including political and information layers, that allow original, dramatic, and completely customizable maps to be generated in Macintosh, Windows, or Unix environments and used royalty-free.

Digits 'n Art Software, Inc.
Booth 1383

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CANADA
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info@DnAsoft.com
http://www.DnAsoft.com

Marcel Achard
Sales and Marketing Manager

D'nA presents LIFEsource and flesh 3D paint. LIFEsource is the only highly integrated, complete, full-performance capture system that offers the ability to motion capture the body, face, and hands, and voice record up to six actors simultaneously, all in real time. flesh 3D paint combines a complete set of texture optimization tools, material edition features, and professional paint box to answer all your texture creation needs.

Discreet Logic
Booth 2239

10 Duke Street
Montréal, Québec, H3C 2L2
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+1.514.272.0525
+1.514.272.0585 fax
info@discreet.com
http://www.discreet.com

Leigh Pesqueira
Director, Corporate Communications

Discreet Logic is showing its full product range and featuring high-profile client demonstrations. EFFECTS: Full end-to-end digital film production environment. INFERNO high end visual effects. FLINT desktop effects. RIOT image management toolbox and WIRE high speed networking. EDITING: FIRE online resolution independent (HDTV-ready) editing. BROADCAST: FROST.

DreamWorks
Booth 549

100, Universal Plaza
Universal City, California 91608 USA
+1.818.733.6000
+1.818.733.7199 fax
animhr@dreamworks.com
http://www.dreamworks.com

Brad Reinke

DreamWorks SKG was formed in October, 1994, by its three principal partners (Steven Spielberg, Jeffrey Katzenberg, and David Geffen) as a single company to produce live-action motion pictures; animated feature films and television programs; network, syndicated, and cable television programming; records; books; toys; consumer products; and interactive entertainment. The company is a unique and original enterprise, conceived and designed from the point of view of the artists who work there, to encourage and nurture creative breakthroughs in every field in entertainment.

Dynamic Pictures, Inc.
Booth 801

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http://www.dynamic-realities.com

Tiffani Schroeder
Marketing Director

Dynamic Realities is exhibiting the world's most popular LightWave plug-ins: Particle Storm, Impact, ShaderMan, Stripper, and Lock & Key. Come see the new features in the soon-to-be-released Particle Storm 2.0 and Impact 2.0, and check out Dynamic Realities' exclusive SIGGRAPH 97 pricing on products and upgrades!

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Ann Sylvia
Marketing Communications

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Electric Image, Inc.
Booth 1353

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+1.818.577.2426 fax
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http://www.electricimage.com

Reagan Reed
Vice President, Sales & Marketing

Electric Image, Inc. is the developer of high-end 3D animation and rendering products: ElectricImage Animation System, ElectricImage Broadcast, and the soon-to-be-released ElectricImage 3D Modeler and Radiosity Renderer. ElectricImage products have been developed for the non-technical animator, incorporating powerful features and the finest image quality in an easy to use interface.

Electronic Arts
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kmcgrath@ea.com
http://www.ea.com

Kathleen McGrath
HR Coordinator

Electronic Arts, the leading global independent entertainment software company, develops, publishes, and distributes CD-ROM titles for PCs and next-generation entertainment systems such as the PlayStation, Nintendo 64, and Sega Saturn.

ELSA Inc.
Booth 1154

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+1.408.935.0350
+1.408.935.0370 fax
amyl@elsa.com
http://www.elsa.com

Amy Lancaster
MarCom Coordinator

ELSA, a leading manufacturer of graphics accelerators is demonstrating GLoria-L with GLoria Advanced Driver Edition, providing 3D performance gains up to 60 percent, and POWERview 3D for AutoCAD, enabling editing of 3D geometry. GLoria-S, the latest Permedia NT board and the new WINNER 3000-L are other new products.

Elsevier Science
Booth 3713

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New York, New York 10010 USA
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+1.212.633.3764 fax

Sandra Pierre-Lys
Exhibits Coordinator

ENCAD, Inc.
Booth 2271

6059 Cornerstone Court West
San Diego, California 92121 USA
619.452.0882
619.452.5618 fax
sales@encad.com
http://www.encad.com

ENCAD is showcasing its latest in wide-format inkjet imaging systems, the ENCAD Croma24. This printer was designed for the creative professional and is perfect for storyboards, comps, and photo-realistic prints. ENCAD will compliment the printer with its Quality Imaging Supplies, which allow output to a variety of media and ink.

Engineering Animation, Inc.
Booth 2439

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EAI@eai.com
http://www.eai.com

Maribeth Waldman
MarCom Project Manager

EAI specializes in applying 3D visualization technology to meet the productivity, communication, education, and entertainment needs of our clients through three interrelated product lines: product visualization software, interactive multimedia, and custom animation. Why EAI? Because we are the masters at developing and applying 3D visualization products and technology. Because we make ideas work.

Ensemble Designs
Booth 319

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http://www.ensembledesigns.com

Cindy Zuelsdorf
Director of Sales and Marketing

Carbon analog and key video inputs and outputs for O2 Genlockable. Pyxis Networkable Still Store: open platform still store for post, telecine, and broadcast. Serial Box Converters: digital and analog video conversion for all video applications. Catalyst CV: switcher and keyer for traditional video applications PLUS built-in ethernet.

Equilibrium
Booth 2145

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+1.415.332.4343
+1.415.332.4433 fax
jen-wilkin@equil.com
http://www.equilibrium.com

Jennifer Wilkin
Marketing

Equilibrium will be showing DeBabelizer Pro for Windows 95 and NT with an entirley redesigned user interface and DeBabelizer Toolbox for Macintosh, the award-winning processors for game producers, multimedia, and Web site designers. Save time, effort, and money by automating graphics processing, image, and palette manipulation, and bit-mapped file translation.

EUROGRAPHICS
Booth 2643

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+41.22.757.0318 fax
info@eg.org
http://www.eg.org

David Arnold
SIGGRAPH Liaison

EUROGRAPHICS, The European Association for Computer Graphics, is a not-for-profit association of professionals. EG has a worldwide membership (individual and institutional). The association runs conferences and workshops, and publishes on a wide range of related topics from animation, multimedia, rendering, and visualization to hardware and formal specification.

Evans & Sutherland Computer Corporation
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webmaster@es.com
http://www.es.com

Jayne Anderson
Marketing Manager

Evans & Sutherland develops and manufactures hardware and software for highly realistic visual systems that produce vivid 3D graphics and synthetic environments. E&S's systems are used in a variety of applications, including broadcast-quality virtual sets, location-based entertainment experiences, planetariums and domed theaters, desktop graphics, and commercial and military simulation and training.

Eye on Software Inc.
Booth 349

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Markham, Toronto, Ontario L3R 4T5
CANADA
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+1.905.944.4281 fax
rmcgee@eyeonline.com
http://www.eyeonline.com

Rob McGee
Vice President, Operations

Eyeon Software Inc's non-linear compositing software: Digital Fusion. An advanced, resolution-independent compositing, image processing, and special effects program for movie image production. With added capabilities, refined features, and a full range of powerful Monster plug-ins, Digital Fusion addresses the new and ever-changing demands of today's post production environment.

FAST Electronic U.S., Inc.
Booth 413

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Foster City, California 94404 USA
+1.415.295.3500
+1.415.345.3447 fax
son_hoang@fastusa.com
http://www.fastmultimedia.com

Son Hoang
Trade Show Coordinator

FAST Electronic is an award-winning manufacturer of PC digital editing solutions. Featured at SIGGRAPH 97: blue, a revolutionary new nonlinear "native digital" edit system with MPEG-2, QSDI, and DV; Video Machine, the professional hybrid edit system; and DV Master, the world's first FireWire edit system for DV video.

Floating Images Inc.
Booth 323

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Carole Foryst
Vice President Operations

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Folsom Research, Inc.
Booth 1757

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Folsom, California 95630 USA
+1.916.983.1500
+1.916.983.7236 fax
sales@folsom.com
http://www.folsom.com

Ed Hart
Vice President, Sales & Marketing

Folsom Research demonstrates its new award-winning Model 9700XL, a full featured video scan converter. The product sets a new standard for video output performace. The Model 9700XL connects to any computer or high-resolution imaging source and delivers broadcast-quality video output in RGB, NTSC, PAL, S-VHS, BETACAM, 31.5 Khz, and CCIR 601 Digital Video. We are also demonstrating our Model 9400JR, the most affordable true broadcast-quality scan converter available, and our Model 9600 VIP video windowing system.

Fujitsu Microelectronics, Inc.
Booth 2313

3545 North First Street
San Jose, California 95134 USA
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Wilta Clark
Advertising/Tradeshow Manager

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General Reality Company
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Alex Alvarex
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Graham-Patten Systems, Inc.
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Sheila Ross
Director, North American Sales

Hash Inc.
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Marshall Hash
President

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Hewlett-Packard Company
Booth 1639

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steve_sinn@hp.com
http://www.hp.com/go/technical

Steve Sinn
MarCom Program Manager

Hewlett-Packard is demonstrating the world's fastest computer graphics system. This system redefines conventional notions of graphics interactivity, functionality, quality, and scalability. Also on display: the latest on HP OpenGl and DirectModel. Visit HP's booth to see for yourself what's available from the new graphics leader.

Hitachi America, Ltd.
Booth 449

2000 Sierra Point Parkway MS: 500
Brisbane, California 94005 USA
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+1.415.244.7521 fax
moriy@halsp.hitachi.com
http://www.hitachi.com

Gladys Mar
Marketing Communications Specialist

Hitachi America Ltd., is demonstrating SPHERIX, a high-performance 3D graphics subsystem designed to accelerate and enhance Windows NT workstations. SPHERIX supports the OpenGL interface and delivers real-time 3D hardware processing, which is comparable to the more expensive UNIX based workstations. SPHERIX features tri-linear texture filtering, anti-alias polygons, hardware display list, virtual texture memory, fog, and alpha blending.

The Hollywood Reporter
Booth 1557

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Dianne Rini
Advertising Office Manager

Our audience is composed primarily of entertainment industry professionals, including those engaged in industries producing and distributing for motion pictures, television, cable TV, home video, prerecorded music, publishing, consumer electronics, and related technology, including interactive and Internet communications.

House of Moves
Booth 3711

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Tom Tolles
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Jennifer Taber
Marketing Manager

I. D. Magazine
Booth 948

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IDCIRC@aol.com

Kathy McTigue
Circulation Manager

I.D. Magazine: the international authority and essential industry resource dedicating 44 years to every aspect of design. Superior coverage features digital design, animation, graphics, products, furniture, and environments, among other topics. The prestigious Annual Design Review's overwhelming response to the Interactive Media category created an eighth issue celebrating these achievements with winning entries on CD-ROM.

IBM
Booth 1153

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Jay T. Ornellas
Global Segment Manager, Digital
Media Content Creation

IBM provides a wide array of solutions for the creation, storage, and management of digital media content, including workstations, servers, open systems storage, tape subsystems, high-resolution displays, and asset management systems. Featured in the booth: the IntelliStation, IBM's new high-performance 2D/3D NT graphics workstation.

IdN/Systems Design Limited
Booth 3626

Shop C, 5-9 Gresson Street
Wanchai, HONG KONG

Angela Lee

IEEE Computer Society
Booth 1539

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Marian Anderson
Advertising Coordinator

IEEE Computer Society, one of the most prestigious professional associations in the world, serves its members through numerous publications, conferences, and workshops. Membership information, magazine, and textbooks are on display.

IMAGICA Corporation of America
Booth 231

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jbarkin@ix.netcom.com
http://www.imagica.com

Jeffrey Barkin
Business Manager

The IMAGER3000V is a high-resolution motion picture film scanner. In addition to our highly acclaimed GUI, our scanner is now running with RIOT, Discreet Logic's advanced image manager. Come and see the ultimate in high-resolution scanning. Also, come and preview our new 3D CG software "SpeedRender," a plug-in renderer for Softimage's Mental Ray.

Imagina - INA
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Genevieve Pichon

Imagina is dedicated to the advancement of computer graphics and its application to cinema, industry, medicine, architecture. Organized by INA (Institut National de l'Audiovisuel) and the Television Festival of Monte-Carlo, in collaboration with CNC (Centre National de la Cinematographie), the seventeenth edition of Imagina will be held 4-6 March1998 in Monaco.

Immersion Corporation
Booth 2045

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David Hague
Director of Sales

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The Hollywood Reporter

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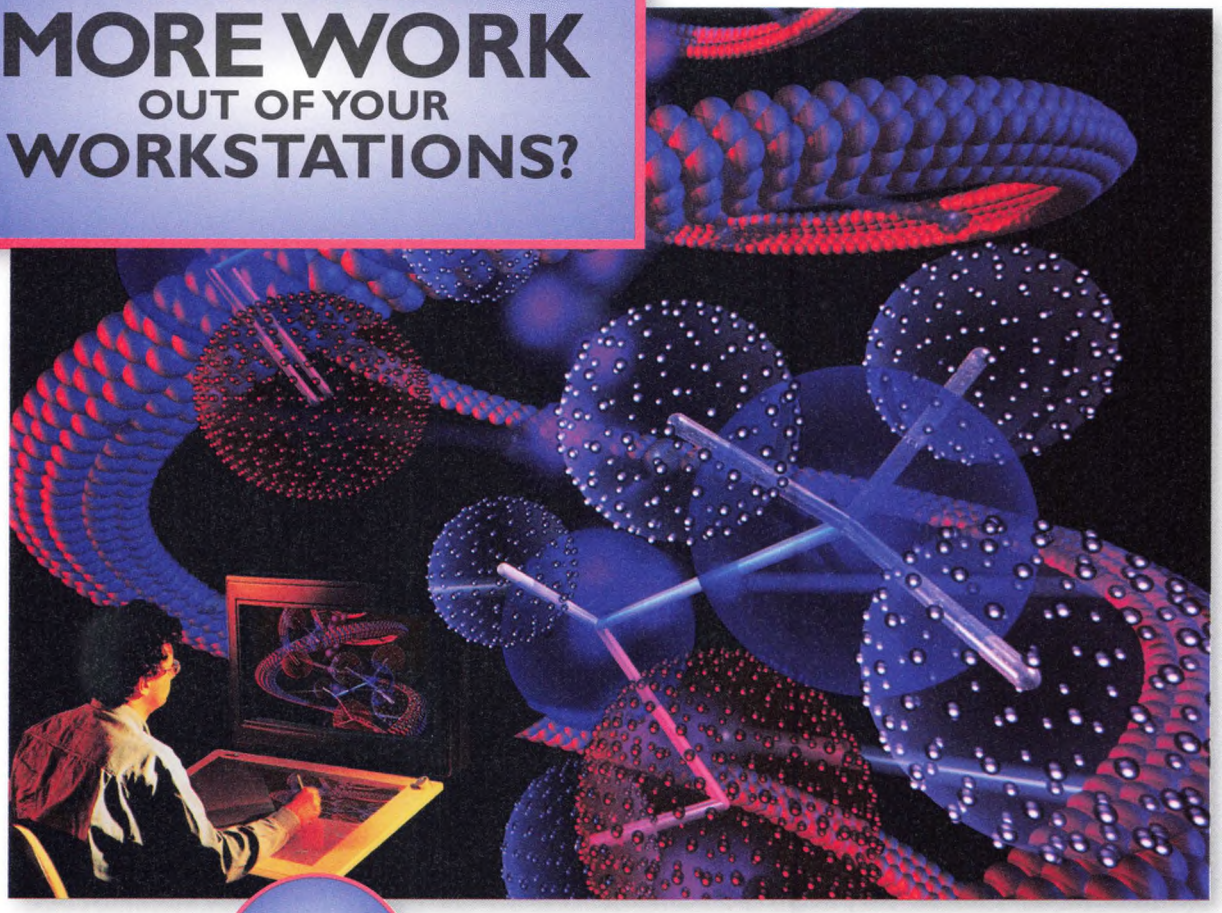

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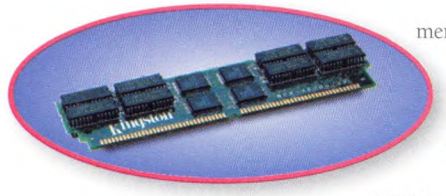

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Trade Show Coordinator

Mercury Computer Systems, Inc.
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Amy Carey
Marcom Specialist; Tradeshow and
Event Coordinator

Mercury exhibits its family of solutions that extends Advanced Workgroup Editing (AWE) capabilities to non-linear video editing suites. The family of Mercury Media Servers initially includes the MDVS hardware platform, with a range of performance options, and its revolutionary media workgroup software: SuiteFusion and LiteFusion.

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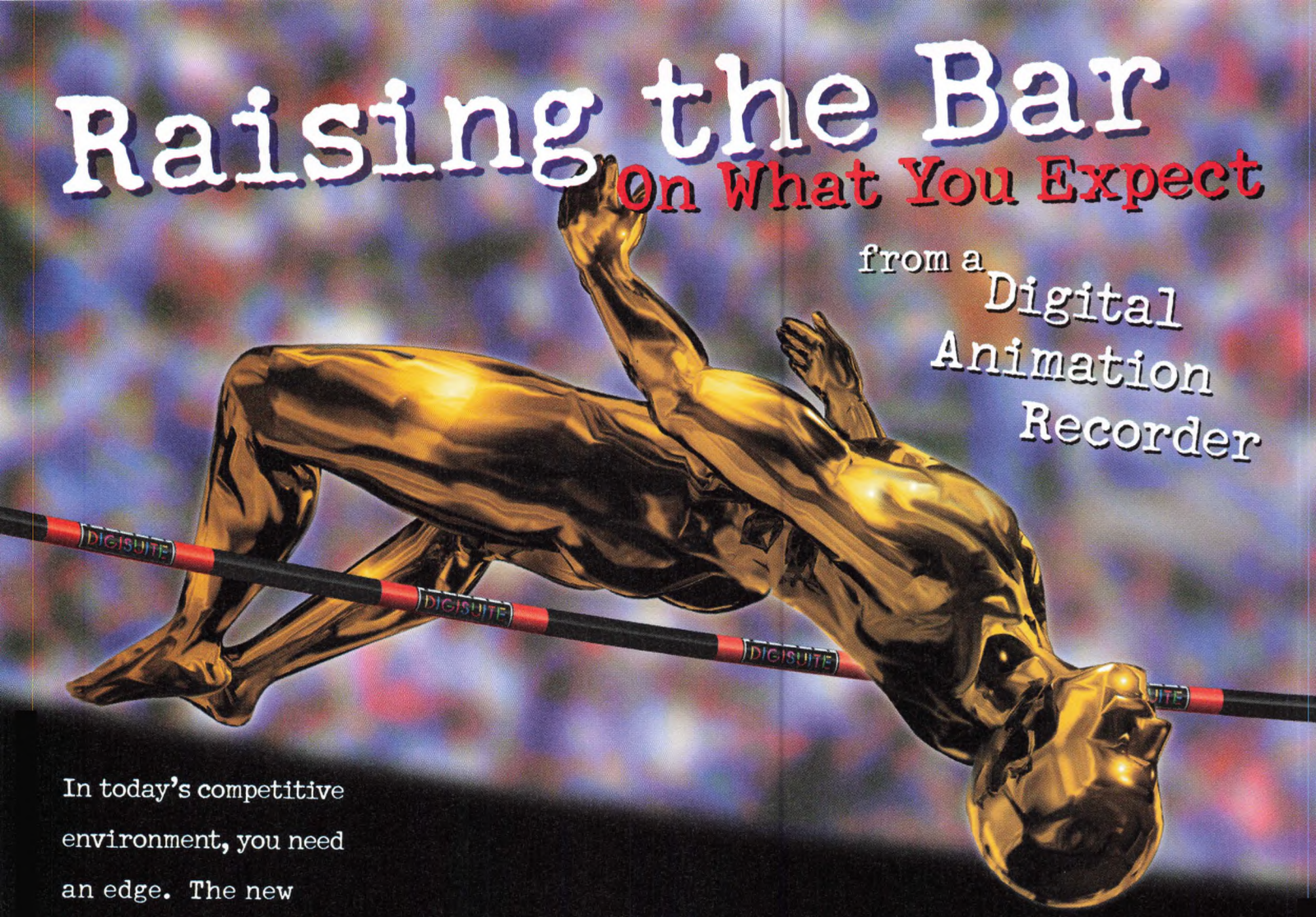

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DigiSuite lets you work in the seamless Windows® native-AVI environment that is supported by all your favorite animation, editing and compositing applications. You manipulate your digital audio/video at uncompressed-quality data rates without time-consuming and restrictive file conversions.

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Public Relations Associate

MetaCreations Corporation designs, develops, publishes, markets, and supports award-winning, innovative, real-time 3D rendering and digital imaging software for creating, editing, and manipulating graphics, images, special effects, digital art, and Internet/online content for Windows, Macintosh, and other digital computing systems. MetaCreations professional, prosumer, and consumer software is available in more than 70 countries.

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Marketing Manager

At SIGGRAPH 96, Windows had finally arrived as the compelling content-creation platform. This year, it's taken off! Check out the Microsoft booth and experience Windows like you've never seen it before: with new Microsoft DirectX APIs. Windows gives you the multimedia power you need, plus the greatest choice of hardware and software creation tools available for any platform. For film, video, graphic design, broadcast, Internet, collaborative design, and games, look to Windows for a new source of creative freedom.

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Morgan Kaufmann Publishers

An Introduction to Implicit Surfaces

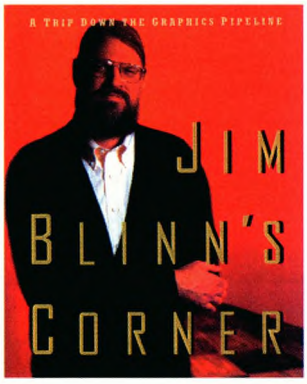
Edited by
Jules Bloomenthal

with
Chandrajit Bajaj
Jim Blinn
Marie-Paule Cani-Gascuel
Alyn Rockwood
Brian Wyvill
Geoff Wyvill

Implicit surfaces offer a new range of capabilities for the modeling of complex geometric objects. This comprehensive introduction develops the fundamental concepts and techniques of implicit surface modeling, rendering, and animating in terms accessible to anyone with a basic background in computer graphics.

- provides a thorough overview of implicit surfaces with a focus on their applications in graphics
- explains the best methods for designing, representing, and visualizing implicit surfaces
- surveys the latest research

1997; 215 pages; cloth; ISBN 1-55860-233-X; $64.95



Jim Blinn's Corner

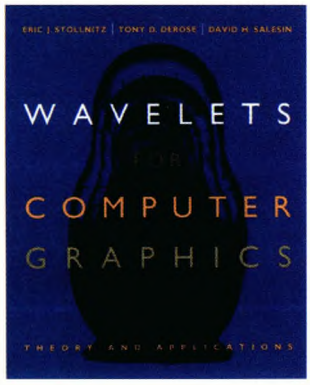
Eminent computer graphicist Jim Blinn has coupled his scientific knowledge and artistic abilities to foster the growth of the computer graphics field. These books, collections of his best columns from *IEEE Computer Graphics and Applications*, offer a wealth of tips and tricks to help computer graphics software and application developers recognize and solve graphics programming problems.

Dirty Pixels

Jim Blinn, Microsoft Research
January 1998
215 pages; paper;
ISBN 1-55860-455-3; $34.95

A Trip Down the Graphics Pipeline

Jim Blinn, Microsoft Research
1996; 216 pages; paper;
ISBN 1-55860-387-5; $34.95

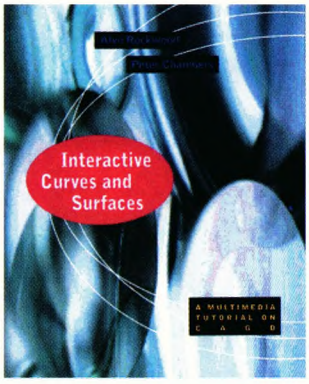


Wavelets for Computer Graphics: Theory and Applications

Eric J. Stollnitz, University of Washington, Tony D. DeRose, Pixar Animation Studios, David H. Salesin, University of Washington

Stressing intuition and clarity, this distinctly accessible introduction to wavelets provides graphics professionals and researchers with the mathematical foundations for understanding and applying this new and powerful tool. This book focuses on a generalized theory that naturally accommodates the kinds of objects that commonly arise in computer graphics, including images, open curves, and surfaces of arbitrary topology.

1996; 245 pages; cloth;
ISBN 1-55860-375-1; $49.95

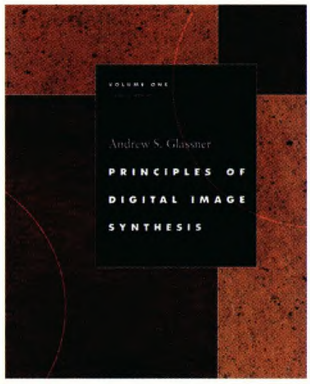


Interactive Curves and Surfaces: A Multimedia Tutorial on CAGD

Alan Rockwood, Arizona State University and Peter Chambers, VLSI Technology, Inc.

This interactive software/book tutorial teaches foundational CAGD concepts and discusses fast-growing applications in such areas as geological and molecular modeling, commercial advertising, and animation. Using interactive examples and animations to illustrate the mathematical concepts, this hands-on multimedia tutorial enables users who may not have a substantial mathematical background to quickly gain an understanding of CAGD.

1996; 217 pages; paper;
3.5" disks for windows;
ISBN 1-55860-405-7; $59.95



Principles of Digital Image Synthesis

Andrew S. Glassner, Microsoft Research

This sweeping work provides an introduction to the human visual system, digital signal processing, and the interaction of matter and energy. Glassner demonstrates how these disciplines are elegantly orchestrated into modern rendering techniques such as radiosity and ray tracing.

1995; 1600 pages/2 volumes;
cloth; ISBN 1-55860-276-3;
$94.95

Forthcoming

Working with Virtual Reality

William Sherman and Alan Craig, the National Center for Supercomputing Research
December 1997
400 pages; cloth;
ISBN 1-55860-353-0; $59.95

Rendering with Radiance

Gregory Ward, Silicon Graphics, Inc. and Robert Shakespeare, University of Indiana, Bloomington
January 1998
600 pages; paper / CD ROM;
ISBN 1-55860-499-5; $79.95

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MultiGen Inc., founded in 1986, is the leading supplier of real-time 3D authoring software for visual simulation, entertainment, and CAD visual applications. Its products, including MultiGen II, GameGen, and SmartScene are used to create 3D objects and scenes used in real-time applications for non-immersive and immersive environments.

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Josiane Beaupré
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Located in Montreal, the NAD Centre is a computer animation school that offers long-term training programs in 3D animation and video game design (Softimage 3D, Eddie, Alias, Flint). The NAD Centre is a Softimage Authorized Training Center and also provides intensive, customized, and on-site training.

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Harry Vitelli
Vice President, Marketing

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Tina Pritchett
Exhibits Manager

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Super-high-definition (SHD) images are 2048x2048 square pixels, 24 bit RGB, progressively scanned at 60 Hz or better. At SIGGRAPH 97, NTT will present the world's first SHD multimedia showcase of fine arts, entitled "The American Century: The Director's Preview," produced in collaboration with the Whitney Museum of American Art.

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Sneak Preview of new videos from the producer of the award winning "Mind's Eye" Series. New titles include "Turbulence," "Cyberscape," "Computer Animation Classics," and "Computer Animation Showcase." Also available: all four "Mind's Eye" videos, three "Computer Animation Festival" videos, and "Imaginaria."

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Brian Lewis
Sales Manager

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Pjer Zanchi
General Manager

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Richard Ohlendorf
President

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OXBERRY LLC is the manufacturer of motion picture scanners and output cameras for digital post production and film restoration. OXBERRY CINESCAN EFX and OXBERRY OXSCAN 123 are high-resolution motion picture scanners used for "film to digital" conversion and special effects production. OXBERRY CINE35 is the output film camera used by all film recorder manufacturers in "digital to film" reconversion.

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Public Relations Manager

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Panasonic Broadcast & Digital Systems Company
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Daryl Manning
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PC Video Conversion designs and manufactures professional products that easily and affordably bridge the gap between computing and broadcast media. New: VIDisplay, which enables the display of television-compatible video on LCD panels. Also featured: broadcast quality scan converters (HyperConverter), line doublers (DoubleScan), and new line quadruplers (Quadscan).

PCI–Silicon Graphics World
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Silicon Graphics World is a monthly news tabloid dedicated to providing independent news covering the entire Silicon Graphics computer system line. The publication includes user profiles and technical articles, as well as news and new product information.

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Creative Resources Manager

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Mars Booth
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Rene Kropf
Sales Manager

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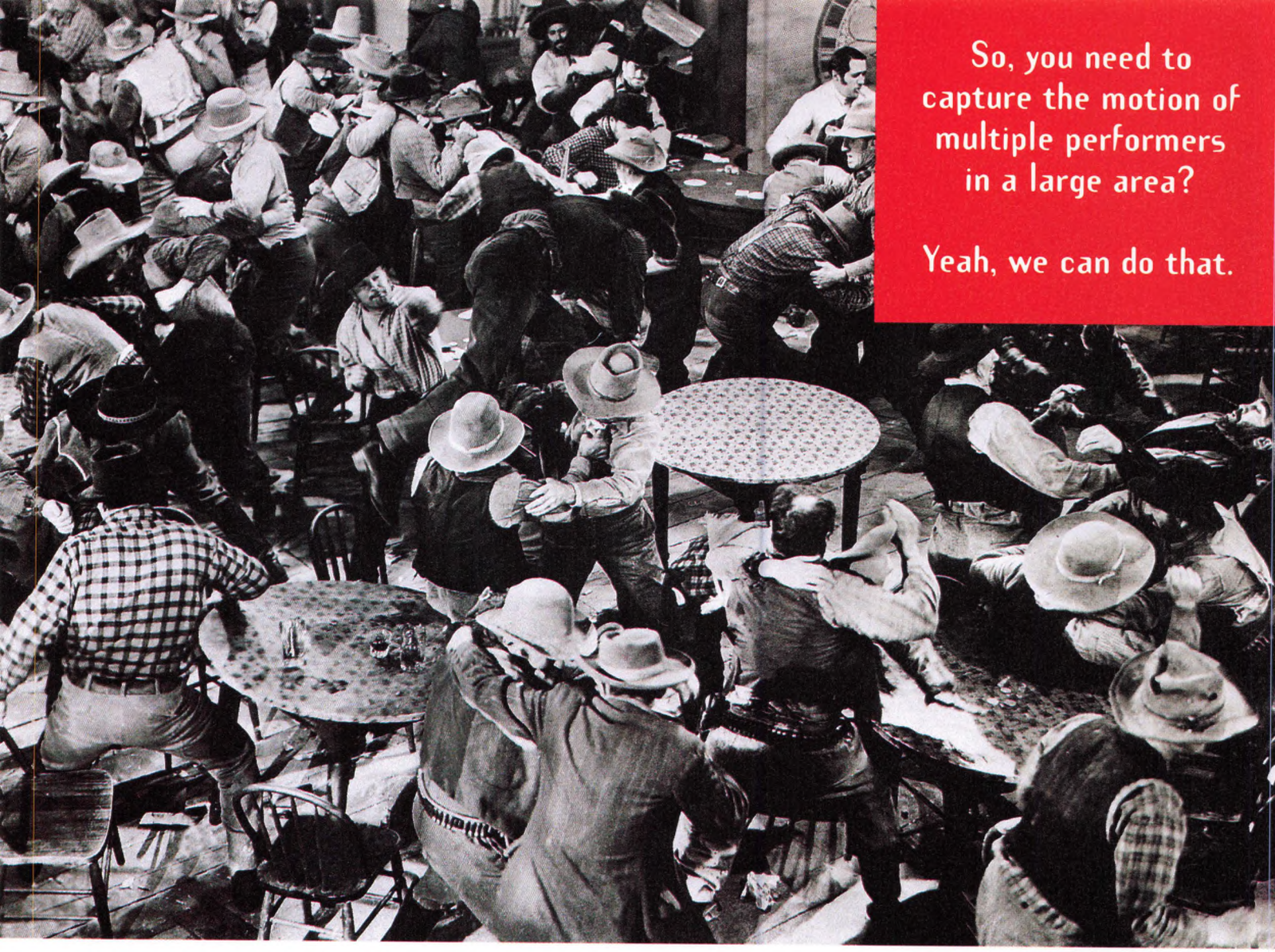

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Guy Walsingham
Director of Marketing

Following the release of Java on Quantel at NAB, Quantel demonstrates how this can be applied to Domino, the creative compositor for film. Coupled with improved networking capabilities to transparently support almost any film file format, Quantel and Domino are truly open for pictures, open for protocols, and now, with Java, open for external programming.

Quantum3D
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Quantum Corporation
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John Lenyo
Director, Corporate Marketing

Real 3D demonstrates graphics technology solutions ranging from PC chipset and board designs to real-time graphics engines. Featured products include the REAL 3D R3D/100 chipset, a single PCI card solution for Windows NT workstations, and the REAL 3D Pro-1000 Professional Series, a family of low-cost, high-performance graphics engines designed for the real-time graphics professional.

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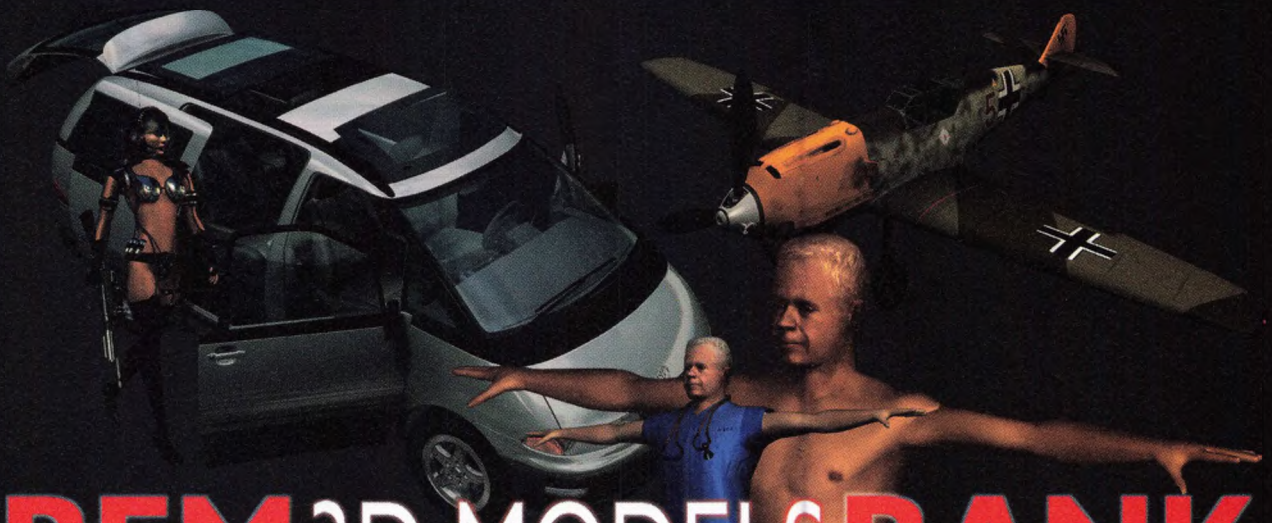

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Rhythm & Hues Studios
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Recruiting Department

Academy Award winning 3D computer animation and special effects studio Rhythm & Hues is most recently known for its work on such projects as the Coca-Cola Polar Bear commercials, features like "Babe," "Batman Forever," and "Nutty Professor" as well as internationally acclaimed motion-based ride films and interactive video games for the Sony Play Station. We have immediate openings in the areas of digital modeling, lighting, and animation.

Robert McNeel & Associates
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Robert McNeel
President

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SC97: High Performance Networking & Computing
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Don Collier
Exhibition Management

SC97: High Performance Networking and Computing will be held November 15-21, 1997 at the San Jose Convention Center in Silicon Valley, California. SC97 is the tenth in a series of world-class technical conferences previously known as Supercomputing XY. The change in name reflects the conference's growing attention to networking, distributed computing, data-intensive applications, and other emerging technologies that are redefining communications and computing.

Screen Actors Guild
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SensAble Technologies, Inc.
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Greta Green
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Angela DelPonte
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Sales Representative

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Sierra Design Labs
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Jeff Hirsch
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Sigma Electronics
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Eric Wahlberg
Marketing Manager

Sigma Electronics manufactures a comprehensive line of video and audio products including: routing switchers from 16x16 to 128x128; video and audio distribution amplifiers; sync and timing products; encoders, decoders, and transcoders.

Silicon Grail
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Samantha McGovern
Customer Support Representative

Silicon Grail is the maker of Chalice, the film-resolution compositing software created by and for film professionals. Chalice offers unparalleled flexibility and data throughput in a dynamic, open environment. Silicon Grail's unique usage-based pricing gives Chalice a remarkably low per-seat cost, making it ideal for both high-volume facilities and single users.

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Crystal Van Brug
Manager, Trade Shows and Events

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Society of Motion Pictures and TV Engineers
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John Izzo
Director of Marketing

SMPTE is the leading association for professionals in motion pictures, television, multimedia, and the related arts and sciences. SMPTE disseminates technical information, publishes the acclaimed SMPTE journal, and provides educational opportunities to its 10,000 members throughout 75 countries. It is widely accepted as the industry source for developing ANSI-approved standards, recommended practices, and engineering guidelines.

Softimage Inc.
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Moshe Lichtman
General Manager

Softimage develops computer animation software for artists who animate dinosaurs for "The Lost World: Jurassic Park," artists who animate singing babies for Chevy commercials, artists who create weekly half-hour animated television shows, and artists who animate Sumo wrestlers for Virtua Fighter 3. See the software that helps it happen: Softimage/3D, Softimage/Eddie Softimage/Digital Studio, Toonz.

Solid Systems CAD Services, Inc.
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William Olund
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Solomon Volumetric Imaging/Holoverse Inc.
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Houdini runs on Silicon Graphics workstations

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Booth 1827

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http://www.sony.com

Jerry Charles
Exhibit Services Director

Sony exhibits a look at solutions for the digital future from content creation to post production to distribution to consumption. Solutions include a broad range of hardware and creation software, including high-resolution cameras, printers, monitors, tape drives, tape machines, animation software, mass storage, and workstations.

Sony Pictures Imageworks
Booth 2131

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Don Levy
Executive Director, Publicity
Promotion and Advertising

Sony Pictures Imageworks is a community of artists where talent and technology converge to produce visual effects, commercials, animation, Web sites, and previsualization planning in a state-of-the-art digital environment designed by and for the next generation of computer graphics artists and animators.

Sony/Tektronix Corporation
Booth 2121

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Takeuchi Takashi
STmage

Sound Ideas/Image Ideas
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http://www.sound-ideas.com

Michael Bell
Vice President

Sound Ideas, the largest producer of professional quality, royalty-free sound effects, exclusively represents a remarkable lineup of effects libraries including: Lucasfilm, Warner Bros., Hanna-Barbera, and Turner Entertainment Co. Image Ideas offers a comprehensive selection of top-quality, high-resolution, royalty-free digital image collections on CD-ROM: tailor-made for multimedia applications and graphic design.

Spacetec IMC Corporation
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Stas Mylek
Vice President of Marketing; Industrial Sector Business

SpaceWare AniMotion is a software/hardware solution for Kinetix's 3D Studio MAX animation software. SpaceWare AniMotion provides a plug-in for 3D Studio MAX and the Spaceball SpaceController 3D control device. By pushing, pulling, or twisting the SpaceController's PowerSensor ball in the direction they want to go, animators can dynamically move objects, cameras, and light sources.

Springer-Verlag New York, Inc.
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Jason Roth
Junior Product Manager
Computer Science

Springer-Verlag is an international publisher of books, journals, and lecture notes. Stop by our booth for a selection of current titles, including Image Processing for Computer Graphics, by Gomes and Velho, Fast Algorithms for 3D-Graphics, by G. Glaeser, and the new second edition of Piegl and Tiller's The NURBS Book.

Sprint
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http://www.sprint.com/drums

Jennifer Greig
Marketing Manager

Sprint Drums is a real-time collaborative WAN service targeted to the advertising and entertainment industries, used to create commercials, films, or other creative projects online. Drums enables creative professionals to send videos, animation, and/or graphics to one another and to their clients in real time. Drums also provides multiple speeds, MAC/PC and SGI options, and an identified community of users through an online directory.

SQUARE USA, Inc.
Booth 2151

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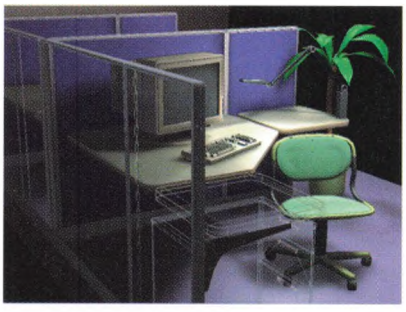
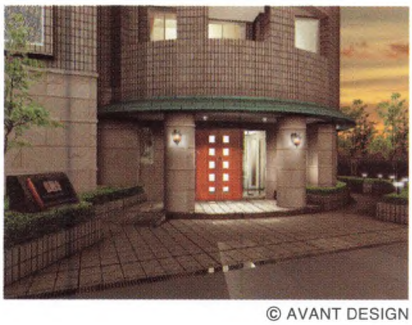
Nana Ishizuka
Coordinator

SQUARE USA is one of the most dedicated game creators, pursuing the next generation of interactive entertainment within the fast-evolving gaming market and the world of digital entertainment. With our new name SQUARE USA, the Los Angeles studio will be concentrating on game production, and our Honolulu studio will be involved in film production.

booth No : 2121

You'd be so nice to come to our booth!





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Sony/Tektronix Corporation
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Storage Concepts
Booth 763

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Jim Biernacki
Vice President Sales

Storage Concepts will be demonstrating its FibreRAID, a 100-Megabyte/second fibre channel RAID storage system for uncompressed and multiple-stream video applications. Host platforms include SGI Impact, 02, Onyx, Challenge, PCI, and Mac series computers. Also demonstrating VideoStar, a complete Video Server with support for MPEG-1 and MPEG-2 compressed images.

Strata, Inc.
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Gina Schwendiman
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Strata Inc. is a leading provider of content creation tools for the digital video, interactive media, and creative design professional. As a pioneer and industry leader in 3D graphics and animation software, Strata is committed to providing powerful, easy-to-use multimedia applications for both the Macintosh and Windows 95/NT platforms.

Sun Microsystems Inc.
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Marlene Whiteman
Events Marketing Manager

A singular vision, "The Network Is the Computer," has propelled Sun Microsystems to its position as a leading provider of enterprise-wide hardware and software solutions, the innovative Java programming environment, and high-performance 3D graphics workstations.

Superscape
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Saul Kato
President, CEO

Sven Technologies develops 3D graphics tools for the professional and consumer. Sven Tech unveils SurfaceSuite, an application revolutionizing the way texture maps are created and applied, generating a new level of photorealism in 3D animation, and AvatarMaker, an intuitive tool for creating 3D characters for virtual worlds and graphic design.

Symmetric
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Belinda Copus
Vice President, Marketing

Symmetric designs and manufactures award-winning high-performance 3D graphics accelerators for animation and CAD/CAM professionals. Symmetric products provide workstation-class performance for Windows NT and Windows 95. Symmetric's products include the GLyder MAX-2, GLyder/MX, and the GLyder/MP.

Techexport, Inc.
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Marketing Manager

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http://www.tek.com/color_printers/

On display: Tektronix Phaser color printers featuring Adobe PostScript Level 2 and color output at speeds up to 6 PPM. Media sizes from postcard to 36 inches by 18 feet. Print resolutions range from 300 to 1200 dpi. Internal network interfaces support a variety of protocols and standards.

TELOS, The Electronic Library of Science
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Keisha Sherbecoe
Publishing Associate

TELOS, The Electronic Library of Science, is an imprint of international publisher Springer-Verlag. Encompassing all of the sciences, our publishing goal is to wed traditional print with emerging electronic media. Visit our booth to check out such titles as Mathematica Graphics, Techniques and Applications, by Tom Wickham-Jones of Wolfram Research.

Terran Interactive
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Texas Memory Systems, Inc.
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Holly Frost
C.E.O.

The SAM-350 (Shared Access Memory), a real-time DSP system with a design suited for FFT, convolution, correlation, and matrix multiplication applications has improved memory and bandwidth, and enables expanded application. The SAM-350, which updates the company's Viper system, combines multiple fast I/O ports, fast memory, fast processing, a real-time executive, and a host of other features to give it an unmatched interfacing capability and a complete scientific library.

TGS, Inc.
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Robert Weideman
Vice President Marketing

TGS is a leading vendor of interactive 3D graphics toolkits and applications targeting professional developers and desktop users on Unix and PC systems. For developers, TGS provides C++, ActiveX, and Java 3D toolkits supporting Open Inventor, DirectModel, PHIGS, and VRML. TGS desktop products include 3Space Assistant for CAD users and 3Space Publisher for 3D Web page and document design. TGS also offers modeling and space design applications.

Toon Boom Technologies, Inc.
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Toon Boom Technologies, the leading developer of 2D animation production software: USAnimation & TicTacToon. Vector based tools for feature films, episodic television, commercials, and interactive titles. Composite live action, 3D and 2D animation for spectacular results. Render to any video or film format. Recommended for all studio sizes. Distributors worldwide.

Toronto, Ontario Visual Effects Industry c/o Ontario Film Development
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Gail Thomson
Director-Location, Promotion and Services

Canada is a leader in the animation, visual, and special effects industry, and the reputation of its creators is world-class. Represented at SIGGRAPH 97 are a number of the largest companies from Toronto, Ontario, including Calibre Digital Design, Command Post, C.O.R.E., Digital Pictures, Dan Krech Productions, Gajdecki Visual Effects, Soho Post & Graphics, Spin Productions, TOPIX/MADDOG, and Waveform Digital Pictures, as well as Seneca College, Sheridan College, and the Toronto and Ontario Film Commissions.

Transoft Technology Corporation
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Sales

Transoft features StudioBOSS Fibre Channel networks for SGI, Mac, and Windows NT platforms. StudioBOSS FC has the ability to access centralized data quickly and simultaneously, up to 200MB/sec for universal filesharing and multi-user workstations. Applications serve animation, video, and graphic applications. StudioBOSS Cross-Platform allows all workstations to access the same high-speed storage systems with on-the-fly format conversion, speeding transfers between workstations and across platforms.

Transom Technologies, Inc.
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The Transom Jack software system provides a powerful 3D graphical environment that enables a user to create or import graphics of objects and environments, easily populate the environment with a human model or models, and interact with the "virtual scene." Transom Jack enables definition, positioning, animation, and human factors performance analysis of simulated human figures. Such figures can be used for human factors analysis of reach, grasp, view, fit, comfort, and motion.

Tri-Star Computer
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Mike Lucien
Marketing Coordinator

Tri-Star Computer manufactures low-cost, high-quality, high-performance Windows NT graphic workstations and servers for graphic-intensive software users in the CAD/CAM/CAE and 3D animation and post-production markets. Tri-Star custom configures its StudioStation, StarStation, PowerStation and StarServer workstations, giving customers the ultimate compatibility with the applications they use most.

Trinity Animation
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http:///www.trinity3d.com

Jim Lammers
President

Trinity Animation with Sisyphus Software presents the next generation of tools for animators: RealLensFlare, a Max plug-in, adds revolutionary radiant-object effects. Pyromania 3 CD includes all new cinematic explosion effects. Anthropos is a new parameterized human for Max Animators.

TV One Multimedia Solutions
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David K. Barnes
President

TV One offers a complete range of cost-effective scan converters and genlock/overlay adapters: the DeltaScan Series. Introducing the new CORIOscan series of high-performance scan converters. The DV Edit Factory will be shown, as well as all DV Firewire IEEE1394 products.

Ultimatte Corporation
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Lynne Sauve
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Ultimatte Corporation designs and manufactures blue and green screen matte extraction and compositing software and hardware for the film and video post-production marketplace. In addition to its hardware products, Ultimatte has developed software plug-ins that combine Ultimatte's Oscar- and Emmy-winning technology with the power of various editing and compositing programs.

Umax Technologies, Inc.
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University of Advancing Computer Technology
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Promotion Coordinator

The University of Advancing Computer Technology's Computer Reality Center (CRC) offers essential services needed to help companies, educational institutions, or government agencies use new computer technologies. The CRC helps these clients develop and implement virtual reality, multimedia, animation, CD's and CBT's, short-term training, and more.

Unlimited Potential, Inc.
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Mike Reed
Director of Research and Development

Creative minds developing innovative tools for 3D artists. Unlimited Potential, Inc. produces WaveFilter, top-selling plug-ins for 3D Studio Max and LightWave 3D. All plug-ins work as unlockable comparison proof demos and are distributed on "The WaveFilter Plugins CD".

UPSIDE Magazine
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UPSIDE is a national magazine edited for the technology elite. Every month, technology executives turn to UPSIDE for interviews with industry visionaries and in-depth analyses of the technologies and companies driving the digital revolution. UPSIDE Media Inc. also produces UPSIDE.com (www.upside.com), a comprehensive business resource center for technology-savvy executives.

Vangard Technology, Inc.
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Vice President of Marketing

Vangard Technology is a leading provider of data management and systems integration solutions focused on delivering intelligent and comprehensive solutions to solve today's business problems. With a focus on mass storage systems, intranet/Internet, and networking solutions, Vangard Technology analyzes Unix storage requirements and architects solutions, implements secure, automated systems, and provides ongoing training, support, and system development.

Variety's ON Production
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Jerry Brandt
Publisher

Variety's ON Production is an industry-leading publication that addresses all branches of the motion picture, television, and commercial production businesses and provides the best reach into the production and post-production segments of those industries. It reaches the key decision makers of management, creative, and technical professionals. It is the fastest growing publication in the field.

Ventana
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Rebecca Sawyer
Promotions Manager

A leading publisher of Internet, programming, and computer graphics books and book/CD-ROMs, Ventana is primarily exhibiting its graphics, animation, and design titles. They include such popular books as Lightwave 3D 5 Character Animation f/x, 3D Studio MAX f/x, Photoshop 4 f/x, Official Netscape Guide to Web Animation, and related titles.

Verité Digital Film System
Booth 1369

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Sean Adkins
President

The unique design of the Verité Digital Film System simplifies the complexity normally associated with laser film scanning and recording machines. The Verité now offers more flexibility and options in film formats and resolutions than any other similar product.

Vicon Motion Systems
Booth 313

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Nick Bolton
Product Manager (Animation)

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Video Symphony
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Michelle Charles
Trade Show Manager

Video Systems magazine focuses on the tasks and objectives readers face and serves decision-makers in business and industry, independent production facilities, and independent producers. Millimeter magazine is a monthly publication that serves film, video, and multimedia production professionals in advertising, motion pictures, and television.

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- Professional Series

ViewSonic PT775
- 17" CRT Size 16.0" Viewable
- Aperture Grille Pitch .25mm
- 96kHz Horizontal Scan Rate
- 1600 x 1200 @ 77Hz Maximum Resolution
- TCO Compliance
- Professional Series

ViewSonic GT775
- 17" CRT Size 16.0" Viewable
- Aperture Grille Pitch .25mm
- 86kHz Horizontal Scan Rate
- Optimum Resolution 1280 x 1024 @ 80Hz
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ViewSonic®

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*The 29GA has a one year limited warranty on CRT, parts and labor.

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Digital disk recorders utilizing lossless storage, and Box Hill RAID arrays with fiber channel. V-LAN Control Network for synchronizing up to 31 DDR streams (servers) or videotape recorders.

Viewpoint DataLabs International, Inc.
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Viewpoint DataLabs International is the worldwide leader in the creation, publishing, and licensing of 3D models for use in films, television, multimedia, online and Web applications, visual simulation, and computer-based training. Viewpoint's 3D models support all major 3D software formats and can be viewed either via catalogue or online at our Web site.

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Tom Paterniti
Director of Product Marketing

ViewSonic Corporation, the display technology company, is showing their award-winning CRT and LCD displays. New 17-inch and 21-inch (various viewables) CRT SonicTron models featuring aperture grille technology are on display. Designed for the graphics and pre-press user, these monitors push the envelope of technology with ultra-high resolutions and refresh rates.

VIFX
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Amy Shomer
SIGGRAPH Producer

VIFX is a full-service film and television production studio specializing in computer-generated and visual effects. VIFX produces CG effects, (3D and 2D), digital compositing, second-unit and motion-control photography for motion pictures, TV, commercials, and music videos. A strategic alliance with 20th Century Fox allows VIFX to compete with other major visual effects companies for the highest profile motion picture projects.

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Evelyn Chiang
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Virtual Technologies, Inc. provides high-performance hand and body motion tracking, force feedback, and related products. The company offers the 18-sensor and 22-sensor CyberGlove instrumented gloves, the CyberTouch tactile feedback option and the GesturePlus gesture recognition system. Upcoming 1998 products include the CyberSuit full-body measurement and CyberGrasp force feedback for CyberGlove.

Visible Productions
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Shelley Rowley
Conference Coordinator

Our 3D models, based on the NLM's Visible Human Project dataset and developed using proprietary software, are the most accurate anatomical models ever produced. Because of their exceptional quality, these models will have enormous value for publishers, VR researchers, medical device manufacturers, pharmaceutical companies, advertisers, educators, and medical professionals.

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Sophie Barrett
Director, Corporate Communications

Vision International, a leader in interactive 3D and 4D visualization, provides end-to-end information technology solutions. From special effects to interactive multimedia content, we create imaginative and technical solutions for virtually any medium. With experienced multimedia developers and integrators, Vision International designs, develops, and implements products tailored to the customer's specific needs.

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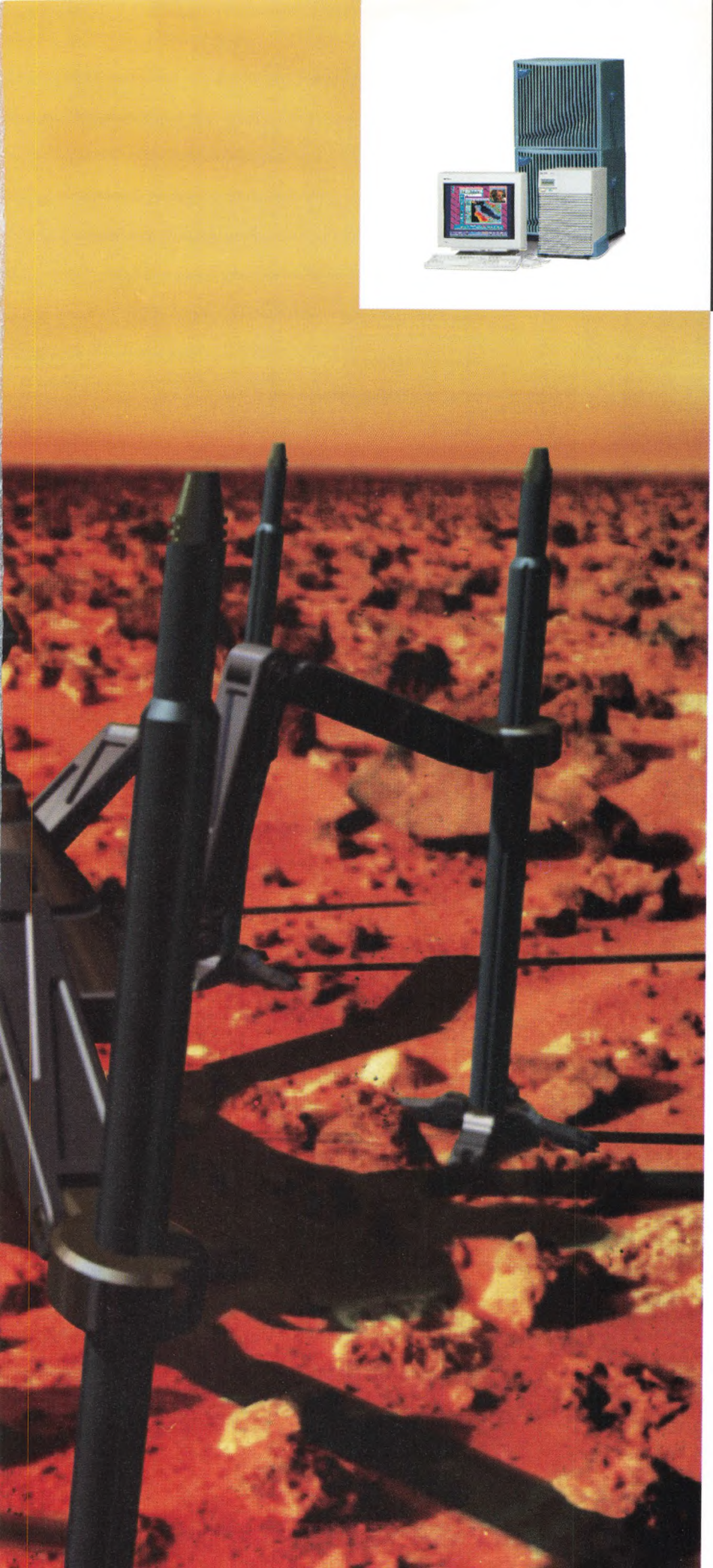

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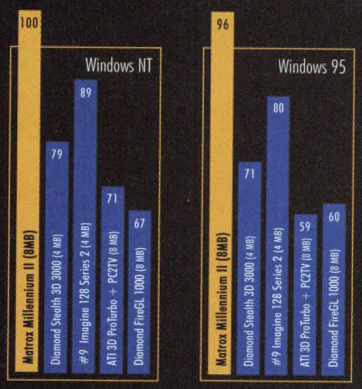

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1827	Sony
1277	Sprint
762	Transoft Technology Corporation
2216	TV One Multimedia Solutions
3613	Ultimatte Corporation
1569	Unlimited Potential, Inc.
926	Videomedia, Inc.

Electronic publishing
Edición electrónica
Publishing elettronico
エレクトロニック - パブリシング
Elektronische Veröffentlichung
Publication électronique
전자출판
Publicação eletrônica

Booth	
1413	Adobe Systems Inc.
3601	Ampex Corporation
3606	Appian Graphics
1527	Artbeats
960	Aztek Inc.
944	Balboa Capital
2139	Bit 3 Computer Corporation
3319	Carrera Computers
819	Cartesia Software
2161	Chroma Graphics, Inc.
805	Computer Graphics World/Digital Magic Magazine
470	Computrend
2242	Digital Wisdom Inc.
1153	IBM
3513	Journey Education Marketing
905	Media 100, Inc.
3501	Omnicomp Graphics Corporation
901	ProMax Technology
2163	Quantum Corporation
361	QuVIS
2068	Radiance Software International
138	Silicon Graphics World
1827	Sony
3624	University of Advancing Computer Technology
2109	Visible Productions

Encoders/decoders
Codificadores/decodificadores
Codificatori/decodificatori
エンコーダ／ディコーダ
Kodierer/Dekodierer
Codeurs/décodeurs
인코더/디코더
Encodificadoras/decodificadoras

Booth	
3509	AJA Video
452	B & H Photo-Video-Pro Audio
1719	Chyron Corporation
319	Ensemble Designs
815	Leitch
339	Miranda Technologies
2623	PC Video Conversion
361	QuVIS
1626	Sigma Electronics
1827	Sony
763	Storage Concepts
2216	TV One Multimedia Solutions
926	Videomedia, Inc.

Engineering/scientific applications
Aplicaciones de ingeniería/científicas
Applicazioni di ingegneria/scientifiche
科学技術用アプリケーション
Bauwesen/wissenschaftliche Anwendungen
Applications techniques et scientifiques
공학/과학 응용분야
Aplicações de engenharia/científicas

Booth	
2633	3D Construction Company
827	A K Peters, Ltd.
831	Advanced Visual Systems Inc.
3601	Ampex Corporation
3307	Animation Science
3606	Appian Graphics
849	$(Art)^n$ Laboratory
960	Aztek Inc.
2139	Bit 3 Computer Corporation
3319	Carrera Computers
426	CGI
1121	Digital Equipment Corporation
2271	ENCAD, Inc.
2439	Engineering Animation, Inc.
1107	Evans & Sutherland
323	Floating Images Inc.
3715	General Reality Company
1639	Hewlett-Packard Company
469	InnovMetric Software Inc.
3513	Journey Education Marketing
859	LightWork Design
917	Mitsubishi Electronics America, Inc.
455	MotionAnalysis Corporation
1469	MuSE Technologies, Inc. (MTI)
442	n-vision, inc.
1610	Northern Digital Inc.
912	Numerical Algorithms Group, Inc.
863	NVision, Inc.
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
1427	Polhemus
3506	Pyramid Systems, Inc.
968	Questar Productions, LLC
361	QuVIS
119	Real 3D
1483	REALAX Corporation
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
1139/ 1339	Silicon Graphics, Inc.
942	Society of Motion Pictures & TV Engineers
1601	Solid Systems CAD Services, Inc.
1001	Texas Memory Systems, Inc.
1005	TGS Inc.
1160	Tri-Star Computer
3624	University of Advancing Computer Technology
569	Virtual Technologies, Inc.

GIS/mapping
GIS/mapeo
GIS/cartografia
GIS マッピング
GIS/Kartographie
GIS/mappage
GIS/지도처리
GIS/mapeamento

Booth	
831	Advanced Visual Systems Inc.
3601	Ampex Corporation
2238	C I R A D
3319	Carrera Computers
819	Cartesia Software
2242	Digital Wisdom Inc.
1154	ELSA Inc.
1639	Hewlett-Packard Company
439	Intergraph Corporation
3513	Journey Education Marketing
917	Mitsubishi Electronics America, Inc.
912	Numerical Algorithms Group, Inc.
3501	Omnicomp Graphics Corporation
968	Questar Productions, LLC
361	QuVIS
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
1601	Solid Systems CAD Services, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
3624	University of Advancing Computer Technology

Graphic art/design systems
Sistemas de arte/diseño gráfico
Sistemi di arti grafiche/disegno
グラフィック - アート/デザイン システム
Graphik- und Designsysteme
Systèmes d'art graphique et de conception
그래픽 예술/디자인 시스템
Sistemas de desenho e arte gráficos

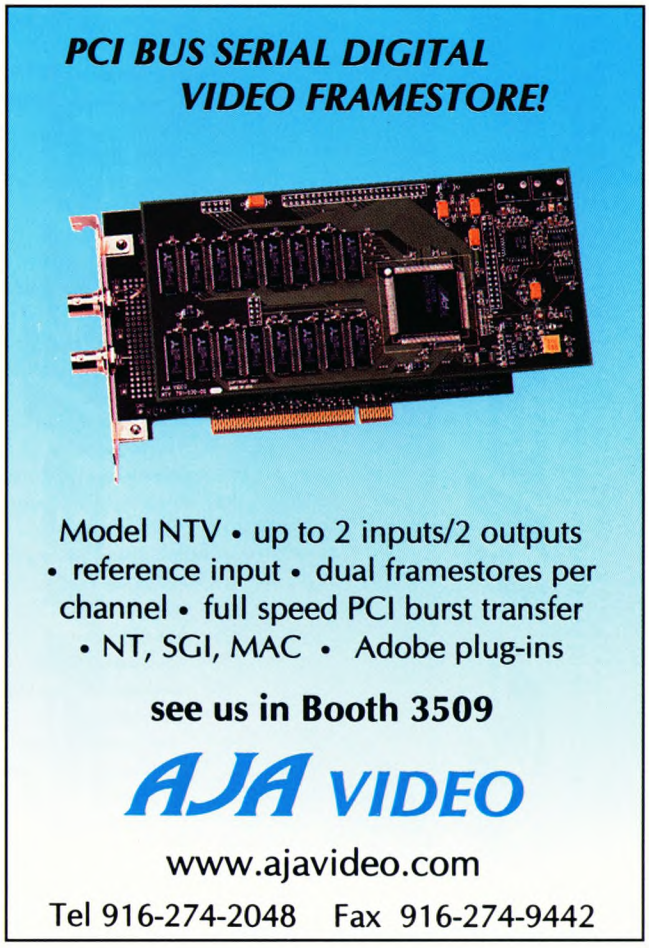
Booth	
1413	Adobe Systems Inc.
2101	Alien Skin Software, LLC
3601	Ampex Corporation
1307	Apple Computer, Inc.
849	(Art)^n Laboratory
1527	Artbeats
2017	auto.des.sys, Inc.
425	Avid Technology Inc.
960	Aztek Inc.
1453	BARCO, Inc.
813	Bushey Virtual Construction
1700	CADCrafts
3319	Carrera Computers
819	Cartesia Software
1069	CGSD Corporation
1719	Chyron Corporation
2251	Compaq Computer Corporation
470	Computrend
2242	Digital Wisdom Inc.
2271	ENCAD, Inc.
2145	Equilibrium
323	Floating Images Inc.
1153	IBM
2045	Immersion Corporation
2363	Integrated Computing Engines, Inc.
639	Intel Corporation
2211	Interactive Effects - Amazon
3513	Journey Education Marketing
3325	LambSoft, Inc.
815	Leitch
917	Mitsubishi Electronics America, Inc.
1177	MountainGate
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
901	ProMax Technology
239	Quantel, Inc.
361	QuVIS
2068	Radiance Software International
119	Real 3D
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
249	SensAble Technologies, Inc.
1139/ 1339	Silicon Graphics, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
2121	Sony/Tektronix Corporation
855	Sven Technologies Inc.
3624	University of Advancing Computer Technology

Graphics accelerator boards
Tableros de aceleración de gráficas
Boards per acceleratori grafici
グラフィック - アクセレレータ - ボード
Beschleunigungsplatte für Graphiken
Cartes accélératrices de graphiques
그래픽 가속장치
Cartão de aceleração de gráficos

Booth	
518	3Dlabs, Inc.
561	AccelGraphics, Inc.
3606	Appian Graphics
1700	CADCrafts
3319	Carrera Computers
2063	Diamond Multimedia
1121	Digital Equipment Corporation
801	Dynamic Pictures, Inc.
1154	ELSA Inc.
2643	EUROGRAPHICS
1107	Evans & Sutherland
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
1639	Hewlett-Packard Company
439	Intergraph Corporation
2363	Integrated Computing Engines, Inc.
3513	Journey Education Marketing
2307	Matrox Graphics Inc.
917	Mitsubishi Electronics America, Inc.
3501	Omnicomp Graphics Corporation
2057	Quantum 3D
119	Real 3D
1461	SENSE8 Corporation
1276	Symmetric

Graphics standards software
Programas de normas gráficas
Software per grafici standard
グラフィック - スタンダード ソフトウエア
Graphik-Standard-Software
Logiciel de normes graphiques
그래픽 표준화 소프트웨어
Software padronizado de gráficos

Booth	
518	3Dlabs, Inc.
1413	Adobe Systems Inc.
831	Advanced Visual Systems Inc.
2145	Equilibrium
2643	EUROGRAPHICS
349	Eyeon Software Inc.
323	Floating Images Inc.
1639	Hewlett-Packard Company
3513	Journey Education Marketing
815	Leitch
124	Maxon Computer GmbH
2413	MetaCreations Corporation
3501	Omnicomp Graphics Corporation
920	P.E. Photron
2068	Radiance Software International
1461	SENSE8 Corporation
471	Solomon Volumetric Imaging/Holoverse Inc.
1005	TGS Inc.



Hardcopy devices; photographs/slides
Aparatos de impresión; fotografías/diapositivas
Dispositivi per documenti stampati; fotografie/diapositive
ハードコピー装置：写真／スライド
Hardcopygeräte; Fotografien/ Dias Reprographes; photographies/ diapositives
복사장치: 사진/슬라이드
Dispositivos de cópia: fotos/ diapositivos

Booth	
849	(Art)^n Laboratory
452	B & H Photo-Video-Pro Audio
904	CELCO
2230	Depthography Inc.
430	OXBERRY LLC
361	QuVIS
1505	Tektronix, Inc.

Hardcopy devices; printers/plotters
Aparatos de impresión; impresores/ trazadores
Dispositivi per documenti stampati; stampanti/diagrammatori
ハードコピー装置：プリンター／プロッター
Hardcopygeräte; Drucker/ Planzeichner, -schreiber
Reprographes; imprimantes, traceurs
복사장치: 프린터/플로터
Dispositivos de cópia: impressoras/ traçadoras

Booth	
849	(Art)^n Laboratory
960	Aztek Inc.
452	B & H Photo-Video-Pro Audio
2271	ENCAD, Inc.
2645	IRIS Graphics
361	QuVIS
1601	Solid Systems CAD Services, Inc.
1827	Sony

HDTV
HDTV
HDTV
HDTV
HDTV
HDTV
고화질 텔레비젼
HDTV

Booth	
518	3Dlabs, Inc.
3601	Ampex Corporation
3319	Carrera Computers
470	Computrend
1500	Digital Marketing International/TEI
2239	Discreet Logic
1839	Eastman Kodak Company
323	Floating Images Inc.
1757	Folsom Research, Inc.
1476	Interactive Pictures Corporation
339	Miranda Technologies
855	MMS Multi Media Systems GmbH
1177	MountainGate
3501	Omnicomp Graphics Corporation
430	OXBERRY LLC
361	QuVIS
1870	Sierra Design Labs
942	Society of Motion Pictures & TV Engineers
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony

High-performance graphics processors
Procesadores gráficos de alto rendimiento
Elaboratori grafici a high performance
高パーフォーマンス - グラフィックプロセッサ
Hochleistungsprozessor für Graphiken
Processeurs graphiques à haute performance
고성능 그래픽 연산자
Processadores de gráficos de alto desempenho

Booth	
518	3Dlabs, Inc.
2258	Advanced Rendering Technology Ltd.
3601	Ampex Corporation
813	Bushey Virtual Construction
1700	CADCrafts
3319	Carrera Computers
1719	Chyron Corporation
470	Computrend
1121	Digital Equipment Corporation
801	Dynamic Pictures, Inc.
2313	Fujitsu Microelectronics, Inc.
449	Hitachi America, Ltd.
1153	IBM
639	Intel Corporation
439	Intergraph Corporation
2363	Integrated Computing Engines, Inc.
2307	Matrox Graphics Inc.
2117	MiniComputer Exchange
917	Mitsubishi Electronics America, Inc.
3501	Omnicomp Graphics Corporation
239	Quantel, Inc.
2057	Quantum3D
361	QuVIS
119	Real 3D
1601	Solid Systems CAD Services, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
1001	Texas Memory Systems, Inc.

High-resolution graphic display systems
Sistemas de muestra gráfica de alta resolución
Sistemi di display grafici ad alta definizione
高解像度グラフィック - ディスプレーシステム
Graphische Darstellungssysteme mit hoher Auflösung
Systèmes d'affichages graphiques à haute résolution
고화소 그래픽 디스플레이 시스템
Sistemas de display gráficos de alta resolução

Booth	
518	3Dlabs, Inc.
3606	Appian Graphics
1868	ASK LCD, Inc.
3315	Carrera Computers
470	Computrend
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
3715	General Reality Company
1153	IBM
439	Intergraph Corporation
3513	Journey Education Marketing
954	Lightwave Communications, Inc.
339	Miranda Technologies
855	MMS Multi Media Systems GmbH
442	n-vision, inc.
955	NeTpower
3501	Omnicomp Graphics Corporation
1856	Proxima Corporation
361	QuVIS
146	RGB Spectrum
1601	Solid Systems CAD Services, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony
1447	StereoGraphics Corporation

Image processing
Procesamiento de imágenes
Elaboratori di figure
イメージ - プロセッシング
Bildübersetzung
Traitement d'image
이미지 프로세싱
Processamento de imagem

Booth	
2633	3D Construction Company
131	4DVISION LLC
2639	5D Ltd.
1705	Accom Inc.
3726	Adaptive Optics Associates, Inc.
831	Advanced Visual Systems Inc.
2101	Alien Skin Software, LLC
3601	Ampex Corporation
452	B & H Photo-Video-Pro Audio
944	Balboa Capital
2139	Bit 3 Computer Corporation
3319	Carrera Computers
426	CGI
2161	Chroma Graphics, Inc.
470	Computrend
149	Denim Software, L.L.C.
2239	Discreet Logic
1839	Eastman Kodak Company
2271	ENCAD, Inc.
2145	Equilibrium
2643	EUROGRAPHICS
349	Eyeon Software Inc.
1757	Folsom Research, Inc.
2313	Fujitsu Microelectronics, Inc.
3715	General Reality Company
1153	IBM
2211	Interactive Effects - Amazon
1476	Interactive Pictures Corporation
3513	Journey Education Marketing
815	Leitch
1605	Management Graphics, Inc.
917	Mitsubishi Electronics America, Inc.
855	MMS Multi Media Systems GmbH
1177	MountainGate
912	Numerical Algorithms Group, Inc.
863	NVision, Inc.
3501	Omnicomp Graphics Corporation
920	P.E. Photron
901	ProMax Technology
239	Quantel, Inc.
2163	Quantum Corporation
361	QuVIS
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
1870	Sierra Design Labs
1169	Silicon Grail
605	Softimage Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
1447	StereoGraphics Corporation
1001	Texas Memory Systems, Inc.
1005	TGS Inc.
3613	Ultimatte Corporation
1569	Unlimited Potential, Inc.

Industrial design
Diseño industrial
Progetti industriali
工業デザイン
Industrial Design
Conception industrielle
산업디자인
Desenho industrial

Booth	
2633	3D Construction Company
561	AccelGraphics, Inc.
939	Alias | Wavefront
849	(Art)^n Laboratory
2017	auto.des.sys, Inc.
426	CGI
2161	Chroma Graphics, Inc.
470	Computrend
751	Cyberware
1121	Digital Equipment Corporation
1353	Electric Image, Inc.
2271	ENCAD, Inc.
2439	Engineering Animation, Inc.
1639	Hewlett-Packard Company
1153	IBM
469	InnovMetric Software Inc.
3513	Journey Education Marketing
1611	Lightscape Technologies, Inc.
859	LightWork Design
917	Mitsubishi Electronics America, Inc.

442 n-vision, inc.
1610 Northern Digital Inc.
3501 Omnicomp Graphics Corporation
3600 Orphan Technologies
2068 Radiance Software International
119 Real 3D
1483 REALAX Corporation
3425 Robert McNeel & Associates
1660 Savannah College of Art and Design
249 SensAble Technologies, Inc.
1817 Side Effects Software
1139/1339 Silicon Graphics, Inc.
3624 University of Advancing Computer Technology

Input devices
Aparatos para entrada de datos
Dispositivi per input
入力装置
Eingabegeräte
Unités d'entrée
입력장치
Dispositivos de entrada

Booth
821 Ascension Technology Corporation
960 Aztek Inc.
1700 CADCrafts
470 Computrend
751 Cyberware
405 Digital Processing Systems
1757 Folsom Research, Inc.
3715 General Reality Company
231 IMAGICA Corporation of America
2216 Immersion Corporation
469 InnovMetric Software Inc.
3508 InSpeck inc.
3525 ITU Research, Inc.
916 Logitech
621 Microsoft Corporation
442 n-vision, inc.
1610 Northern Digital Inc.
863 NVision, Inc.
3600 Orphan Technologies
430 OXBERRY LLC
2057 Quantum3D
249 SensAble Technologies, Inc.
2631 Spacetec IMC Corporation
313 Vicon Motion Systems
569 Virtual Technologies, Inc.

Medical imaging software
Programas médicos de procesamiento de imágenes
Software per imagining medico
メディカル - イメジング ソフトウエア
Medizinische Abbildungssoftware
Logiciel d'imagerie médicale
의료 화상 소프트웨어
Software para imagem na indústria médica

Booth
831 Advanced Visual Systems Inc.
849 $(Art)^n$ Laboratory
1353 Electric Image, Inc.
323 Floating Images Inc.
3513 Journey Education Marketing
455 MotionAnalysis Corporation
1469 MuSE Technologies, Inc. (MTI)
912 Numerical Algorithms Group, Inc.
3501 Omnicomp Graphics Corporation
1427 Polhemus
2163 Quantum Corporation
361 QuVIS
1483 REALAX Corporation
249 SensAble Technologies, Inc.
1817 Side Effects Software
471 Solomon Volumetric Imaging/Holoverse Inc.
2109 Visible Productions

Monitors and displays
Monitores y pantallas
Monitors e displays
モニター及びディスプレー
Monitoren und Displays
Moniteurs et écrans
모니터 및 디스플레이
Monitores e displays

Booth
3606 Appian Graphics
1868 ASK LCD, Inc.
960 Aztek Inc.
452 B & H Photo-Video-Pro Audio
1453 BARCO, Inc.
1700 CADCrafts
3319 Carrera Computers
2251 Compaq Computer Corporation
470 Computrend
1107 Evans & Sutherland
323 Floating Images Inc.
3715 General Reality Company
1639 Hewlett-Packard Company
1153 IBM
439 Intergraph Corporation
3513 Journey Education Marketing
954 Lightwave Communications, Inc.
2117 MiniComputer Exchange
442 n-vision, inc.
3501 Omnicomp Graphics Corporation
901 ProMax Technology
1856 Proxima Corporation
3506 Pyramid Systems, Inc.
361 QuVIS
249 SensAble Technologies, Inc.
1601 Solid Systems CAD Services, Inc.
471 Solomon Volumetric Imaging/Holoverse Inc.
1827 Sony
668 ViewSonic Corporation

Visualize The Future

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It's High Speed
It's Enterprise Wide

It's Here With EAI

EAI

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Multimedia/hypermedia
Multimedios/hipermedios
Multimedia/ipermedia
マルチメディア／ハイパーメディア
Multimedia/Hypermedia
Multimédia/hypermédia
다중매체/하이퍼미디어
Multimédia/hipermédia

Booth	
2633	3D Construction Company
1517	3NAME3D
827	A K Peters, Ltd.
2224	Acuris Inc.
663	Adaptive Media Inc.
3726	Adaptive Optics Associates, Inc.
1413	Adobe Systems Inc.
3601	Ampex Corporation
1307	Apple Computer, Inc.
1527	Artbeats
970	AutoMedia Ltd.
425	Avid Technology Inc.
452	B & H Photo-Video-Pro Audio
3705	The Bulldog Group
813	Bushey Virtual Construction
1700	CADCrafts
3319	Carrera Computers
819	Cartesia Software
2161	Chroma Graphics, Inc.
1951	Cinebase Software
470	Computrend
149	Denim Software, L.L.C.
2063	Diamond Multimedia
1713	Diaquest
2465	Digimation, Inc.
1951	Digital Media Management
405	Digital Processing Systems
927	Digital Semiconductor
1839	Eastman Kodak Company
1353	Electric Image, Inc.
1377	Electronic Arts
1154	ELSA Inc.
2439	Engineering Animation, Inc.
319	Ensemble Designs
2145	Equilibrium
2643	EUROGRAPHICS
349	Eyeon Software Inc.
323	Floating Images Inc.
1757	Folsom Research, Inc.
2313	Fujitsu Microelectronics, Inc.
1153	IBM
2045	Immersion Corporation
1476	Interactive Pictures Corporation
439	Intergraph Corporation
3513	Journey Education Marketing
2256	Ketiv Technologies, Inc.
1805	Kinetix
3325	LambSoft, Inc.
859	LightWork Design
124	Maxon Computer GmbH
3507	Medea Corporation
905	Media 100, Inc.
2413	MetaCreations Corporation
568	Microboards Technology, Inc.
621	Microsoft Corporation
917	Mitsubishi Electronics America, Inc.
1177	MountainGate
1469	MuSE Technologies, Inc. (MTI)
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
3600	Orphan Technologies
430	OXBERRY LLC
920	P.E. Photron
2623	PC Video Conversion
1856	Proxima Corporation
2163	Quantum Corporation
968	Questar Productions, LLC
361	QuVIS
2068	Radiance Software International
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
1660	Savannah College of Art and Design
2143	Screen Actors Guild
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
942	Society of Motion Pictures & TV Engineers
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony
2131	Sony Pictures Imageworks
1277	Sprint
1321	Sun Microsystems
1005	TGS Inc.
257	Toon Boom Technologies, Inc.
762	Transoft Technology Corporation
2100	Trinity Animation
2216	TV One Multimedia Solutions
3613	Ultimatte Corporation
3624	University of Advancing Computer Technology
313	Vicon Motion Systems
2109	Visible Productions
2223	The Walt Disney Company
329	Wired Ventures, Inc.

Networking; hardware/software/services
Red de comunicaciones; hardware/programas/servicios
Networking; hardware/software/servizi
ネットワーキング：ハードウエア／ソフトウエア／サービス
Rechnerverbund; Hardware/Software/Dienstleistungen
Mise en réseau; matériel/logiciel/services
통신: 하드웨어/소프트웨어/서어비스
Networking: hardware/software/serviços

Booth	
3601	Ampex Corporation
944	Balboa Capital
813	Bushey Virtual Construction
3319	Carrera Computers
2251	Compaq Computer Corporation
470	Computrend
639	Intel Corporation
439	Intergraph Corporation
1482	Jazz Media Network
3513	Journey Education Marketing
1115	Kingston Technology Company
815	Leitch
2125	Mercury Computer Systems, Inc.
621	Microsoft Corporation
2117	MiniComputer Exchange
1177	MountainGate
2051	nStor Corporation
1857	Phobos Corporation
2163	Quantum Corporation
361	QuVIS
2068	Radiance Software International
3629	RFX Inc.
1870	Sierra Design Labs
942	Society of Motion Pictures & TV Engineers
1827	Sony
1277	Sprint
1321	Sun Microsystems
762	Transoft Technology Corporation
1545	Vangard Technology, Inc.
448	Western Scientific, Inc.

OEM components
Componentes OEM
Componenti OEM
OEM コンポーネント
OEM-Komponente
Composants OEM
OEM 부품
Componentes de OEM

Booth	
518	3Dlabs, Inc.
2224	Acuris Inc.
2258	Advanced Rendering Technology Ltd.
829	Anthro Corporation
3606	Appian Graphics
821	Ascension Technology Corporation
960	Aztek Inc.
2139	Bit 3 Computer Corporation
1500	Digital Marketing International/TEI
927	Digital Semiconductor
1154	ELSA Inc.
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
3715	General Reality Company
1769	InterSense
339	Miranda Technologies
1177	MountainGate
442	n-vision, inc.
3501	Omnicomp Graphics Corporation
1857	Phobos Corporation
1427	Polhemus
901	ProMax Technology
2163	Quantum Corporation
361	QuVIS
2068	Radiance Software International
119	Real 3D
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony
763	Storage Concepts
1276	Symmetric

Paint systems
Sistemas de pintura
Sistemi di pittura
ペイント - システム
Farbsysteme
Systèmes de coloriage
도장(칠하기)시스템
Sistemas de pintura

Booth	
131	4DVISION LLC
939	Alias | Wavefront
425	Avid Technology Inc.
813	Bushey Virtual Construction
1700	CADCrafts
1719	Chyron Corporation
470	Computrend
149	Denim Software, L.L.C.
1383	Digits 'n Art Software, Inc.
1153	IBM
2211	Interactive Effects - Amazon
2256	Ketiv Technologies, Inc.
1468	Media PEGS
739	Nichimen Graphics, Inc.
964	Onyx Computing, Inc.
3600	Orphan Technologies
239	Quantel, Inc.
361	QuVIS
3629	RFX Inc.
249	SensAble Technologies, Inc.
605	Softimage Inc.
257	Toon Boom Technologies, Inc.

PC add-on products
Productos que se agregan a la computadora PC
Prodotti add-on per PC
PC アッド - オン　プロダクト
PC-Anbauteile
Produits additionels de PC
PC 확장용 기기
Produtos adicionais para PC

Booth	
518	3Dlabs, Inc.
3726	Adaptive Optics Associates, Inc.
3509	AJA Video
813	Bushey Virtual Construction
2251	Compaq Computer Corporation
470	Computrend
1500	Digital Marketing International/TEI
801	Dynamic Pictures, Inc.
1154	ELSA Inc.
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
3715	General Reality Company
639	Intel Corporation
2307	Matrox Graphics Inc.
3507	Medea Corporation
568	Microboards Technology, Inc.
917	Mitsubishi Electronics America, Inc.
3501	Omnicomp Graphics Corporation
2163	Quantum Corporation
2057	Quantum3D
119	Real 3D
249	SensAble Technologies, Inc.
1827	Sony
1447	StereoGraphics Corporation
763	Storage Concepts
1005	TGS Inc.
569	Virtual Technologies, Inc.

The Walt Disney Company

"Nutcracker Suite," *Fantasia*, 1940, © Disney

Feature Animation • Walt Disney Imagineering • Disney Interactive • Dream Quest Images
Televentures • ABC • TV Animation

Hall K
Booth 2223

SIGGRAPH LOS ANGELES

PC-based systems
Sistemas basados en la computadora PC
Sistemi basati su PC
PC 用システム
PC-Systeme
Systèmes basés sur PC
PC용 시스템
Sistemas para PC

Booth	
518	3Dlabs, Inc.
3726	Adaptive Optics Associates, Inc.
960	Aztek Inc.
813	Bushey Virtual Construction
1700	CADCrafts
1069	CGSD Corporation
1719	Chyron Corporation
2251	Compaq Computer Corporation
470	Computrend
927	Digital Semiconductor
801	Dynamic Pictures, Inc.
323	Floating Images Inc.
3715	General Reality Company
1639	Hewlett-Packard Company
1153	IBM
439	Intergraph Corporation
3513	Journey Education Marketing
3325	LambSoft, Inc.
621	Microsoft Corporation
455	MotionAnalysis Corporation
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
430	OXBERRY LLC
2163	Quantum Corporation
2068	Radiance Software International
119	Real 3D
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
605	Softimage Inc.
1827	Sony
1277	Sprint
1160	Tri-Star Computer
2216	TV One Multimedia Solutions
313	Vicon Motion Systems
569	Virtual Technologies, Inc.

Person digital applications (PDAs)
Aplicaciones personales digitales (PDAs)
Applicazioni personali digitali (PDAs)
パーソナル - デジタル アプリケーション(PDA)
Personal-digitale Anwendung (PDAs)
Applications digitales personnelles
개인 전자 응용 분야 (PDAs)
Aplicações pessoais digitais (PDAs)

Booth	
470	Computrend
3513	Journey Education Marketing
2163	Quantum Corporation
3629	RFX Inc.
1827	Sony

Portable products
Productos portátiles
Prodotti portatili
ポータブル プロダクト
Tragbare Produkte/Geräte
Produits portables
휴대용 장치
Produtos portáteis

Booth	
1868	ASK LCD, Inc.
470	Computrend
455	MotionAnalysis Corporation
1177	MountainGate
1610	Northern Digital Inc.
1827	Sony
1005	TGS Inc.

Projectors; video, HDTV
Proyectores; video, HDTV
Proiettori; video, HDTV
プロジェクター : ビデオ、HDTV
Projektoren;Video, HDTV
Projecteurs; vidéo, HDTV
프로젝터: 비디오, 고화질 텔레비전
Projetores: videos, HDTV

Booth	
1868	ASK LCD, Inc.
452	B & H Photo-Video-Pro Audio
944	Balboa Capital
1453	BARCO, Inc.
470	Computrend
954	Lightwave Communications, Inc.
1856	Proxima Corporation
3506	Pyramid Systems, Inc.
361	QuVIS
942	Society of Motion Pictures & TV Engineers
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony

Publications
Publicaciones
Pubblicazioni
出版物
Veröffentlichungen
Publications
출판
Publicações

Booth	
827	A K Peters, Ltd.
1604	Addison-Wesley
2105	Advanced Imaging
307	Advanstar Digital Media Group
3426	American Cinematographer Magazine
422	Animation Magazine
1521	AP PROFESSIONAL
805	Computer Graphics World/Digital Magic Magazine
3405	The Coriolis Group
870	CRC Press
570	Desktop Engineering Magazine
2643	EUROGRAPHICS
1557	The Hollywood Reporter
948	I. D. Magazine
1539	IEEE Computer Society
1531	Intertec Publishing/Video Systems Magazine
1620	John Wiley & Sons, Inc.
3513	Journey Education Marketing
938	Knowledge Industry Publications
1477	Miller Freeman Inc.
138	Silicon Graphics World
1638	Springer-Verlag New York, Inc.
1638	TELOS, The Electronic Library of Science
3703	UPSIDE Magazine
468	Variety's ON Production
3608	WCB/McGraw-Hill

Rendering & image synthesis software
Programas de síntesis de imagen y ejecución gráfica
Software per resa e sintesi di figure
レンダリング及びイメージ合成ソフトウエア
Software für Wiedergabe und Bildsynthese
Logiciel de reproduction et de synthèse d'image
화상 변형/합성 소프트웨어
Software de interpretação e síntese de imagem

Booth	
2633	3D Construction Company
3329	3D Planet
131	4DVISION LLC
2639	5D Ltd.
2224	Acuris Inc.
2258	Advanced Rendering Technology Ltd.
831	Advanced Visual Systems Inc.
939	Alias | Wavefront
2017	auto.des.sys, Inc.
2238	C I R A D
3319	Carrera Computers
1069	CGSD Corporation
2161	Chroma Graphics, Inc.
470	Computrend
1121	Digital Equipment Corporation
801	Dynamic Pictures, Inc.
1839	Eastman Kodak Company
1353	Electric Image, Inc.
2439	Engineering Animation, Inc.
2643	EUROGRAPHICS
1107	Evans & Sutherland
349	Eyeon Software Inc.
3715	General Reality Company
1153	IBM
1476	Interactive Pictures Corporation
3513	Journey Education Marketing
2256	Ketiv Technologies, Inc.
1805	Kinetix
1611	Lightscape Technologies, Inc.
859	LightWork Design
124	Maxon Computer GmbH
905	Media 100, Inc.
2413	MetaCreations Corporation
917	Mitsubishi Electronics America, Inc.
455	MotionAnalysis Corporation
739	Nichimen Graphics, Inc.
964	Onyx Computing, Inc.
3600	Orphan Technologies
920	P.E. Photron
839	Pixar
2057	Quantum3D
968	Questar Productions, LLC
361	QuVIS
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
3629	RFX Inc.
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
1817	Side Effects Software
942	Society of Motion Pictures & TV Engineers
605	Softimage Inc.
1827	Sony
2121	Sony/Tektronix Corporation
1543	Sven Technologies Inc.
1005	TGS Inc.
2100	Trinity Animation

Scanners/digitizing cameras; scan converters
Aparatos de barrido de imagen/ cámaras digitalizadoras; convertidores de barrido de imagen
Analizzatori/macchine digitalizatrici; convertitori per analizzatori
スキャナー/デジタル - カメラ : スキャン - コンバーター
Scanner/digitalisierende Kameras; Abtastumformer
Scanners/caméras de digitalisation; convertisseurs de scanage
스케너/디지타이징 카메라/스캔 변환기
Escanadoras/câmaras digitais: convertoras de escandadoras

Booth	
960	Aztek Inc.
452	B & H Photo-Video-Pro Audio
944	Balboa Capital
3319	Carrera Computers
426	CGI
2208	Communications Specialties Inc.
470	Computrend
751	Cyberware
1839	Eastman Kodak Company
1757	Folsom Research, Inc.
2313	Fujitsu Microelectronics, Inc.
231	IMAGICA Corporation of America
2045	Immersion Corporation
469	InnovMetric Software Inc.
3508	InSpeck inc.
439	Intergraph Corporation
3513	Journey Education Marketing
1616	Minolta Corporation
1610	Northern Digital Inc.
863	NVision, Inc.
430	OXBERRY LLC
2623	PC Video Conversion
901	ProMax Technology
3506	Pyramid Systems, Inc.
361	QuVIS
3629	RFX Inc.
146	RGB Spectrum
1827	Sony
2216	TV One Multimedia Solutions

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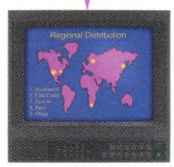
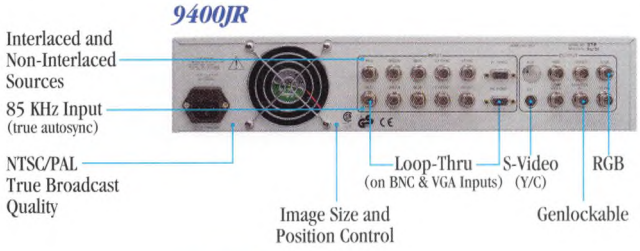
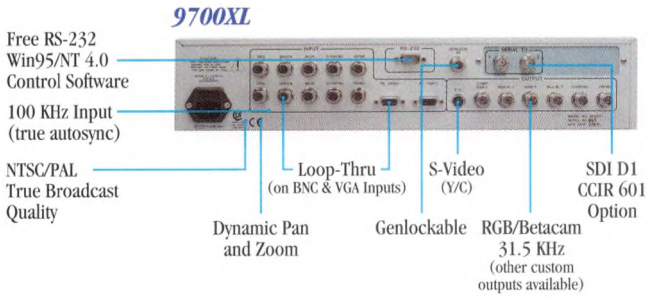


NTSC/PAL Monitor

9400JR



9700XL



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Simulation
Simulación
Simulazione
シミュレーション
Simulation
Simulation
시뮬레이션
Simulação

Booth	
3601	Ampex Corporation
3307	Animation Science
2238	CIRAD
1069	CGSD Corporation
470	Computrend
2217	Coryphaeus Software
751	Cyberware
1500	Digital Marketing International/TEI
1353	Electric Image, Inc.
2439	Engineering Animation, Inc.
2643	EUROGRAPHICS
1107	Evans & Sutherland
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
449	Hitachi America, Ltd.
3715	General Reality Company
1153	IBM
469	InnovMetric Software Inc.
439	Intergraph Corporation
1769	InterSense
2256	Ketiv Technologies, Inc.
1611	Lightscape Technologies, Inc.
917	Mitsubishi Electronics America, Inc.
455	MotionAnalysis Corporation
1469	MuSE Technologies, Inc. (MTI)
442	n-vision, inc.
739	Nichimen Graphics, Inc.
912	Numerical Algorithms Group, Inc.
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
1427	Polhemus
3506	Pyramid Systems, Inc.
2057	Quantum3D
968	Questar Productions, LLC
119	Real 3D
1483	REALAX Corporation
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
1139/ 1339	Silicon Graphics, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
1001	Texas Memory Systems, Inc.
1005	TGS Inc.
3313	Transom Technologies, Inc.
3624	University of Advancing Computer Technology
313	Vicon Motion Systems
569	Virtual Technologies, Inc.
2109	Visible Productions

Software (other)
Programas (otro tipo)
Software (altri)
ソフトウエア（その他）
Software (anderes)
Logiciel (autre)
소프트웨어(기타)
Software (outro)

Booth	
2633	3D Construction Company
3329	3D Planet
2639	5D Ltd.
561	AccelGraphics, Inc.
2224	Acuris Inc.
1604	Addison-Wesley
1413	Adobe Systems Inc.
2101	Alien Skin Software, LLC
849	$((Art)^n$ Laboratory
1527	Artbeats
425	Avid Technology Inc.
1561	BioVision
3705	The Bulldog Group
813	Bushey Virtual Construction
1269	Caligari Corporation
2025	Cambridge Animation Systems
2161	Chroma Graphics, Inc.
1719	Chyron Corporation
1951	Cinebase Software
470	Computrend
1713	Diaquest
2465	Digimation, Inc.
2242	Digital Wisdom Inc.
2239	Discreet Logic
1353	Electric Image, Inc.
1377	Electronic Arts
2439	Engineering Animation, Inc.
2145	Equilibrium
349	Eyeon Software Inc.
323	Floating Images Inc.
1153	IBM
1482	Jazz Media Network
3513	Journey Education Marketing
1805	Kinetix
3325	LambSoft, Inc.
1468	Media PEGS
621	Microsoft Corporation
455	MotionAnalysis Corporation
1361	NewTek, Incorporated
964	Onyx Computing, Inc.
3600	Orphan Technologies
430	OXBERRY LLC
920	P.E. Photron
361	QuVIS
2068	Radiance Software International
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
1461	SENSE8 Corporation
1817	Side Effects Software
1169	Silicon Grail
2631	Spacetec IMC Corporation
2204/ 2205	Strata, Inc.
855	Sven Technologies Inc.
1005	TGS Inc.
257	Toon Boom Technologies, Inc.
3313	Transom Technologies, Inc.
3624	University of Advancing Computer Technology
1569	Unlimited Potential, Inc.
313	Vicon Motion Systems
926	Videomedia, Inc.
569	Virtual Technologies, Inc.
2223	The Walt Disney Company

Storage devices; tape/disk/CD-ROM
Aparatos de almacenamiento; cinta/disco/CD-ROM
Dispositivi per immagazzinaggio; nastro/disco/CD-ROM
保管装置：テープ／ディスク／CD-ROM
Speichereinrichtungen; Tonband/Diskette/CD-ROM
Dispositifs à mémoire; cassette/disque/DOC
저장 장치: 테이프/디스크/CD-ROM
Dispositivos de memória: fita/disco/CD-ROM

Booth	
1705	Accom Inc.
3601	Ampex Corporation
960	Aztek Inc.
813	Bushey Virtual Construction
3319	Carrera Computers
555	Ciprico Inc.
470	Computrend
3625	Cygnet Storage Solutions
1839	Eastman Kodak Company
1353	Electric Image, Inc.
1153	IBM
3513	Journey Education Marketing
1115	Kingston Technology Company
757	LEGASYS International, Inc.
1701	MAXSTRAT Corporation
3507	Medea Corporation
745	MegaDrive Systems, Inc.
568	Microboards Technology, Inc.
1668	Micropolis
855	MMS Multi Media Systems GmbH
1177	MountainGate
2051	nStor Corporation
901	ProMax Technology
2163	Quantum Corporation
361	QuVIS
1870	Sierra Design Labs
1827	Sony
763	Storage Concepts
1001	Texas Memory Systems, Inc.
762	Transoft Technology Corporation
1545	Vangard Technology, Inc.
926	Videomedia, Inc.
448	Western Scientific, Inc.

Systems integrators
Integradores de sistemas
Sistemi integratori
システム - インテグレーター
Systemintegratoren
Intégrateurs de systèmes
시스템 구성
Sistemas integradores

Booth	
3726	Adaptive Optics Associates, Inc.
960	Aztek Inc.
813	Bushey Virtual Construction
1700	CADCrafts
3319	Carrera Computers
1069	CGSD Corporation
2251	Compaq Computer Corporation
470	Computrend
1107	Evans & Sutherland
3715	General Reality Company
1153	IBM
905	Media 100, Inc.
2125	Mercury Computer Systems, Inc.
2117	MiniComputer Exchange
1183	Pacific Bell
3506	Pyramid Systems, Inc.
2163	Quantum Corporation
361	QuVIS
3629	RFX Inc.
1461	SENSE8 Corporation
1601	Solid Systems CAD Services, Inc.
1827	Sony
1545	Vangard Technology, Inc.
448	Western Scientific, Inc.

Teleconferencing/collaborative products
Productos para teleconferencias/colaboración
Prodotti per tele conferenze/collaboratori
テレコンファレンシング／コラボレーティブ - プロダクト
Telefonkonferenzen/Produkte zur Zusammenarbeit
Produits de téléconférence et de collaboration
원격 회의/합작 제품
Produtos para teleconferências/colaborativos

Booth	
3606	Appian Graphics
3319	Carrera Computers
2208	Communications Specialties Inc.
323	Floating Images Inc.
3715	General Reality Company
1482	Jazz Media Network
1469	MuSE Technologies, Inc. (MTI)
1183	Pacific Bell
361	QuVIS
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony
1277	Sprint
1005	TGS Inc.

Terminals
Terminales
Terminali
端末装置
Datenstationen
Terminaux
터미널
Terminais

Booth	
2163	Quantum Corporation
1601	Solid Systems CAD Services, Inc.

Turnkey systems
Sistemas integrales
Sistemi completi (turnkey)
ターンキー - システム
Schlüsselfertige Systeme
Systèmes clé en main
턴키(Turnkey) 시스템
Sistemas de início de produção

Booth	
425	Avid Technology Inc.
960	Aztek Inc.
452	B & H Photo-Video-Pro Audio
813	Bushey Virtual Construction
1700	CADCrafts
3319	Carrera Computers
470	Computrend
1107	Evans & Sutherland
3715	General Reality Company
3513	Journey Education Marketing
455	MotionAnalysis Corporation
1177	MountainGate
955	NeTpower
239	Quantel, Inc.
2068	Radiance Software International
1601	Solid Systems CAD Services, Inc.
1827	Sony
763	Storage Concepts
1545	Vangard Technology, Inc.

User interface
Interconectores de usuario
Interfacce per utenti
ユーザーインターフェース
Benutzeranschlußstelle
Interface d'utilisateur
사용자 인터페이스
Interação com usuário

Booth	
3329	3D Planet
831	Advanced Visual Systems Inc.
821	Ascension Technology Corporation
2139	Bit 3 Computer Corporation
3715	General Reality Company
954	Lightwave Communications, Inc.
916	Logitech
1469	MuSE Technologies, Inc. (MTI)
249	SensAble Technologies, Inc.
942	Society of Motion Pictures & TV Engineers
1005	TGS Inc.
569	Virtual Technologies, Inc.

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Tecnologia per video
ビデオ テクノロジー
Terminali
Technologie de vidéo
비디오 기술
Tecnologia de video

Booth	
1705	Accom Inc.
663	Adaptive Media Inc.
3509	AJA Video
3601	Ampex Corporation
1527	Artbeats
425	Avid Technology Inc.
452	B & H Photo-Video-Pro Audio
944	Balboa Capital
1700	CADCrafts
3319	Carrera Computers
149	Denim Software, L.L.C.
1713	Diaquest
1500	Digital Marketing International/TEI
405	Digital Processing Systems
2239	Discreet Logic
319	Ensemble Designs
413	FAST Electronic U.S., Inc.
323	Floating Images Inc.
1757	Folsom Research, Inc.
3424	Graham-Patten Systems
1153	IBM
2363	Integrated Computing Engines, Inc.
815	Leitch
954	Lightwave Communications, Inc.
2307	Matrox Graphics Inc.
3507	Medea Corporation
905	Media 100, Inc.
339	Miranda Technologies
855	MMS Multi Media Systems GmbH
1177	MountainGate
1361	NewTek, Incorporated
920	P.E. Photron
1183	Pacific Bell
2623	PC Video Conversion
901	ProMax Technology
239	Quantel, Inc.
2163	Quantum Corporation
361	QuVIS
146	RGB Spectrum
1870	Sierra Design Labs
1626	Sigma Electronics
942	Society of Motion Pictures & TV Engineers
471	Solomon Volumetric Imaging/Holoverse Inc.
1827	Sony
1277	Sprint
763	Storage Concepts
762	Transoft Technology Corporation
2216	TV One Multimedia Solutions
926	Videomedia, Inc.

Virtual reality
Realidad virtual
Realità virtuale
仮想現実
Virtuelle Realität
Réalité virtuelle
가상현실
Realidade virtual

Booth	
2633	3D Construction Company
3726	Adaptive Optics Associates, Inc.
3601	Ampex Corporation
3307	Animation Science
849	$(Art)^n$ Laboratory
821	Ascension Technology Corporation
813	Bushey Virtual Construction
2238	C I R A D
3319	Carrera Computers
1069	CGSD Corporation
1719	Chyron Corporation
470	Computrend
2217	Coryphaeus Software
751	Cyberware
1383	Digits 'n Art Software, Inc.
2439	Engineering Animation, Inc.
2643	EUROGRAPHICS
1107	Evans & Sutherland
323	Floating Images Inc.
2313	Fujitsu Microelectronics, Inc.
3715	General Reality Company
1639	Hewlett-Packard Company
2045	Immersion Corporation
469	InnovMetric Software Inc.
1476	Interactive Pictures Corporation
1769	InterSense
3513	Journey Education Marketing
3325	LambSoft, Inc.
1611	Lightscape Technologies, Inc.
916	Logitech
124	Maxon Computer GmbH
917	Mitsubishi Electronics America, Inc.
455	MotionAnalysis Corporation
1469	MuSE Technologies, Inc. (MTI)
442	n-vision, inc.
739	Nichimen Graphics, Inc.
1610	Northern Digital Inc.
3501	Omnicomp Graphics Corporation
964	Onyx Computing, Inc.
3600	Orphan Technologies
1427	Polhemus
3506	Pyramid Systems, Inc.
2057	Quantum3D
968	Questar Productions, LLC
2068	Radiance Software International
119	Real 3D
1483	REALAX Corporation
461	REM INFOGRAFICA, S.A.
249	SensAble Technologies, Inc.
1461	SENSE8 Corporation
1139/ 1339	Silicon Graphics, Inc.
471	Solomon Volumetric Imaging/Holoverse Inc.
1447	StereoGraphics Corporation
855	Sven Technologies Inc.
1005	TGS Inc.
3313	Transom Technologies, Inc.
3624	University of Advancing Computer Technology
313	Vicon Motion Systems
569	Virtual Technologies, Inc.
2109	Visible Productions

Visualization software
Programas de visualización
Software per visualizzazione
ビジュアリゼーション ソフトウエア
Visualisierende Software
Logiciel de visualisation
시각화 소프트웨어
Software de visualização

Booth	
663	Adaptive Media Inc.
3726	Adaptive Optics Associates, Inc.
831	Advanced Visual Systems Inc.
939	Alias | Wavefront
3307	Animation Science
2017	auto.des.sys, Inc.
2238	C I R A D
1269	Caligari Corporation
1069	CGSD Corporation
470	Computrend
2217	Coryphaeus Software
1353	Electric Image, Inc.
2439	Engineering Animation, Inc.
2643	EUROGRAPHICS
349	Eyeon Software Inc.
1639	Hewlett-Packard Company
1153	IBM
469	InnovMetric Software Inc.
2363	Integrated Computing Engines, Inc.
3513	Journey Education Marketing
2256	Ketiv Technologies, Inc.
1805	Kinetix
1611	Lightscape Technologies, Inc.
859	LightWork Design
124	Maxon Computer GmbH
917	Mitsubishi Electronics America, Inc.
1469	MuSE Technologies, Inc. (MTI)
1361	NewTek, Incorporated
739	Nichimen Graphics, Inc.
912	Numerical Algorithms Group, Inc.
964	Onyx Computing, Inc.
2057	Quantum3D
968	Questar Productions, LLC
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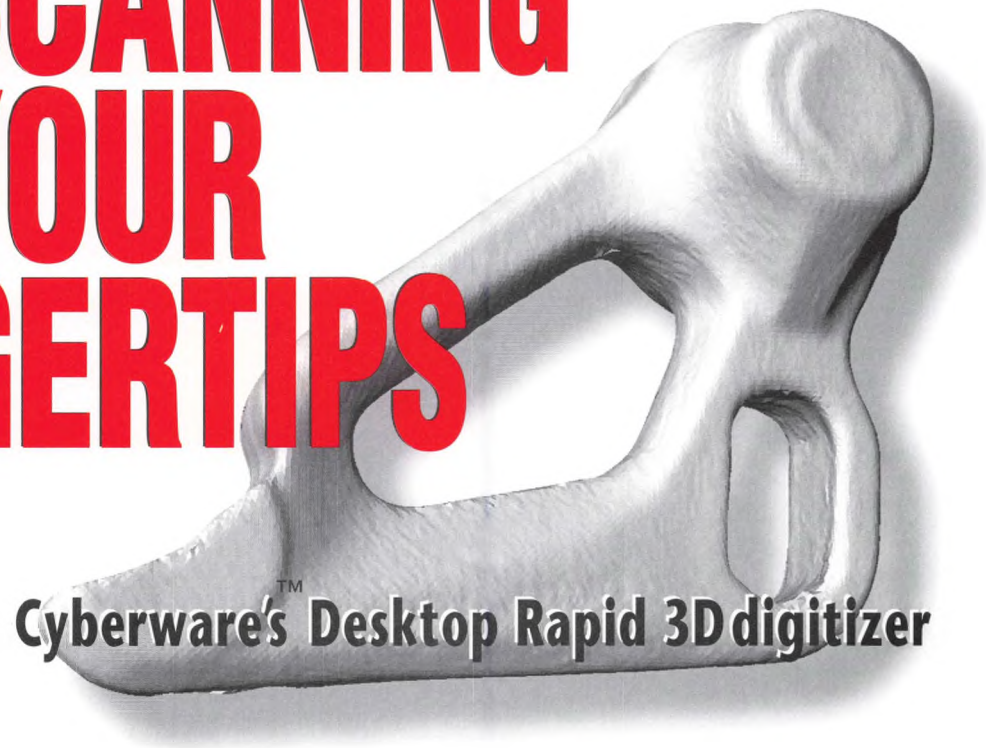

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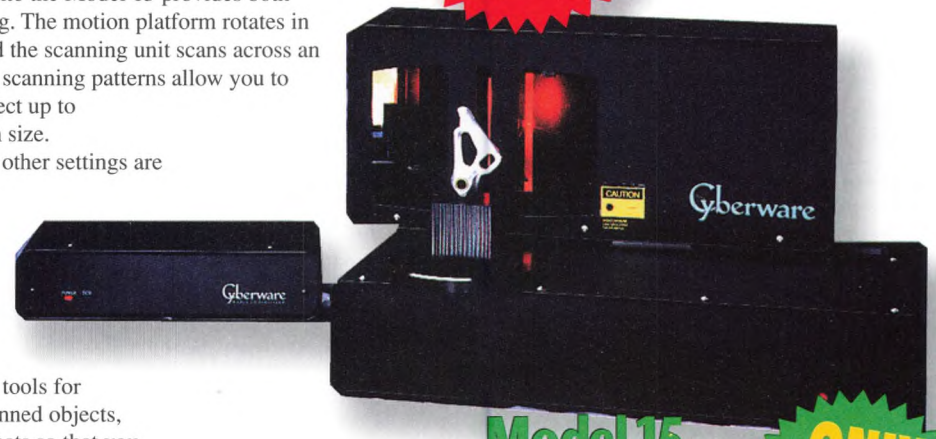

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SIGGRAPH is ACM's Special Interest Group on Computer Graphics and Interactive Techniques. It is dedicated to the advancement of computer graphics and interactive techniques through activities that foster the exchange of information among graphics professionals of all kinds. Founded in 1967, SIGGRAPH has grown from a handful of computer graphics enthusiasts to a diverse membership including artists, engineers, animators, filmmakers, software and hardware developers, scientists, mathematicians, 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 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, contact ACM at:

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ACM SIGGRAPH, one of over 35 Special Interest Groups of ACM, the Association for Computing Machinery, is dedicated to the advancement of computer graphics and interactive techniques through activities that foster the exchange of information among graphics professionals of all kinds. The organization has a long tradition of bringing together a wide variety of people (users, researchers, teachers, product developers, artists, designers, and media developers) in an exciting exchange of ideas that benefit our entire community.

The heart of SIGGRAPH is its active, talented core of volunteers, and we are always looking for new people with new ideas to keep SIGGRAPH vibrant. It's easy to find SIGGRAPH volunteers at SIGGRAPH 97. Many very involved volunteers will be in the SIGGRAPH organization's booth in the South Lobby. You can also meet us at our joint open house with the SIGGRAPH 98 committee:

SIGGRAPH Get Involved
Wednesday, 6 August, 5:30 pm to 7 pm
Room 301, LACC

Membership
SIGGRAPH is the world's largest professional society for persons working in computer graphics and interactive techniques. It has members all over the world and in every facet of the computer graphics field. Being a member of SIGGRAPH demonstrates your involvement in the computer graphics community and your support for SIGGRAPH's goals and activities. The strength of SIGGRAPH's voice on issues important to our field depends on its activities and on the number and quality of our membership.

As a SIGGRAPH member, you receive the Computer Graphics newsletter, the Conference Proceedings and Proceedings CD-ROM, and the Visual Proceedings and Visual Proceedings CD-ROM. You may also choose a less expensive "Lite" membership that includes only the newsletter. All members enjoy discounts on SIGGRAPH conferences and publications, and have the opportunity to subscribe to the proceedings of other computer graphics-related conferences through the Member Plus program.

You can join SIGGRAPH at the ACM booth in the South Lobby of the Los Angeles Convention Center, or look for membership information at: http://www.siggraph.org/

SIGGRAPH Activities
In addition to sponsoring the annual conference, SIGGRAPH has many activities that go on throughout the year and around the world. Many of the activity areas mentioned below have open meetings during SIGGRAPH 97.

Publications
SIGGRAPH's Publications Committee is responsible for all of SIGGRAPH's publications in print, on CD-ROM, on video, and online. The committee is made up of people with skills in editing, writing, and producing various media, and is a great place for someone skilled in these areas to help others learn about computer graphics and interactive techniques. For information, contact Stephen Spencer, SIGGRAPH Director for Publications.

Other Conferences
SIGGRAPH sponsors or has formal cooperation with about a dozen other conferences each year. These include such events as the Interactive 3D Graphics Workshop, the Computational Geometry Conference, the ACM Multimedia Conference, the Volume Visualization Symposium, UIST: User Interface Software and Technology Conference, and the Solid Modeling Conference. SIGGRAPH works with the organizers of SIGGRAPH-sponsored conferences and coordinates relationships with other conferences. For information, contact Chuck Hansen, SIGGRAPH Director at Large.

Public Policy
SIGGRAPH's Public Policy Committee provides information on relevant external activities, such as proposed legislation, to SIGGRAPH members and others of the technical community. It also provides education on the implications of technology to the non-technical community. For information, contact Bob Ellis or Judy Brown, Co-Chairs of the Public Policy Committee.

SIGGRAPH Meetings at SIGGRAPH 97
Annual SIGGRAPH Business Meeting
Thursday, 7 August, 5:30 pm to 7 pm
Room 502A, LACC

SIGGRAPH Education Committee
Visualization Education Meeting
Tuesday, 5 August, 5 pm to 6 pm
Glenwood Room, Omni Los Angeles

SIGGRAPH Education Committee
Annual Meeting
Wednesday, 6 August, 2 pm to 3 pm
Del Mar/Verdugo Rooms, Omni Los Angeles

SIGGRAPH Education Committee
Breakout – Art
Wednesday, 6 August, 3 pm to 4 pm
Del Mar/Verdugo Rooms, Omni Los Angeles

SIGGRAPH Education Committee
Breakout – Computer Science
Wednesday, 6 August, 3 pm to 4 pm
Balboa Room, Omni Los Angeles

SIGGRAPH Education Committee
Breakout – K-12
Wednesday, 6 August, 3 pm to 4 pm
Sawtelle Room, Omni Los Angeles

SIGGRAPH Public Policy Activities
Thursday, 7 August, 1 pm to 3 pm
Room 305, LACC

SIGGRAPH Executive Committee Meeting
Saturday, 9 August, 10 am to 3 pm
Westwood Room, Omni Los Angeles

How to Contact SIGGRAPH
You can send email to SIGGRAPH people by addressing them as:

firstname-lastname@siggraph.org

The directors whose names appear here are also members of the Executive Committee. Their contact information is listed on the inside front cover of the *Conference Proceedings* and in all issues of the Computer Graphics newsletter.

SIGGRAPH Information Booths

The SIGGRAPH information booths, located on Level One, South Lobby of the Los Angeles Convention Center, provide information about these services and activities.

ACM

ACM, the Association for Computing Machinery is the sponsor of the SIGGRAPH conference. ACM is an umbrella organization that has been serving information technology professionals since its inception in 1947. Through its magazines, journals, books, SIGs, and conferences, ACM offers its members access to the latest develop-ments in information technology. Visit the ACM Booth, located in the south lobby area of SIGGRAPH 97. Special discounted conference rates will be available on membership, ACM Press Books, and the SIGGRAPH Books Series. Make sure to examine the new title available through ACM Press, Digital Illusion: Entertaining the Future With Interactive Technology, by Clark Dodsworth. Pick up free sample copies of Communications of the ACM, interactions – New Visions of Human-Computer Interaction, and netWorker, The Craft of Network Computing. For more information, contact:

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SIGGRAPH once again offers the opportunity to purchase conference proceedings, CD-ROMs, and slide sets from previous SIGGRAPH annual conferences as well as from other SIGGRAPH-sponsored conferences and workshops. Many items are in very limited quantities. For more information contact:

Stephen Spencer
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SIGGRAPH 98

Welcome to SIGGRAPH 98! The 25th SIGGRAPH Conference convenes 19-24 July in Orlando, Florida, to celebrate the convergence of past and future, technology and imagination, and the people who create computer graphics in all its amazing manifestations. Pick up a copy of the SIGGRAPH 98 Call for Participation. Meet the SIGGRAPH 98 Committee. And let us know how you can help us astound the world in Orlando.
For more information contact:

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Education

Education is the word most often used to describe SIGGRAPH's mission. SIGGRAPH's Education Committee supports computer graphics education, the use of computer graphics in education, and activities at many levels in many disciplines in many countries. The Education Committee booth features SPACE, a juried exhibition of student animations and posters, and a display of student slides submitted by faculty from around the world, and SPICE (Student Projects for Interactive Concepts in Education). The booth also serves as a central meeting area for educators who wish to make contact with others and to exchange information. The Education Committee welcomes new ideas and volunteers. For information, contact:

Marc Barr, SIGGRAPH Director for Education
#58 Middle Tennessee State University
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SIGGRAPH Professional Chapters

The Professional Chapters of ACM SIGGRAPH, formerly called Local Groups, exist in over 30 cities in 10 countries around the world. They form an international multi-cultural network of like-minded people who develop, continue, and extend the work and achievements presented at the annual ACM SIGGRAPH Conference. Each chapter includes members involved in education, the arts, research, development, industry, and entertainment who are interested in the development of computer graphics and its related technologies and applications. Here is your opportunity to continue your SIGGRAPH experience by joining a professional chapter. If there is no professional chapter in your local area, inquire at the SIGGRAPH Professional Chapters Booth about how to form one. For more information contact:

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SIGGRAPH Video Review is the world's most widely circulated video-based publication. Since 1979, SIGGRAPH Video Review has illustrated the latest concepts in computer graphics and interactive techniques/ technologies. Over one hundred programs provide an unequaled opportunity to study advanced computer graphics theory and applications. SIGGRAPH Video Review tapes are available at SIGGRAPH 97 in NTSC VHS and PAL VHS. For more information contact:

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SIGGRAPH 98

In the summer of 1974, 325 pioneers of an esoteric fringe of computing technology met in Boulder, Colorado to discuss whether and how and why machines might someday help human beings create useful images. In July 1998, they and over 30,000 of their intellectual and creative descendants will gather in Orlando to celebrate the 25th international conference on computer graphics and interactive techniques.

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DIMMI (Digital Interactive Media Made in Italy): The one-stop shop for business cooper xc ation between Italian and international companies; the showcase of Italian creativity in the multimedia sector; the gateway to the technologies, services, and products of Italian multimedia. DIMMI companies participating in SIGGRAPH 97: Dedalo Media, Ideadrome, Interactive Group, Viewpoint, Digitalia Graphics, Digigraf Italia, and Lanterna Magica.

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Electronic Nomad, a lightweight, highly mobile Web production unit armed with portable computers and communications is on display at SIGGRAPH 97.

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The Panda Project
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Sys Technology is a high-end systems integrator. Product lines include high-performance desktop computers, graphics workstations, and servers. Sys is introducing the "Sys Workstation" product line at SIGGRAPH 97.

Vancouver Film School
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The Vancouver Film School is dedicated to offering students a focused, portfolio- and production-based environment in film, classical animation, acting, multimedia, and 3D animation. In the past five years, VFS students have won numerous national and international awards and screened more student works than any other film school in Canada.

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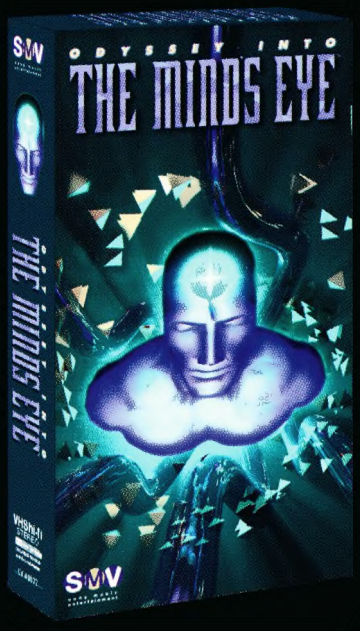

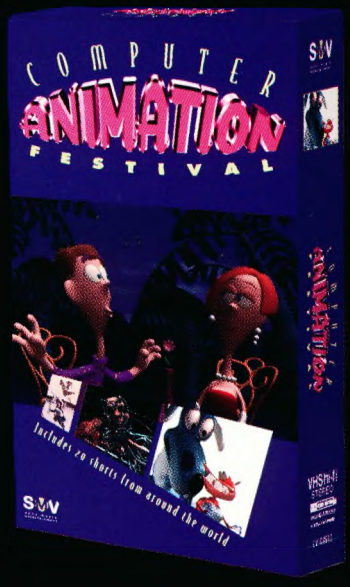

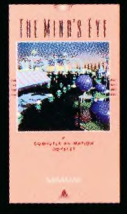

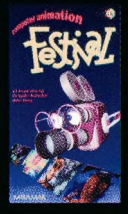

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