

SIGGRAPH 97 ADVANCE PROGRAM

SIGGRAPH 97

SIGGRAPH 97

24TH INTERNATIONAL CONFERENCE  
ON COMPUTER GRAPHICS  
AND INTERACTIVE TECHNIQUES



Los Angeles Convention Center

Los Angeles, California USA



- **Simplified registration fees**
- **Simplified registration categories**
- **Improved access to all programs and events**

SIGGRAPH 97 introduces a simplified fee structure that slashes the cost of Full Conference registration by up to 39 percent. Registration categories have been simplified to three options that broaden access to all the world's finest computer graphics programs and events. See pages 41-42 for complete details. Or register online at the SIGGRAPH 97 Web site:

<http://www.siggraph.org/s97/>

	Member	Non-Member	Student
Postmarked on or before 27 June			
<b>Full Conference</b>	\$480	\$580	\$200
<b>Conference Select</b>	\$150	\$150	\$150
<b>Exhibits Plus</b>	\$25	\$25	\$25
Postmarked after 27 June			
<b>Full Conference</b>	\$600	\$720	\$250
<b>Conference Select</b>	\$200	\$200	\$200
<b>Exhibits Plus</b>	\$50	\$50	\$50



#### IMPORTANT DATES

Early-discount registration must be faxed or postmarked by **27 June 1997.**

Early registration is strongly advised, as substantial discounts apply to registrations received by **27 June 1997.**

Refund requests must be faxed or postmarked by **15 July 1997.**

Final pre-registration deadline is **15 July 1997.**

# CONFERENCE AT A GLANCE

	SAT 2 AUG	SUN 3 AUG	MON 4 AUG	TUES 5 AUG	WED 6 AUG	THU 7 AUG	FRI 8 AUG
REGISTRATION/MERCHANDISE	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
EXHIBITION FC CS EP				10 am to 6 pm	10 am to 6 pm	10 am to 5 pm	
STARTUP PARK FC CS EP				10 am to 6 pm	10 am to 6 pm	10 am to 5 pm	
Conference Programs							
Computer Animation Festival ELECTRONIC THEATER 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 CS				2 pm to 4 pm	2 pm to 4 pm		
Computer Animation Festival FESTIVAL SCREENING ROOMS 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 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 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 FC CS						8:15 am to 5 pm	
ELECTRIC GARDEN 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 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
PANELS FC					10:15 am to 5:45 pm	8:15 am to 5:45 pm	8:15 am to 5:15 pm
PAPERS FC					10:15 am to 5:45 pm	8:15 am to 5:45 pm	8:15 am to 5:15 pm
SKETCHES 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 FC CS						12:15 pm to 1:15 pm	12:15 pm to 1:15 pm
Conference Activities							
CAREER CENTER FC CS EP	7 pm to 9 pm	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 FC CS EP		2 pm to 5 pm					
INTERNATIONAL CENTER FC CS EP	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 5 pm
INTERNET ACCESS CENTERS 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 FC CS EP					8:15 am to 9:45 am		
SIGGRAPH TV FC CS EP	Throughout the week						
SPECIAL INTEREST GROUPS & BIRDS OF A FEATHER FC CS EP	Throughout the week						
Receptions							
COURSE RECEPTION FC			8 pm to 11 pm				
PAPERS/PANELS RECEPTION FC						8 pm to 11 pm	
WELCOME RECEPTION FC CS EP		6 pm to 8 pm					
Registration Categories FC Full Conference CS Conference Select EP Exhibits Plus							

Full Conference registration includes: *Conference Proceedings*, Conference Proceedings CD-ROM and Videotape, Course Notes CD-ROM, *Visual Proceedings*, and Visual Proceedings CD-ROM. Conference Select registration includes *Visual Proceedings* and Visual Proceedings CD-ROM.

The  
world's  
most  
diverse  
computer  
graphics  
community  
convenes  
in  
the  
planet's  
most  
cosmopolitan  
city.

# WHY SHOULD I GO TO SIGGRAPH 97?

That's the question I've heard most frequently over the past year and a half, ever since the SIGGRAPH 97 Committee first met. For a complete computer graphics fanatic like me, the answer is obvious. I've been attending the SIGGRAPH conference every year since 1987, because it's the best place in the world to learn what's going on in my profession.

## learn

In Courses, you'll learn the fundamental principles and practical applications of every important computer graphics technique. Papers introduce you to science and technology beyond the state of the art. Panels and Sketches explore the challenges we're all facing today and tomorrow in this fascinating industry. And in Ongoing: The Fine Arts Gallery and the Computer Animation Festival, you'll interact with images that stretch your imagination in unexpected ways.

## interact

I always look forward to all those traditional SIGGRAPH offerings. But this year, you'll find some very interesting new reasons to be there. Panels simultaneously interpreted into Japanese, and online Panels that begin their deliberations on the SIGGRAPH 97 Web site and conclude at the Los Angeles Convention Center. The Creative Applications Lab, for hands-on experience with the tools that make computer graphics happen. Special Sessions with the film-production pros who entertain us all with computer-generated wizardry, and researchers who are developing new lighting and rendering procedures. And SIGGRAPH TV, to distribute conference highlights throughout the world.

## look

In this Advance Program, you'll find many, many more good reasons to attend SIGGRAPH 97. I hope that, altogether, they're irresistible, and that you'll be able to join us in Los Angeles in August, when over 40,000 scientific visionaries, cyber artists, interactive engineers, and hardware and software connoisseurs explore the next wave of digital technology.

**G. Scott Owen**

SIGGRAPH 97 Conference Chair

## explore

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**Online Panels**

Beginning 5 May 1997, at least four Panels convene for pre-conference discussion on the SIGGRAPH 97 Web site (<http://www.siggraph.org/s97>):

- Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In
- Sounding Off on Audio: The Future of Internet Sound
- Motion Capture and CG Character Animation
- Medical Illustration & Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?

**Personal Online Scheduler**

For the first time, SIGGRAPH attendees can assemble their own personal schedules, day by day, or for the entire week of SIGGRAPH 97. Available in mid-May. See the SIGGRAPH 97 Web site (<http://www.siggraph.org/s97>) for complete details.

**Community Outreach**

Tours, talks, and "what to do at SIGGRAPH 97" for newcomers: high school students and teachers, artists who want to explore interactive technologies, technical industries that are just beginning to adopt computer graphics tools, and students and faculty at colleges and universities in the LA area. For more information, contact: [outreach.s97@siggraph.org](mailto:outreach.s97@siggraph.org)

**Electronic Theater Matinée**

SIGGRAPH 97 offers matinée performances of the Electronic Theater to give attendees more flexibility in arranging their personal schedules. Conference Select registrations include a matinée ticket. Full Conference registrants receive one ticket and may request a ticket to any Electronic Theater performance.

**Bilingual Panels**

All SIGGRAPH 97 Panels will be simultaneously interpreted into Japanese.

**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. For details, see the SIGGRAPH 97 Web site.

**Creative Applications Lab**

Demonstration hardware and software in a laboratory setting that supports hands-on experience with the topics, techniques, and concepts presented in Courses, Papers, Panels, Sketches, and other SIGGRAPH 97 programs.

**New Educators Program Schedule**

To give the education community improved access to the Exhibition and other programs and events, the Educators Program has been moved to Thursday.

**SIGGRAPH 97 Theme, Screen Saver, and Wallpaper**

Amaze and astound colleagues, friends, family, and yourself with free on-screen fantasies of SIGGRAPH 97. PC, Unix, and Mac configurations available at: <http://www.siggraph.org/s97/>

**Register now for the ultimate in digital imagination,  
scientific jamming, and interactive adventures**

**Career Center**

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

**new** The Career Center hosts an all-day Job Fair on Wednesday, 6 August. See page 34 for details.

**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.

**Courses**

Lectures, seminars, and interactive instruction on every aspect of computer graphics: theory, programming, design, commercialization, and tomorrow's applications. Course categories range from beginning to advanced. See page 12 for Course descriptions. All Courses are located in the Los Angeles Convention Center.

**Educators Program**

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

**Electric Garden**

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



For dates and times, see the Conference at a Glance, opposite page 1.

### Exhibition

The full power of today's digital technologies. All the hardware, software, and services that create computer graphics and interactive techniques.

### Fundamentals Seminar

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

### Keynote Address/Awards

SIGGRAPH 97's featured speaker and two awards for distinguished achievement in computer graphics.

### Ongoing: 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.

### 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.

### T-Shirt Contest

The winners of the annual T-Shirt Contest receive their prizes at the Papers/Panels reception on Thursday, 7 August. For entry information, contact:

**Joe Lohmar**  
lohmar@siggraph.org

### 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.

### Receptions

The entire computer graphics industry – industry leaders, software pioneers, hardware visionaries, academic theorists, and inspired artists – sharing food, refreshment, ideas, and insights in unique LA venues.

### Sketches

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

#### TECHNICAL

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

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

#### ART AND DESIGN

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

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 room for continued discussion.

### 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 scheduled by Friday, 13 June are listed in the SIGGRAPH 97 Program and Buyer's Guide. SIGs scheduled by Thursday, 3 July are posted in the conference registration area. To schedule a SIG, call: +1.312.321.6830 or send email to sigs@siggraph.org to request a sign-up form.

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 conference registration area.

### Special Sessions

**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.

**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 which are visually and measurably indistinguishable from real-world scenes. This presentation provides a research roadmap for a rigorous program to reach this goal.

### Startup Park

Products and services from the companies that could dominate the Exhibition in 2002.

**new** BECAUSE ATTENDEE SURVEYS INDICATE SUBSTANTIAL INTEREST in more opportunities to see, hear, and interact with the latest technologies and products, SIGGRAPH 97 has extended the Exhibition hours to 5 pm on Thursday. The Papers, Panels, Sketches, and Educators Program presentation schedules have also been rearranged to provide two free mid-day hours on Wednesday and Thursday.

#### Exhibits Plus Registration

**Faxed or postmarked by 27 June \$25**  
**After 27 June and at SIGGRAPH 97 \$50**

With Exhibits Plus, you receive admission to the Exhibition, Startup Park, Festival Screening Rooms, Ongoing: 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.

Register for Exhibits Plus with the registration form, page 41.

Children under 16 are not permitted to attend the Exhibition. For information on child care, see page 35.

#### Space Reservation

TO PURCHASE EXHIBITION SPACE FOR SIGGRAPH 97, CALL OR WRITE:

Pour acheter une surface d'exposition pour SIGGRAPH 97, appelez ou écrivez à:

Um sich Ausstellungsfläche für SIGGRAPH 97 zu bewerben, rufen Sie uns an oder schreiben Sie an uns:

Para adquirir un espacio en la exposición SIGGRAPH 97, llame o escriba a:

Per comprare uno spazio d'esibizione per SIGGRAPH 97, telefono o scriva a:

Para comprar uma área de exibição para a SIGGRAPH 97, telefone ou escreva a:

SIGGRAPH 97 の展示スペースレンタルに関するお問い合わせは、下記に電話または手紙でお願いいたします。

如欲購買 SIGGRAPH 97 展覽空間，請電或來信：

SIGGRAPH 97 의 전시장소를 구입하시려면 아래로 전화나 편지를 써 주십시오:

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+1.630.850.7843 fax  
halleric@siggraph.org

#### Products and Services on Display

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



3D Construction Company	AV Video & Multimedia	CRC Press, Inc.	Falcon Systems Inc.
3D Design	Producer/Phillips Publishing Inc.	Crystal River Engineering	Fast Electronic US Inc.
3Dlabs, Inc.	Avid Technology, Inc.	Cyberware	Floating Images
3Name3D	Balboa Capital	Denim Software	Folsom Research, Inc.
4DVISION	BARCO, Inc.	Depthography/Upgrade	Fractal Design Corporation
5D Ltd.	B-H Photo Video	Technology	Fujitsu Microelectronics, Inc.
A K Peters, Ltd.	BioVision	Desktop Engineering Magazine	GW Hannaway & Associates
Academic Press	Bit 3 Computer Corporation	Desktop Images	Hash, Inc.
AccelGraphics, Inc.	Blue Sky Studios	Diaquest Inc.	Hewlett-Packard Company
Accom, Inc.	Bushey Virtual Construction	Digimation, Inc.	Hitachi America, Ltd.
ACM/IEEE Supercomputing '97	CADCrafts	Digital Domain	HPCwire
Acuris Inc.	Caligari Corporation	Digital Equipment Corporation	ICON WEST
Addison-Wesley Publishing	Cambridge Animation Systems	Digital Magic	I.D. Magazine
Company	Cartesia Software	Digital Processing Systems, Inc.	IBM Corporation
Adobe Systems Inc.	CBS News Archives	Digital Semiconductor	IEEE Computer Graphics Society
Advance Rendering Technology	CELCO	Digital Video Magazine	IMAGICA Corporation of America
Advanced Imaging	CGI	Digital Wisdom Incorporated	Imagina-INA
Advanced Media Production Center	CGSD Corporation	Digits 'n Art Software, Inc.	Immersion Corporation
Advanced Visual Systems Inc.	Chroma Graphics, Inc.	Discreet Logic	Industrial Light+Magic, Lucas Digital
Alias   Wavefront	Chromatek, Inc.	DreamWorks Animation	InnovMetric Software, Inc.
Alien Skin Software, LLC	Chyron Corporation	Dynamic Pictures, Inc.	in:sync corporation
Animation Magazine	Cinebase Software	Eastman Kodak Company	Intel Corporation
Anthro Corporation	Ciprico, Inc.	Electric Image Inc.	Interactive Effects Incorporated
AP PROFESSIONAL	CIRAD - Unite de modelisation	ELSA Inc.	Interactivity
Apple Computer, Inc.	des plantes	ENCAD	Intergraph Corporation
(Art) <sup>n</sup> Laboratory	Cirrus Logic, Inc.	Engineering Animation, Inc.	InterSense
Artbeats Software, Inc.	Cogswell Polytechnical College	Ensemble Designs	IRIS Graphics, Inc.
Ascension Technology Corporation	Communications Specialties, Inc.	Equilibrium	Kinetix
ASK LCD	Compaq Computer Corporation	Eurographics	Kingston Technology Corporation
ATLIGHTSPEED, Inc.	Computer Artist	Evans & Sutherland Computer	Leadtek Research Inc.
auto.des.sys, Inc.	Computer Graphics World	Corporation	Legasys International, Inc.
AutoMedia Ltd.	Computrend	Extron Electronics	Leitch Incorporated
Autometric Inc.	Coryphaeus Software, Inc.	Eyeon Software	Lightscape Technologies, Inc.

(continued)

## EXHIBITORS



Lightwave Communications, Inc.	MUSE Technologies, Inc.	Radiance Software International	Sun Microsystems Computer Company
LightWork Design Limited	n-Vision, Inc.	Radius Inc.	Superscape
Linker Systems, Inc.	National Animation and Design Centre (NAD Centre)	Real 3D	Sven Technologies
Logitech	NEC Electronics Inc.	Real-Time Geometry	Symmetric
Lucent Technologies	NeTpower	REM Infografica S.A.	Techexport, Inc.
Macmillan Computer Publishing, USA	NewTek Incorporated	Republic Group, Inc., The	Tektronix, Inc.
Macromedia	Nichimen Graphics, Inc.	Resolution Technologies, Inc.	Template Graphics Software, Inc.
Mainframe Entertainment, Inc.	Northern Digital Inc.	RGB Spectrum	Texas Memory Systems, Inc.
Management Graphics, Inc.	nStor Corporation	Rhythm & Hues Studios	Toon Boom Technologies
Matrox Electronic Systems Ltd.	Numerical Algorithms Group, Inc.	S-MOS Systems, Inc.	Transoft Technology Corporation
Matrox Graphics	NVision, Inc.	Savannah College of Art and Design	Trinity Animation
Maxon Computer GmbH	Odyssey Productions	Screen Actors Guild	Tri-Star Computer
MAXSTRAT	Omniview, Inc.	SensAble Technologies Inc.	TV One Multimedia Solutions
Media 100/Data Translation	Onyx Computing, Inc.	Sense8 Corporation	Unlimited Potential Incorporated
MegaDrive Systems, Incorporated	Optia	Side Effects	Vangard Technology, Inc.
MetaTools, Inc.	Oxberry LLC	Sierra Design Labs	Variety's ON Production
Microboards Technology	Pacific Bell	Sigma Electronics, Inc.	Vicon Motion Systems
Micropolis Corporation	Panasonic Broadcast & Television Systems Company	Silicon Graphics, Inc.	Video Systems Magazine/Intertec Publishing
Microsoft Corporation	PC Graphics and Video	Silicon Graphics World	Videomedia Inc.
Miller Freeman, Inc.	PC Video Conversion	Society of Motion Picture & Television Engineers (SMPTE)	Viewpoint DataLabs International Inc.
Minicomputer Exchange Inc.	Photron Ltd.	Softimage	Viewsonic
Minolta Corporation	Pixar	Solomon Volumetric Imaging, Inc.	VIFX
Miranda Technologies Inc.	Play Incorporated	Sony Electronics Inc.	Virtual Technologies
Mitsubishi Electronics America, Inc.	Polhemus Incorporated	Sony Pictures Imageworks	Visible Productions
MMS Multi Media Systems GmbH	Positron Publishing	Sound Ideas	Wacom Technology Corporation
Montpellier Languedoc-Roussillon Technopole	POST Magazine	Spacetec IMC	Walt Disney Company
Morgan Kaufmann Publishers Inc.	ProMax Technology, Inc.	Springer-Verlag	Western Scientific, Inc.
Motion Analysis Corporation	Proxima Corporation	Sprint	Wiley Computer Publishing
MountainGate	Quantel, Inc.	Square L.A.	Winsted Corporation
Moving Pixels	Quantum Corporation	StereoGraphics Corporation	Wired
MultiGen Inc.	Questar Productions	Storage Concepts, Inc.	Worlds, Inc.
Multimedia Content Association of Japan (MMCA)	QuVIS Inc.	Strata, Inc.	
		StreamLogic Corporation	



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.

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. All attendees are invited to make the SIGGRAPH 97 International Center their home away from home.

Les membres polyglottes de notre Comité International restent à votre disposition pour répondre à vos questions et pour vous fournir toutes informations complémentaires sur le SIGGRAPH 97.

Mitglieder des mehrsprachigen Internationalen Komitees stehen bereit, um Fragen zu beantworten und Anskunft über SIGGRAPH 97 zu erteilen.

Miembros multilingües del Comité Internacional están a su disposición para responder preguntas y proveer información sobre SIGGRAPH 97

Membros políglotas do Comitê Internacional estarão disponíveis para responder as suas perguntas e para dar informação a respeito da SIGGRAPH 97.

Membri multilingue del Comitato Internazionale sono disponibili a rispondere alle domande ed a fornire informazioni in riguardo a SIGGRAPH 97.

會說多種語言的國際運作委員會的成員，可解答問題及提供有關 SIGGRAPH 97 的資訊。

マルチリンガルな国際委員が SIGGRAPH 97に関する質問にお答えし、インフォメーションを提供いたします。

다 언어 국제 위원회의 위원들은 SIGGRAPH 97에 관한 여러분의 모든 문의의 대답을 위해 대기하고 있습니다.

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### Virtual Reality



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 and Design

### Big Data



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

- Visibility
- Surface Simplification

### Animation & Special Effects



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

- Illumination
- Fur, Film, and Light
- Animation
- Texture and Reflection

### Art & Design



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

- Non-Photorealistic Rendering

### 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

## PANELS

## EDUCATORS PROGRAM

- 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 in K-12 Education
- Technology as Facilitator

- Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation
- Motion Capture and CG Character Animation

- Computer Science

- 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

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

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

- Computer Science

FULL DAY COURSES

HALF DAY COURSES

Sunday 3 August

PM

1:30 pm – 5 pm

- FIX** 1 Motion Capture in Practice
- AD** 2 Creative Design for the World Wide Web
- API** 3 Programming with OpenGL: An Introduction
- BD** 4 Exploring Gigabyte Datasets in Real-Time: Algorithms, Data Management, and Time-Critical Design
- API** 5 Sound Bytes: VRML Authoring for Noisy Worlds
- VR** 6 Stereo Computer Graphics for Virtual Reality
- 7 Design and Application of Object-Oriented 3D Visualization Systems
- 8 Texture Synthesis with Line Integral Convolution

Monday 4 August

8:30 am – 5 pm

- API** 9 Introduction to VRML
- 10 Introduction to Computer Graphics
- API** 11 Programming with OpenGL: Advanced Techniques
- BD** 12 Interactive Walk-Through of Complex Environments
- FIX** 13 Digital Color
- 14 New Frontiers in Modeling and Texturing
- VR** 15 Applied Virtual Reality
- FIX** 16 Interactive Movies: Techniques, Technologies, and Contents
- FIX** 17 Virtual Humans: Behaviors and Physics, Acting, and Reacting
- 18 Beyond Bottlenecks and Roadblocks: Internetworked Computer Graphics
- 19 Physically Based Modeling: Principles and Practice
- 20 Computer Animation Using Digital Video for the Web, Multimedia, and Broadcast
- 21 Designing Real-Time Graphics for Entertainment

Tuesday 5 August

8:30 am – 5 pm

AM

8:30 am – noon

- AD** 22 Mastering Visible Wisdom: Graphic Design for Usable GUIs of Productivity Tools, Multimedia, and the Web
- FIX** **VR** 23 Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality
- BD** 25 Multiresolution Surface Modeling
- 26 3D Computer Animation Workshop
- FIX** 27 Scanning and Recording of Motion Picture Film
- API** 28 Authoring Compelling and Efficient VRML 2.0 Worlds
- VR** 29 Programming Virtual Worlds
- AD** 33 Principles of Visual Perception and Its Applications in Computer Graphics
- FIX** 34 Warping and Morphing of Graphical Objects
- API** 35 Introduction to Java3D
- API** 24 OpenGL and Window System Integration
- BD** 31 Principles of Volume Visualization

PM

1:30 pm – 5 pm

- VR** 30 Making Direct Manipulation Work in Virtual Reality
- BD** 32 Advances in Volume Visualization

## Wednesday 6 August

- 8:15 am – 9:45 am • Keynote Address/Awards
- 10:15 am – noon **VR** • Virtual Reality and Design • Deconstructing Play: Theory and Practice  
• Facial Animation: Past, Present, and Future
- 2 pm – 3:45 pm **FIX** • Illumination **FIX** • Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation  
**AD VR** • Narrative Environments: Virtual Reality as a Storytelling Medium
- 4 pm – 5:45 pm **BD** • Visibility **FIX** • Motion Capture and CG Character Animation  
**AD** • The Differences Between Here and There: What Graphic Design Brings to E-Space

## Thursday 7 August

- 8:15 am – 10 am **FIX** • Fur, Film, and Light **VR** • Interfacing Reality: Exploring Emerging Trends Between Humans and Machines **AD** • The Visual Arts **VR** • VR in K-12 Education
- 10:15 am – noon **FIX** • Animation **API** • What 3D API for Java Should I Use and Why? • Funding: University Focus • Funding: K-12 Focus  
**AD** • Community/Content/Interface: Creative Online Journalism

- 12:15 pm - 1:15 pm • **Special Session** New Realities in Film Production: The Process of Creating Digital Visual Effects

- 2 pm – 3:45 pm **BD** • Surface Simplification • Educating the Digital Artist for the Entertainment Industry: The Collision of Academia and Business **FIX API** • Computer Science **VR AD** • Technology as Facilitator  
**AD** • Medical Illustration & Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?
- 4 pm – 5:45 pm • Image-Based Rendering and Panoramas **VR** • Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In **AD** • Where Computer Science and Art Meet **AD** • Web and Multimedia Design

## Friday 8 August

- 8:15 am – 10 am • Geometry **AD** • Sounding Off on Audio: The Future of Internet Sound
- 10:15 am – noon • Hardware and Anti-Aliasing • Image-Based Rendering: Really New or Deja Vu?

- 12:15 pm - 1:15 pm • **Special Session** A Framework for Realistic Image Synthesis

- 1:30 pm – 3:15 pm • Devices and Multimodal I/O **FIX** • Texture and Reflection • The Rhetoric of the Synthetic: Images of the Body in Technology, Business, and Culture
- 3:30 pm – 5:15 pm **AD** • Non-Photorealistic Rendering **VR** • Experiences with Virtual Reality Applications

**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 for the course(s) you wish to attend.

**Course Notes**

Full Conference registrants receive all course notes on CD-ROM. Printed course notes must be purchased. Use the merchandise section of the SIGGRAPH 97 registration form (page 41) to purchase printed course notes in advance and pick them up at the Los Angeles Convention Center. Subject to availability, printed course notes can also be purchased at SIGGRAPH 97.

**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.



All courses are located in the Los Angeles Convention Center.

SUNDAY 3 AUGUST

1

FX

**Motion Capture in Practice**

Sunday | Half Day | Intermediate

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

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

**August in LA**

Be there when over 40,000 scientific visionaries, cyber artists, interactive engineers, and hardware and software connoisseurs explore the next wave of digital technology.



3

API

**Programming with OpenGL: An Introduction**

Sunday | Half Day | Beginning

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

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

API

**Sound Bytes: VRML Authoring for Noisy Worlds**

Sunday | Half Day | Beginning

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.

**August in LA**

Seien Sie dabei wenn über 40.000 Visionäre der Wissenschaft, Künstler des Cyberspace, interaktive Techniker und Kenner von Hardware und Software die nächste Welle der digitalen Technologie erforschen.

6

VR

### Stereo Computer Graphics for Virtual Reality

Sunday | Half Day | Intermediate

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

### Design and Application of Object-Oriented 3D Visualization Systems

Sunday | Half Day | Intermediate

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

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

## LA en août

Venez vous joindre à quarante mille visionnaires scientifiques, artistes cybernétiques, ingénieurs interactifs et connaisseurs en hardware et software explorer la prochaine vague de technologie digitale.

9

API

**Introduction to VRML**

Monday | Full Day | Beginning

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

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 Research

**Olin Lathrop**  
Cognivision, Inc.

**Patricia Wenner**  
Bucknell University

11

API

**Programming with OpenGL: Advanced Techniques**

Monday | Full Day | Intermediate

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.

MONDAY 4 AUGUST

12

BD

**Interactive Walk-Through of Complex Environments**

Monday | Full Day | Intermediate

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

FX

**Digital Color**

Monday | Full Day | Advanced

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 Clippeler**  
Agfa-Gevaert NV

**Charles Poynton**  
Poynton Vector Corporation

**Maureen Stone**  
Xerox PARC

14

**New Frontiers in Modeling and Texturing**

Monday | Full Day | Advanced

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 Kohling Pedersen**  
Massachusetts Institute of Technology

**Przemyslaw Prusinkiewicz**  
University of Calgary

15

VR

**Applied Virtual Reality**

Monday | Full Day | Intermediate

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

FIX

**Interactive Movies: Techniques, Technologies, and Contents**

Monday | Full Day | Intermediate

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**  
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

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

**LA에서 8월에**

40,000명이 넘는 과학의 환상가,  
사이버 예술가, 인터랙티브 기술자,  
하드웨어와 소프트웨어의 전문가들이  
다음 세대의 디지털 기술을 탐구하는  
장소에 오십시오.

MONDAY 4 AUGUST

18

**Beyond Bottlenecks and Roadblocks:  
Internetworked Computer Graphics**

Monday | Full Day | Beginning

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 Macedonia**  
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

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

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 are 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

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

**Mike Goslin**  
Walt Disney LBE

**Michael Jones**  
Silicon Graphics, Inc.

**Shiguru Miyamoto**  
Nintendo

**Tim VanHook**  
Silicon Graphics, Inc.

TUESDAY 5 AUGUST

22

AD

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

Tuesday | Full Day | Beginning

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

FX

**Artificial Life for Graphics, Animation, Multimedia, and Virtual Reality**

Tuesday | Full Day | Intermediate

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

TUESDAY 5 AUGUST

24

API

**OpenGL and Window System Integration**

Tuesday | Half Day | Intermediate

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

BD

**Multiresolution Surface Modeling**

Tuesday | Full Day | Intermediate

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

**3D Computer Animation Workshop**

Tuesday | Full Day | Beginning

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

**8月，於洛杉磯**

超過4萬人的科學先見者，電腦藝術家，雙向溝通工程師以及硬體軟體的行家將聚此探索未來的數字技術。您也千萬不要錯過這個機會。



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FX

## Scanning and Recording of Motion Picture Film

Tuesday | Full Day | Advanced

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.

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API

## Authoring Compelling and Efficient VRML 2.0 Worlds

Tuesday | Full Day | Intermediate

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

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

## Agosto a LA

Dovete essere lì quando 40 mila visionari scientifici, artisti

del cyber, specialisti interattivi ed esperti dell'hardware e del

software esplorano i nuovi arrivi nel campo della tecnologia digitale.

TUESDAY 5 AUGUST

30

VR

### Making Direct Manipulation Work in Virtual Reality

Tuesday | Half Day | Intermediate

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

BD

### Principles of Volume Visualization

Tuesday | Half Day | Beginning

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

**Roni Yagel**  
The Ohio State University

32

BD

### Advances in Volume Visualization

Tuesday | Half Day | Intermediate

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

## Agosto em LA

Esteja presente quando mais de 40.000 visionários científicos, artistas cibernéticos, engenheiros de interação e especialistas em hardware e software exploram a próxima nova onda de tecnologia digital.

33

AD

### Principles of Visual Perception and Its Applications in Computer Graphics

Tuesday | Full Day | Intermediate

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

FIX

### Warping and Morphing of Graphical Objects

Tuesday | Full Day | Beginning

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

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API

### Introduction to Java3D

Tuesday | Full Day | Intermediate

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

WEDNESDAY 6 AUGUST

**Papers/Panels Registration**

Full Conference registration allows attendees access to all SIGGRAPH 97 Papers and Panels. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Papers and Panels you wish to attend.

**Keynote Address/Awards**

Wednesday | 8:15 am - 9:45 am

SIGGRAPH 97's featured speaker and two awards for distinguished achievement in computer graphics.

**Papers**

Wednesday | 10:15 am - noon

**Virtual Reality and Design**

VR

**CHAIR**

**Frederick P. Brooks** University of North Carolina at 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 at Chapel Hill  
**Carlo H. Sequin** University of California, Berkeley
- **Virtual Voyage: Interactive Navigation in the Human Colon**  
**Lichan Hong** State University of New York at Stony Brook  
**Shigeru Muraki** MITI  
**Arie Kaufman** State University of New York at Stony Brook  
**Dirk Bartz** University of Erlangen-Nuremberg  
**Taosong He** Bell Laboratories, Lucent Technologies
- **Design Galleries: A General Approach to Setting Parameters for Computer Graphics and Animation**  
**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. Rumt, K. Ryall** Harvard University  
**J. Seims** University of Washington  
**S. Shieber** Harvard University

**new ONLINE PANELS**

Four SIGGRAPH 97 Panels begin online in early May:

- Putting a Human Face on Cyberspace: Designing Avatars and the Virtual Worlds They Live In
- Sounding Off on Audio: The Future of Internet Sound
- Motion Capture and CG Character Animation
- Medical Illustration & Visualization: Why Do We Use CG and Does It Really Make a Difference in Creating Meaningful Images?

**Panel**

Wednesday | 10:15 am - noon

• **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 | 10:15 am - noon

• **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

**Mark Oftendal** Pixar

**Doug Sweetland** Pixar

**Demetri Terzopoulos** University of Toronto

**Keith Waters** Digital Equipment Corporation

## Papers

Wednesday | 2 pm - 3:45 pm

## FIX Illumination

## CHAIR

Eugene Fiume University of Toronto

- **Fitting Virtual Lights for Non-Diffuse Walkthroughs**  
Bruce Walter, Gun Alpay, 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 | 2 pm - 3:45 pm

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

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 | 2 pm - 3:45 pm

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

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  
Aithomas Goldberg New York University

## Papers

Wednesday | 4 pm - 5:45 pm

## 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 | 4 pm - 5:45 pm

## FIX • Motion Capture and CG Character Animation

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 | 4 pm - 5:45 pm

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

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 IWL Interactive  
Edwin Utermohlen North Carolina State University

THURSDAY 7 AUGUST

## Papers

Thursday | 8:15 am - 10 am

## FX 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**  
Joe Gelgel 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 | 8:15 am - 10 am

## VR • 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 | 10:15 am - noon

## FX 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**  
Ferd 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 | 10:15 am - noon

## API • 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.  
Servan Keondjian Microsoft RenderMorphics Ltd.  
Mitra ParaGraph International  
Henry Sowizral Sun Microsystems, Inc.

## Panel

Thursday | 10:15 am - noon

## AD • 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  
Robert Atkins Talkback!  
Gary Wolf HotWired

## Special Session

Thursday | 12:15 pm - 1:15 pm

- 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 | 2 pm - 3:45 pm

## 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 | 2 pm - 3:45 pm

- 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 Francisco State University  
Richard Weinberg University of Southern California

## Panel

## online panel

Thursday | 2 pm - 3:45 pm

## AD • Medical Illustration &amp; 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.

## ORGANIZER

Virginia McArthur Engineering Animation Inc.

## PANELISTS

Jane Hurd Medical Illustrator  
Marsha Jessup Robert Wood Johnson Medical School  
Casey Herbert Flying Foto Factory  
Pat Lynch Yale University School of Medicine

## Papers

Thursday | 4 pm - 5:45 pm

## 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 Corporation
- 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 | 4 pm - 5:45 pm

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

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 Panias University of Art and Design  
Kirk Parsons Black Sun Interactive  
Bernie Roel University of Waterloo  
Moses Ma Internet Game Inc.

FRIDAY 8 AUGUST

## Papers

Friday | 8:15 am - 10 am

## 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**  
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 | 8:15 am - 10 am

AD • **Sounding Off on Audio: The Future of Internet Sound**

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 OnLive! Technologies  
Eythor Arnalds Oz Interactive Inc.  
William Martens University of Aizu  
Tim Cole SSEYO Ltd.

## Papers

Friday | 10:15 am - noon

## 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, Bill Riard, Alex Yen Apple Computer, Inc.
- **Anti-Aliasing of Curves by Discrete Pre-Filtering**  
A.E. Fabris Universidade de São Paulo  
A.R. Forrest University of East Anglia

## Panel

Friday | 10:15 am - noon

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

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 McMillan Massachusetts Institute of Technology  
Jitendra Malik University of California, Berkeley



## Special Session

Friday | 12:15 pm - 1:15 pm

## • 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 subsections: 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 | 1:30 pm - 3:15 pm

## Devices and Multimodal I/O

CHAIR

Mike Moshell University of Central Florida

- **The Two-User Responsive Workbench: Support for Collaboration Through Independent 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**  
Diego C. Ruspini, Krasimir Kolarov, Oussama Khatib Stanford University
- **Video Rewrite: Speaking Through the Mouths of Others**  
Christoph Bregler, Malcolm Slaney, Michele Covell Interval Research Corporation

## Papers

Friday | 1:30 pm - 3:15 pm

## fix Texture and Reflection

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

## Panel

Friday | 1:30 pm - 3:15 pm

## • 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

## Agosto en LA

Esté presente cuando más

de 40.000 científicos visionarios,

artistas cibernéticos, ingenieros inter-

activos y conocedores de hardware

y software exploran la nueva ola de

la tecnología digital.

FRIDAY 8 AUGUST

## Papers

Friday | 3:30 pm - 5:15 pm

**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 | 3:30 pm - 5:15 pm

**VR • Experiences with Virtual Reality Applications**

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

Alan Craig National Center for Supercomputing Applications

Bowin Loftin University of Houston

Benjamin Britton University of Cincinnati

Rita Addison Massachusetts Institute of Technology

Art Patton Motorola University

**ロスアンジェルス – 8月**

最新のデジタルテクノロジーを模索しに、科学的ビジョンを持った人々、サイバー・アーティスト、インタラクティブ・エンジニア、ハードウェア・ソフトウェアのエキスパートが4万人以上集まります。どうぞ御参加下さい。

**新!** SIGGRAPH 97 の全てのパネルディスカッションは、日本語に同時通訳されます。

INNOVATIVE EXPLORATIONS IN APPLYING  
and teaching computer graphics at all levels  
of education.

### 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 for the sessions you wish to attend.

**Opening** | 8:15 am

**AD** **The Visual Arts** | 8:30 am - 10 am

- **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
- **The Creative Process of University-Level Computer Art Students**  
Dena Elisabeth Eber University of Georgia
- **Strategies for Teaching Computer Imaging to Middle School and High School Students**  
Darlen Small Sidwell Friends School

**AD** **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.

#### MODERATOR

Scott Grissom University of Illinois, Springfield

Judy Brown University of Iowa  
Maxine Brown University of Illinois at Chicago  
John Cherniavsky National Science Foundation  
Nancy Levitt Hewlett-Packard Company  
Michael McGrath Colorado School of Mines  
Scott Owen Georgia State University

**Fix AD** **Computer Science** | 2 pm - 3:45 pm

- **Teaching a Three-Dimensional Computer Graphics Class Using OpenGL**  
Edward Angel University of New Mexico
- **Teaching Graphics Through Video Games**  
Theo Pavlidis State University of New York at Stony Brook
- **Alice: Easy to Learn Interactive 3D Graphics**  
Matthew J. Conway University of Virginia  
Randy Pausch Carnegie Mellon University

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

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

#### MODERATOR

Anna Ursyn University of Northern Colorado

Terry Scott, Benjamin R. Hobgood  
University of Northern Colorado  
Lizette Mill Hewlett-Packard Company

**Opening** | 8:15 am

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

- **NICE: Combining Constructionism and Collaboration in a Virtual Learning Environment**  
Maria Roussos University of Illinois at Chicago  
Andrew E. Johnson University of Illinois at Chicago  
Jason Leigh University of Illinois at Chicago  
Christina A. Vasilakis University of Illinois at Chicago
- **Historical Role Playing in Virtual Worlds: VRML in the History Curriculum and Beyond**  
Jonah Peretti, Mark Cowett, Vince Ricci, Casey Chavet  
The Isidore Newman School
- **Virtual Reality the Modular Way**  
Bill Menousek, Terry Wolfe  
Educational Service Unit #3, Omaha

**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.

#### MODERATOR

Jodi Giroux Allen-Stevenson School

Gene Bias Orange County Leadership Center  
Tim Comolli South Burlington High School  
Marilyn Schlieff NFIE  
Anne Sobotta Centennial High School  
Darlene Wolfe River Ridge High School

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

- **The Wandering Eye: An Online Collaboration Between Student and Professional Creative Artists**  
Jonah Peretti, Jennifer Adams, Nathan Wyman  
The Isidore Newman School
- **SDSC Science Discovery**  
Rosemarie McKeon San Diego Supercomputer Center
- **A Virtual Poem: Extending Class from Reality?**  
Tim Brock, David Hartman  
St. Petersburg Junior College

**Web and Multimedia Design** | 4 pm - 5 pm

- **Publishing or Programming? A Framework for the Development and Presentation of Work by Children on the World Wide Web**  
Judy Keiner University of Reading
- **Teaching Students the Techniques and Tricks to Create Successful Multimedia Projects (the Easy Way)**  
John Sturman Pocket Protector Productions  
Dee Fabry Ingenius

### The Organization

SIGGRAPH is ACM's Special Interest Group on Computer Graphics and Interactive Techniques. 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:

+1.212.626.0500  
acmhelp@acm.org

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THE SIGGRAPH INFORMATION booths, located in the lobby area of the Los Angeles Convention Center, provide information about these services and activities.

#### ACM

ACM, the first society in computing and sponsor of the SIGGRAPH conference, serves as an umbrella organization to information-technology professionals. Through its magazines, journals, books, and conferences, ACM offers its members access to information on the latest developments in cutting-edge technology, the transfer of ideas from theory to practice, and opportunities for information exchange. ACM is the resource for lifelong learning in the rapidly changing information technology field. For more information contact:

ACM  
1515 Broadway  
New York, New York 10036 USA  
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(Continental US and Canada)  
+1.212.626.0500  
(Metro New York and International)  
+1.212.944.1318 (North America)  
+32.2.774.9602 (Europe)  
+32.2.774.9690 fax (Europe)  
acmhelp@acm.org  
acm\_europe@acm.org

#### SIGGRAPH One More Time

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  
spencer@siggraph.org

#### 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:

SIGGRAPH 98 Conference Management  
Smith, Bucklin & Associates, Inc.  
401 North Michigan Avenue  
Chicago, Illinois 60611 USA  
+1.312.321.6830  
+1.312.321.6876 fax  
siggraph98@siggraph.org

#### SIGGRAPH Education Committee

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 SIGGRAPH Education Committee is involved with K-12 and university-level activities. For more information contact:

Marc J. Barr  
Associate Professor Radio/TV/Photography  
#58 Middle Tennessee State University  
Murfreesboro, Tennessee 37132 USA  
+1.615.898.5118  
+1.615.898.5682 fax  
barr@siggraph.org

#### 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:

Scott Lang  
SIGGRAPH Director for Professional Chapters  
lang@siggraph.org  
http://www.siggraph.org/chapters

#### SIGGRAPH Video Review

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 unequalled 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:

SIGGRAPH Video Review c/o ACM  
P.O. Box 12114, Church Street Station  
New York, New York 10257 USA  
800.342.6626 (USA/Canada)  
+1.212.626.0500 (overseas)  
+1.212.944.1318 fax  
svrorders@siggraph.org  
http://www.siggraph.org/publications/  
video-review/SVR.html

## Career Center

All registered attendees are eligible to post a résumé in the SIGGRAPH 97 Career Center. Please bring at least two copies of your résumé to SIGGRAPH 97 (one of which will be kept for SIGGRAPH 97 permanent records) or mail them by Tuesday, 15 July, to:

SIGGRAPH 97 Conference Management  
Smith, Bucklin & Associates, Inc.  
Attention: Career Center Staff  
401 North Michigan Avenue  
Chicago, Illinois 60611 USA

When you mail your résumé, please indicate all categories that apply:

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

Résumés are posted by category. If you want your résumé posted in more than one category (three maximum), please send an additional copy for each category.

At SIGGRAPH 97, registered attendees can review the job postings and ask the Career Center staff to give résumés to specific employers. The staff also helps attendees and employers schedule interviews and show demo tapes.

Career Center job posting services are provided free of charge to SIGGRAPH 97 exhibitors. Please bring at least two copies of your posting to SIGGRAPH 97 or mail them by Tuesday, 15 July, to:

SIGGRAPH 97 Conference Management  
Smith, Bucklin & Associates, Inc.  
Attention: Career Center Staff  
401 North Michigan Avenue  
Chicago, Illinois 60611 USA  
siggraph97@siggraph.org

Organizations that are not exhibiting at SIGGRAPH 97 must pay a \$500 fee to participate in the Career Center. For complete information, contact:

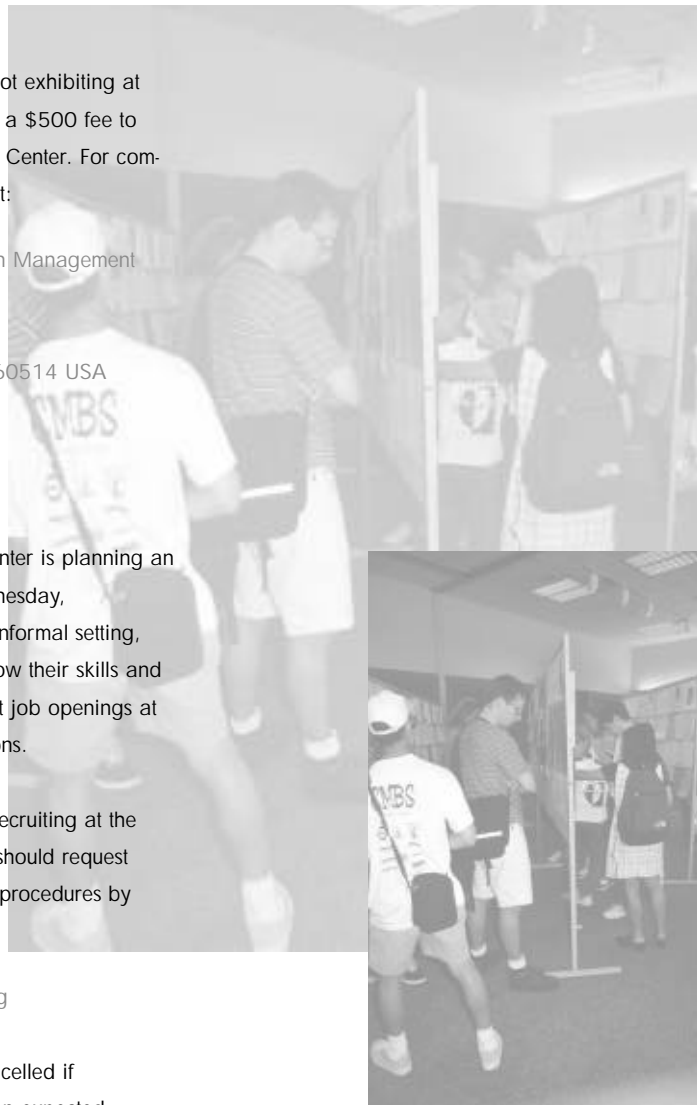
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halleric@siggraph.org

**new** The Career Center is planning an all-day Job Fair on Wednesday, 6 August. In a relaxed, informal setting, attendees can explore how their skills and experience match current job openings at participating organizations.

Employers interested in recruiting at the SIGGRAPH 97 Job Fair should request information on fees and procedures by contacting:

jobfair.s97@siggraph.org

The Job Fair may be cancelled if participation is lower than expected.



SIGGRAPH 97 AND THE LOS ANGELES Convention Center offer several services during the conference to make your week more enjoyable. For more information on SIGGRAPH 97 services, contact:

SIGGRAPH 97  
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401 North Michigan Avenue  
Chicago, Illinois 60611 USA  
+1.312.321.6830  
+1.312.321.6876 fax  
siggraph97@siggraph.org

#### Child Care

Accent on Children's Arrangements, the company that provided the very popular child care services at SIGGRAPH 96, will provide age-appropriate child care activities for children from three months to 16 years of age at the Los Angeles Convention Center.

Please check the SIGGRAPH 97 Web site for more detailed information on costs, hours, and registration:

<http://www.siggraph.org/s97/>

Or for additional information and to register:

Accent on Children's Arrangements, Inc.  
938 Lafayette Street, Suite 201  
New Orleans, Louisiana 70113 USA  
+1.504.524.1227  
+1.504.524.1229 fax  
acentoca@aol.com

#### GraphicsNet

As part of the conference infrastructure, SIGGRAPH 97 will again create GraphicsNet, a state-of-the-art fiber backbone network linking programs and exhibitors within the conference to the global computer graphics community. Networked graphics environments created at SIGGRAPH 97 will provide an international communications forum for attendees, exhibitors, and contributors.

#### Information Booths

For answers to your questions about SIGGRAPH 97, stop by the information booth. The information booth provides information on conference programs and events, Los Angeles attractions, and restaurants.

#### 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.

#### 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. The Internet Access Centers are available to all attendees during registration hours beginning Sunday, 3 August.

#### LA Convention Center

##### ACCESSIBILITY

The convention center is wheel-chair accessible. It has no curbs, and there are elevators to the upper levels. If you have special needs or requirements, please contact SIGGRAPH 97 Conference Management and we will do our best to accommodate you.

##### 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.

##### FOOD SERVICES

The Los Angeles Convention Center operates several food concession areas for the convenience of SIGGRAPH 97 attendees. Food carts and casual seating are also available throughout the convention center. See the SIGGRAPH 97 Program and Buyer's Guide at the Los Angeles Convention Center for additional details.

#### Merchandise Store

*new* SIGGRAPH 97 introduces a conference store for casual browsers and serious shoppers. All merchandise and technical materials are available on a first-come, first-served basis.

#### Online Access

PDF and HTML versions of SIGGRAPH 97 announcements, programs, and other information are available at:

<http://www.siggraph.org/s97/>

#### Shipping Desk

For your convenience, a shipping desk at SIGGRAPH 97 provides next-day air, second-day air, and regular ground shipping services to destinations throughout the world.

#### 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. Look for the signs indicating pick-up times and locations at your hotel. If you require special transportation assistance, please call conference management at:

+1.312.321.6830

#### 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.

SIGGRAPH 97 HAS ARRANGED SPECIAL rates for conference participants at hotels with easy access to the Los Angeles Convention Center.

Flying Colors, SIGGRAPH 97's travel coordinator, will make your hotel reservation at SIGGRAPH 97 discounts. Complete the SIGGRAPH 97 hotel form on the next page and fax or mail the form to Flying Colors at the address below no later than 27 June 1997, or email your housing request to [travel.s97@siggraph.org](mailto:travel.s97@siggraph.org).

Receipt of your email will be acknowledged and confirmation of your reservation will be mailed. If you do not receive a response to your email housing request, you should assume that it was NOT received.

A 14 percent tax per night is added to all hotel bills in Los Angeles. In Pasadena, the per-night tax is 11.49 percent. These room taxes are subject to change. Non-smoking rooms are available and assigned on a first-come first-served basis, as requested upon check-in.

Dormitory rooms at the University of Southern California include bed linens, pillows, community bathrooms, washers, dryers, a cafeteria for food service, and telephones for credit card calls. Dorm rooms do not include televisions or air conditioning. Guests must prepay the full amount of their stay upon check-in, and no refunds will be given for early departures.

Flying Colors will confirm your hotel reservations by fax. Your confirmation will indicate the name, address, telephone number, and confirmed room rate for your hotel. If you need to make any changes or cancellations to your reservation before 18 July, contact Flying Colors. Changes or cancellations after 18 July must be made directly with your hotel.

If you have questions about hotel accommodations, please contact:

Flying Colors  
445 East Illinois  
Chicago, Illinois 60611 USA  
Attention: SIGGRAPH 97  
800.477.7514

(Continental US, except Illinois, and Canada)  
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+1.312.494.3015 fax  
[travel.s97@siggraph.org](mailto:travel.s97@siggraph.org)

Hours:

8 am to 6 pm, Central Time, Monday-Friday

#### Airlines

Flying Colors is offering discounted airfares on American, Delta, and Continental airlines. Please make your arrangements as early as possible to secure your preferred flights.

#### AMERICAN AIRLINES

- A bonus discount of 5% below the lowest fare for which you qualify.
- A SIGGRAPH 97 discount of 15% off American's round-trip full coach airfares with a seven-day advance purchase if you cannot meet the restrictions of the supersaver fares.

#### DELTA AIR LINES

- A bonus discount of 10% below the lowest fare for which you qualify.
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- A bonus discount of 10% below the lowest fare for which you qualify.
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Based on your trip origination and travel dates, additional discounts may apply. All airfares are subject to change without notice. Airfares are only guaranteed with purchase of ticket. Space is limited and some restrictions and cancellation penalties apply. Travel is valid for the continental US and Canada. Please contact Flying Colors for more information.

#### Win Two Free Airline Tickets!

Book your airline and hotel reservations with Flying Colors by 16 May to qualify to win free Continental Airlines tickets for you and a companion to any destination in the 48 contiguous United States.

#### Car Rental

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. Outside the US, call +1.310.646.5600 and ask for reservations.

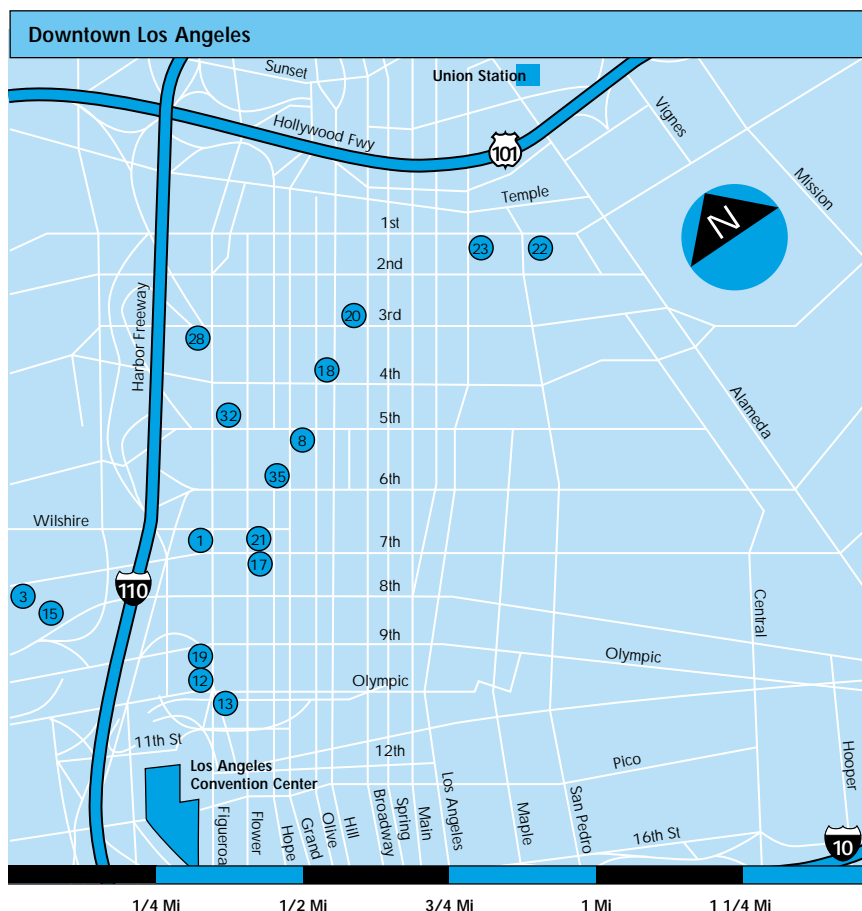
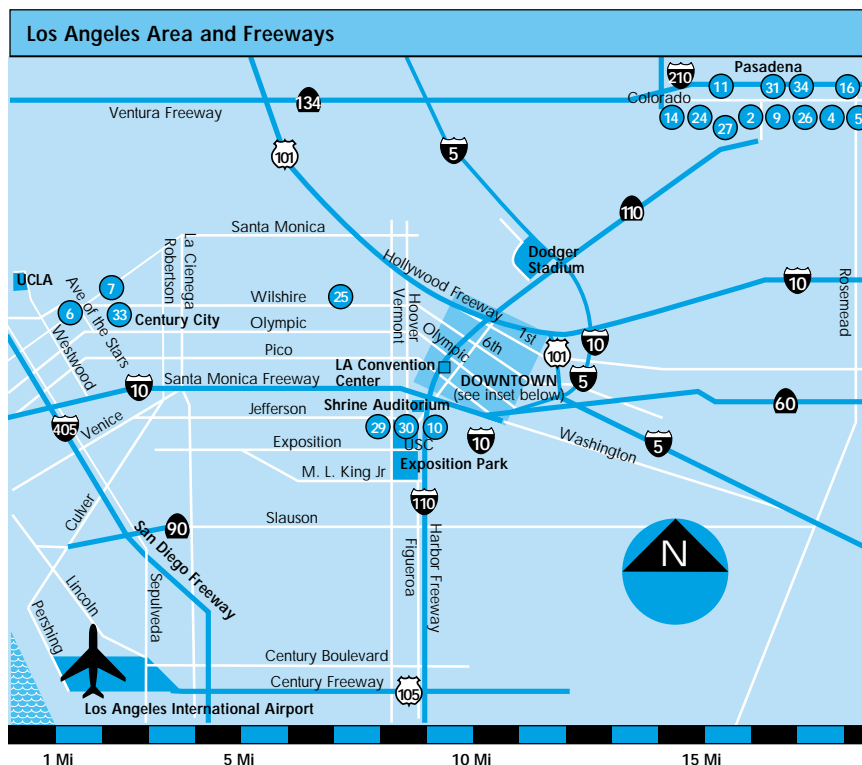
For air and car reservations only, call Flying Colors at:

800.477.4402  
(Continental US and Canada)  
+1.312.494.3010  
(International)



## Hotels

- 1 Omni Los Angeles **Headquarters Hotel**  
\$125 S/D Std. | \$135 S/D Deluxe | \$155 S/D Club
- 2 Best Western Colorado Inn | \$47 S | \$57 D
- 3 Best Western Mayfair Hotel | \$70 S | \$80 D | \$100 T
- 4 Best Western Pasadena Inn | \$47 S | \$57 D
- 5 Best Western Pasadena Royale | \$50 S | \$60 D
- 6 Beverly Hills Plaza | \$179 S/D | \$199 1BR
- 7 The Beverly Hilton | \$145 S/D | \$170 T
- 8 Biltmore Los Angeles\* | \$125 S/D | \$155 T
- 9 Comfort Inn Pasadena | \$64 S | \$69 D
- 10 Crowne Plaza Hotel | \$115 S/D | \$125 T
- 11 Doubletree Hotel Pasadena | \$135 S/D
- 12 Figueroa Hotel | \$89 S | \$99 D | \$109 T
- 13 Holiday Inn City Center | \$115 S/D | \$125 T
- 14 Holiday Inn Downtown | \$80 S | \$90 D | \$100 T
- 15 Holiday Inn Pasadena | \$119 S/D
- 16 Holiday Inn Express Pasadena | \$69 S | \$75 D | \$81 T
- 17 Hotel InterContinental | \$132 S/D | \$157 T
- 18 Hyatt Regency Los Angeles\* | \$130 S/D | \$155 T
- 19 InTown Hotel | \$70 S | \$82 D | \$94 T
- 20 Kawada Hotel | \$89 S/D | \$99 T
- 21 LA Athletic Club | \$110 S/D
- 22 Miyako Inn | \$95 S | \$105 D | \$120 T
- 23 New Otani Hotel | \$130 S/D | \$155 T
- 24 Pasadena Hilton | \$121 S/D
- 25 Radisson Wilshire Plaza | \$95 S/D | \$105 T
- 26 Ramada Inn Pasadena  
\$45 S | \$50 D Std. | \$50 S/D Suites
- 27 Ritz-Carlton Huntington | \$140 S/D | \$165 T
- 28 Sheraton Grande | \$135 S/D | \$160 T
- 29 USC Dormitories | \$43 S | \$55 D
- 30 Vagabond Inn Los Angeles | \$60 S | \$64 D | \$69 T
- 31 Vagabond Inn Pasadena West | \$55 S | \$59 D | \$64 T
- 32 Westin Bonaventure\* | \$132 S | \$142 D | \$167 T
- 33 Westin Century Plaza | \$128 S/D | \$153 T
- 34 Westway Inn | \$62 S/D
- 35 Wyndham Checkers | \$125 S/D



Check the Web site for hotel availability, parking rates, and any additional hotels.

\* Early departure fee of \$25 applies at this property.

Programs, activities, and conference  
documentation included with your registration



#### Important Dates

##### EARLY-DISCOUNT REGISTRATION

Registration and full payment must be postmarked (and full payment included) on or before Friday, 27 June in order to be eligible for early-discount registrations.

##### MAILED CREDENTIALS

If you request and pay for advance badge mailing, your registration, full payment, and all member verification must be postmarked on or before 27 June.

##### FINAL PRE-REGISTRATION

Registration forms received in our office after Tuesday, 15 July, cannot be processed in time for the conference. If your form is received after 15 July, it is possible you will be asked to repay your registration fee at the conference and apply for a refund of the original payment.

#### Changes/Cancellations/Substitutions

All changes, cancellations, and substitution requests must be made in writing and postmarked, faxed, or emailed by Tuesday, 15 July. These requests will not be accepted by phone. Send requests to:

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

Refunds will not be issued after Tuesday, 15 July. There is a refund processing fee of \$US 50. Exhibits Plus registrations are non-refundable. Please allow six to eight weeks for refund processing.

Substitutions after Tuesday, 15 July, must be made at SIGGRAPH 97. You must present the request in writing on company letterhead at the Special Assistance Desk.

#### Membership

If you are currently an ACM or SIGGRAPH member you are eligible for member discounts. See registration form on page 41. You must provide your ACM or SIGGRAPH membership number.

Local or regional SIGGRAPH memberships are not eligible for registration discounts.

If you are currently a student, you are eligible for student discounts. See registration form on page 41 and follow verification instructions carefully.

#### Credential Mailing

Your form must be postmarked on or before Friday, 27 June in order to receive credentials in the mail. Full payment and all member verification documents must be received by that date as well, or badges will not be mailed.

Prices for sending credentials are per person. SIGGRAPH is not responsible for lost credentials for which we have a FedEx receipt. Should your credentials be lost prior to arriving at the conference or should you forget to bring them, you will need to re-purchase credentials and you will NOT receive a refund. You must provide us with a street address since FedEx does not deliver to P.O. boxes.

#### Payment Information

All payments are in United States currency (\$US). Checks and money orders should be made payable to ACM SIGGRAPH 97.

Purchase orders are NOT accepted as payment. Forms will not be processed without accompanying payment in full.

#### Registration Acknowledgement

You will receive written acknowledgement of your registration from the conference management office if your registration form and payment are received by Tuesday, 15 July. Allow two weeks for processing. International registrations may take longer to process.

Please present your registration acknowledgement at the SIGGRAPH 97 advance registration counter in the Los Angeles Convention Center to receive your conference registration package.

	Exhibition/Startup Park	Electronic Theater Ticket	Electronic Theater Matinee Ticket	Festival Screening Rooms	Courses	Creative Applications Laboratory	Educators Program	Electric Garden	Ongoing: The Fine Arts Gallery	Panels/Papers	Sketches	Special Sessions	Career Center	Fundamentals Seminar	International Center	Internet Access Centers	Keynote Address/Awards	SIGGRAPH TV	SIGS & Birds of a Feather	Conference Proceedings	Conference Proceedings CD-ROM	Conference Proceedings Videotape	Course Notes CD-ROM	Visual Proceedings	Visual Proceedings CD-ROM	Course Reception	Papers/Panels Reception	Welcome Reception
Full Conference	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Conference Select	●		●	●		●	●	●	●		●	●	●	●	●	●	●	●	●					●	●		●	●
Exhibits Plus	●			●					●				●	●	●	●	●	●	●								●	
		Conference Programs												Conference Activities						Conference Documentation					Receptions			

### Where to Send Your Registration

#### BY POSTAL SERVICE

Place your registration form and payment in a stamped envelope and send them to:

SIGGRAPH 97  
P.O. Box 95316  
Chicago, Illinois 60694-5316 USA

#### BY COURIER SERVICE

Courier services such as FedEx, United Parcel Service, and other carriers cannot deliver to a post office box number. If you must use courier service, follow this two-step procedure:

- 1 Place your registration form and payment in an envelope addressed to:

SIGGRAPH 97  
P.O. Box 95316  
Chicago, Illinois 60694-5316 USA

- 2 Place that envelope in a courier package addressed to:

Remittance Processing  
Harris Bank  
311 West Monroe  
Chicago, Illinois 60606 USA

#### BY FAX

If you pay by credit card, you may fax your registration form to SIGGRAPH 97 at:

+1.312.321.6876 fax

Or register online at:

<http://www.siggraph.org/s97/>

### Registration Hours

If you register by Tuesday, 15 July, and do not receive your credentials in the mail, please go to the advance registration area in North Hall of the Los Angeles Convention Center. Otherwise, please proceed to onsite registration.

#### 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 Registration

Advance registration for media personnel is accepted until Monday, 7 July.

Journalists and industry analysts should request a copy of the SIGGRAPH 97 media handbook, which includes registration, hotel, and travel information. The handbook is available from:

SIGGRAPH 97 Media Relations  
Attention: Kristin Stromberg  
Smith, Bucklin & Associates, Inc.  
401 North Michigan Avenue  
Chicago, Illinois 60611 USA  
+1.312.644.6610  
+1.312.245.1083 fax  
[media.s97@siggraph.org](mailto:media.s97@siggraph.org)  
<http://www.siggraph.org/s97/>

### International Registration

Because it may take two to three weeks to process and return conference verification to international addresses, we recommend that you send your registration and payment no later than Friday, 27 June.

If you need additional registration information or answers to conference-related questions, call, fax, or email Conference Management at:

+1.312.321.6830  
+1.312.321.6876 fax  
[regsba@siggraph.org](mailto:regsba@siggraph.org)

### A NOTE ABOUT FAXING

We strongly recommend faxing your form well in advance of the Friday, 27 June deadline. Fax volume is always overwhelming as the deadline approaches, and SIGGRAPH 97 is NOT responsible for faxes not received due to busy telephone lines. Keep a copy of your fax transmission report to verify that your fax was received by SIGGRAPH 97 in the event of a problem. Do not fax your registration form more than once. Do not send the original form by mail or courier after faxing. If you send duplicate registration forms, you will receive duplicate billing.

**Advance Purchases**

Use the conference registration form to advance order technical materials and SIGGRAPH 97 merchandise. Be sure to include the cost of your merchandise purchases with your advance registration payment. All items ordered in advance must be picked up at the Fulfillment Center located in North Hall of the Los Angeles Convention Center, with the exception of printed full course note sets, which may be shipped to addresses in the continental US for an additional charge.

Merchandise will not be shipped, nor will refunds be given, for merchandise that is not picked up at the conference. All items are also for sale at SIGGRAPH 97 based on availability.

**Technical Materials**

Use the SIGGRAPH 97 Registration Form to order technical materials in advance.

**Course Notes Printed | \$455**

The full set of printed course notes includes all courses.

**Course Notes Printed and Shipped | \$500**

The full set of course notes. Includes shipping within the continental US. Shipment begins Friday, 8 August.

**SIGGRAPH 97 Slide Sets Bundle | \$70****SIGGRAPH 97 Education Slide Set | \$35**

The Slide Sets Bundle (selections from the Technical Program and Ongoing: The Fine Arts Gallery) can be purchased in advance. The Education Slide Set portrays various texture mapping techniques. All three sets are available individually at the conference.

**SIGGRAPH 97 Video Review Set | \$165**

Selections from the Electronic Theater, Festival Screening Rooms, and other video presentations. Pre-orders are available only in NTSC VHS. PAL and VHS tapes can be purchased in the SIGGRAPH Video Review Booth at the conference.

Additional information:

SIGGRAPH Video Review c/o ACM  
P.O. Box 12114, Church Street Station  
New York, New York 10257 USA  
800.342.6626 (USA/Canada)  
+1.212.626.0500 (overseas)  
+1.212.944.1318 fax  
svrorders@siggraph.org

**Educators Program CD-ROM | \$20**

Contains the proceedings of the SIGGRAPH 97 Educators Program, the SPACE Electronic Gallery, and a directory of funding sources for educators.

**Technical Materials Sold After the Conference**

SIGGRAPH 97 Conference Proceedings, Conference Proceedings CD-ROM, Visual Proceedings, Visual Proceedings CD-ROM, Course Notes CD-ROM, Slide Sets, and Video Reviews are available for sale after the conference. 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

**Electronic Theater Tickets**

Electronic Theater tickets can be purchased before the conference for \$40. This is an opportunity for Full Conference and Conference Select registrants, who each receive one Electronic Theater ticket with their registration fee, to purchase one additional ticket in advance. Exhibits Plus registrants can take this opportunity to purchase an Electronic Theater ticket before they arrive at SIGGRAPH 97.

Tickets are issued on a first-come, first-served basis. If you don't receive your first choice, a limited number of tickets will be available for exchange at the SIGGRAPH 97 Electronic Theater Ticket Exchange Counter. All Electronic Theater ticket purchases are non-refundable.

**Merchandise**

Use the SIGGRAPH 97 Registration Form to order merchandise in advance. To see pictures of these SIGGRAPH 97 merchandise items, please go to the SIGGRAPH 97 Web site:  
<http://www.siggraph.org/s97/>

**SIGGRAPH 97 T-shirt | \$15**

100% cotton t-shirt with SIGGRAPH 97 logo on the front and additional artwork on the back.

**SIGGRAPH 97 Polo Shirt | \$30**

100% cotton, cream polo shirt with the SIGGRAPH 97 logo embroidered on the front.

**SIGGRAPH 97 Coffee Cup | \$10**

14 oz. coffee cup with the SIGGRAPH 97 logo.

**SIGGRAPH 97 Beach Towel | \$15**

30" X 60" cotton beach towel with SIGGRAPH 97 logo.

**SIGGRAPH 97 Mouse Pad | \$10**

Hard-top, coated-surface mouse pad with natural rubber base, featuring the SIGGRAPH 97 logo.

**SIGGRAPH 97 Tote Bag | \$25**

Black shoulder-strap bag with expandable bottom (16" X 12" X 4" deep). Embroidered SIGGRAPH 97 logo on front flap, zippered pockets, pen holders, and business card pockets.

**SIGGRAPH 97 Cloisonné Earrings | \$10**

SIGGRAPH 97 logo (3/4" height).

## REGISTRATION FORM

SIGGRAPH 97 3-8 August 1997 AP

<b>Part 1</b>	<b>Attendee Information</b>
---------------	-----------------------------

**Membership** (please check)
☐ ACM or SIGGRAPH Membership Number ☐ ☐ ☐ ☐ ☐ ☐ (AM)

☐ Non-Member (NM)

☐ Student (SM)

Local or regional SIGGRAPH memberships are NOT eligible for registration discounts.

Student status will be verified. Please see back of this form.

--	--

First Name

Last Name

--	--

Job Title

--	--

Organization

--	--

Address (Include all country, city, area, and postal codes.)

--	--

Address (continued)

--	--

Telephone (Include all country, area, and city codes.)

Fax

--	--

Email

Can we provide the above information to exhibitors? (please check)

Name/Address: ☐ Yes ☐ NoPhone/Fax: ☐ Yes ☐ NoEmail: ☐ Yes ☐ No**To help us maintain optimum service to our attendees, please provide the following information:**

Your professional title or occupation (check only one):

- a ☐ President/Owner/Corporate Executive
- b ☐ Manager
- c ☐ Software Developer/Analyst
- d ☐ Film/Video Animator
- e ☐ Engineer
- f ☐ Scientist/Researcher
- g ☐ MIS Specialist
- h ☐ Graphic/Fine Artist
- i ☐ Other: \_\_\_\_\_

Products and services you currently use, recommend, specify, or purchase annually (check all that apply):

- j ☐ Animation
- k ☐ Broadcast Media
- l ☐ Business/PC Graphics
- m ☐ CAD/CAM/CAE/CIM/Robotics
- n ☐ Desktop/Other Publishing
- o ☐ Film/Video Recorders
- p ☐ Fine Arts/Graphic Design
- q ☐ Image Processing
- r ☐ Input Devices
- s ☐ Monitors and Displays
- t ☐ Multimedia/Hypermedia
- u ☐ Paint Systems
- v ☐ Personal Communications
- w ☐ Printers and Plotters
- x ☐ Scan Converters/Scanners
- y ☐ Scientific Visualization
- z ☐ Software
- aa ☐ Special Graphics Processors
- bb ☐ Storage
- cc ☐ Video Technology
- dd ☐ Virtual Reality/Simulation
- ee ☐ Workstations
- ☐ Other: \_\_\_\_\_

Rate your buying influence:

- ff ☐ Final Decision
- gg ☐ Specify/Recommend
- hh ☐ No Role

Amount of computer graphic equipment you recommend, specify, or purchase annually (\$US):

- ii ☐ More than \$1,000,000
- jj ☐ \$500,001 - \$1,000,000
- kk ☐ \$100,001 - \$500,000
- ll ☐ \$25,001 - \$100,000
- mm ☐ up to \$25,000
- nn ☐ None

How did you learn about SIGGRAPH 97?

- oo ☐ Direct Mail
- pp ☐ Exhibitor Contact
- qq ☐ Magazine Ad/Article
- rr ☐ SIGGRAPH Web Site
- ss ☐ Last year's SIGGRAPH
- tt ☐ Local Radio/TV/Newspaper
- uu ☐ Co-worker/Friend

Years you've attended SIGGRAPH:

- vv ☐ 1996/New Orleans
- ww ☐ 1995/Los Angeles
- xx ☐ 1994/Orlando
- yy ☐ 1993/Anaheim
- zz ☐ Never attended

<b>Part 2</b>	<b>Registration Category (check only one)</b>	<b>Registration Fee Subtotal</b> ➡	<b>\$</b>
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**FC Full Conference**

Postmarked on or before 27 June: ☐ Member \$480 ☐ Non-Member \$580 ☐ Student \$200

Postmarked after 27 June: ☐ Member \$600 ☐ Non-Member \$720 ☐ Student \$250

Electronic Theater Ticket (you must rank your preference):

\_\_\_\_\_ Monday 7-9 pm \_\_\_\_\_ Tuesday 2-4 pm \_\_\_\_\_ Tuesday 7-9 pm

\_\_\_\_\_ Wednesday 2-4 pm \_\_\_\_\_ Wednesday 7-9 pm \_\_\_\_\_ Thursday 7-9 pm

**CS Conference Select**

Postmarked on or before 27 June: ☐ \$150

Postmarked after 27 June: ☐ \$200

Electronic Theater Matinée Ticket (you must rank your preference):

\_\_\_\_\_ Tuesday 2-4 pm \_\_\_\_\_ Wednesday 2-4 pm

**EP Exhibits Plus**

Postmarked on or before 27 June: ☐ \$25

Postmarked after 27 June: ☐ \$50

<b>Part 3</b>	<b>Merchandise</b>	<b>Merchandise Fee Subtotal</b> ➡	<b>\$</b>
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Item	Item#	Qty	X	Cost	=	Subtotal
Course Notes Printed - all notes	(100)	___	X	\$455	=	\$ _____
Course Notes Printed & Shipped - all notes (shipping within continental US only)	(101)	___	X	\$500	=	\$ _____
Course Notes Printed - individual	(999)	___	X	\$15	=	\$ _____

Select up to six course numbers:

SIGGRAPH 97 Slide Sets Bundle	(300)	___	X	\$70	=	\$ _____
SIGGRAPH 97 Education Slide Set	(310)	___	X	\$35	=	\$ _____
SIGGRAPH 97 T-shirt	(500)	___	X	\$15	=	\$ _____
SIGGRAPH 97 Polo Shirt	(520)	___	X	\$30	=	\$ _____
Coffee Mug	(525)	___	X	\$10	=	\$ _____
Beach Towel	(530)	___	X	\$15	=	\$ _____
Mouse Pad	(540)	___	X	\$10	=	\$ _____

Item	Item#	Qty	X	Cost	=	Subtotal
Tote Bag	(550)	___	X	\$25	=	\$ _____
Earrings	(560)	___	X	\$10	=	\$ _____
SIGGRAPH 97 Video Review Set	(600)	___	X	\$165	=	\$ _____

Pre-orders are available only in NTSC VHS.

Educators Program CD-ROM

Additional Electronic Theater Tickets limited to one per registrant, based on availability. No refunds.

Monday 7-9 pm	_____ (770)	1	X	\$40	=	\$ _____
Tuesday 2-4 pm	_____ (771)					
Tuesday 7-9 pm	_____ (772)					
Wednesday 2-4 pm	_____ (773)					
Wednesday 7-9 pm	_____ (774)					
Thursday 7-9 pm	_____ (775)					

(rank your preference)

<b>Part 4</b>	<b>Credential Mailing</b>	<b>Mailing Charges Subtotal</b> ➡	<b>\$</b>
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**! IMPORTANT** Credential mailing instructions on reverse side of this form.
☐ FedEx credentials to continental US/Canada. Cost: \$15 per person (990)

☐ FedEx credentials to locations outside continental US/Canada. Cost: \$30 per person (991)

<b>Part 5</b>	<b>Payment Information</b>	<b>Total Amount Due</b> ➡	<b>\$</b>
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☐ Check or money order is enclosed, payable to ACM SIGGRAPH 97.

☐ American Express ☐ MasterCard ☐ Visa Credit card #: \_\_\_\_\_ Expiration date: \_\_\_\_ / \_\_\_\_

Signature \_\_\_\_\_ (I authorize payment for the amount due for this registration to be processed as I have indicated.)

# REGISTRATION INSTRUCTIONS & POLICIES

## REGISTRATION INSTRUCTIONS

Complete all information on registration form on the reverse side of this page. Please note the following instructions and policies:

### ! Important Dates

#### FRIDAY, 27 JUNE

Forms must be postmarked (and full payment included) on or before this date in order to be eligible for early-discount registration and to receive any mailed credentials.

#### TUESDAY, 15 JULY

##### Final pre-registration deadline

Forms received in our office after this date cannot be processed in time for the conference. If your form is received after this deadline, it is possible you will be asked to repay your registration fee at the conference and apply for a refund of the original payment.

##### Refund deadline

Cancellation requests for refunds must be made in writing and postmarked on or before Tuesday, 15 July. No refunds will be issued after this date. There is a refund processing fee of \$US 50. Exhibits Plus are not refundable.

##### Substitutions

Substitutions must be made in writing before Tuesday, 15 July. Mail or email requests to SIGGRAPH 97 Conference Management at the address below. In order to request a substitution at SIGGRAPH 97, you must present the request in writing on company letterhead at the Special Assistance Desk.

##### For more information, contact:

SIGGRAPH 97 Conference Management  
+1.312.321.6830  
+1.312.321.6876 fax  
regsba@siggraph.org

##### SIGGRAPH Membership

For SIGGRAPH membership information, contact:

ACM  
1515 Broadway, 17th Floor  
New York, New York 10036 USA  
+1.212.626.0500  
+1.212.944.1318 fax  
acmhelp@acm.org

### Special Requirements

It is important that you enjoy SIGGRAPH 97. If, due to a disability, you have special needs or requirements, let us know by contacting SIGGRAPH 97 Conference Management:  
+1.312.321.6830.

### Part 1 Attendee Information

#### MEMBER RATE

You must provide your ACM or SIGGRAPH membership number. Local or regional SIGGRAPH memberships are not eligible for registration discounts.

#### STUDENTS

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. When you arrive 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.

### Part 2 Registration Category

Check only one registration category. An Electronic Theater ticket for any performance is included with Full Conference registration and a matinee Electronic Theater ticket is included with Conference Select registration. Please rank your preference for showings in the space provided. Tickets are issued on a first-come, first-served basis in advance of the conference. If you don't receive your first ticket choice, a limited number of tickets will be available for exchange at SIGGRAPH 97 at the Electronic Theater Ticket Exchange Counter.

### Part 3 Merchandise

Select the merchandise you wish to purchase. Note that one Electronic Theater ticket is already included with Full Conference and Conference Select registrations. Registrants in any category can purchase one additional ticket. Please rank your preference, as tickets are issued on a first-come, first-served basis. All SIGGRAPH 97 merchandise except shipped sets of printed course notes must be picked up at the Los Angeles Convention Center during the conference. No refunds will be given for merchandise that is not claimed at the conference nor will unclaimed merchandise be shipped out after the conference.

### Part 4 Credential Mailing

In order to receive credentials in advance, your form must be postmarked on or before Friday, 27 June. Full payment must be received, and all member verification information must be provided. Credentials will be mailed the week of 21 July.

#### FULL CONFERENCE AND CONFERENCE SELECT

If you would like your credentials sent via FedEx (two-day service) prior to the conference, please indicate on the registration form.

#### EXHIBITS PLUS ATTENDEES

Your badge will be mailed first class (at no additional charge) prior to the conference if:

- Your form was postmarked by 27 June and
- You did NOT purchase merchandise.

If you DID purchase merchandise, your badge will not be mailed to you automatically, but you may have it sent via FedEx by indicating that you want this service on the registration form.

Prices for sending credentials are per person. SIGGRAPH is not responsible for lost credentials for which we have a FedEx receipt. Should your credentials be lost prior to arriving at the conference or should you forget to bring them, you will need to re-purchase credentials and you will not receive a refund. You must provide us with a street address since FedEx does not deliver to P.O. boxes.

### Part 5 Payment Information


Verify that subtotals add up correctly, and enclose payment.

- Checks and money orders should be made payable to ACM SIGGRAPH 97.
- Credit card information must be completed with signature.
- Purchase orders are NOT accepted as payment.
- Forms will not be processed without accompanying payment in full.

Send form to SIGGRAPH 97 as follows:

Mail form and payment to:  
SIGGRAPH 97  
P.O. Box 95316  
Chicago, Illinois 60694-5316  
USA

 Register online at: <http://www.siggraph.org/s97/>

 Fax the registration form with credit card information to:  
+1.312.321.6876

#### A NOTE ABOUT FAXING

We strongly recommend faxing your form well in advance of the Friday, 27 June deadline. Fax volume is always overwhelming as the deadline approaches, and SIGGRAPH 97 is NOT responsible for faxes not received due to busy telephone lines. Keep a copy of your fax transmission report to verify that your fax was received by SIGGRAPH 97 in the event of a problem. Do not fax your registration form more than once. Do not send the original form by mail or courier after faxing. If you send duplicate registration forms, you will receive duplicate billing.

# HOTEL FORM

SIGGRAPH 97 3-8 August 1997 AP

## Reservation Information

Hotel reservations at discounted conference rates are available only through Flying Colors.

All reservation information should be submitted before Friday, 27 June 1997 to:

Flying Colors  
Attention: SIGGRAPH 97  
445 East Illinois  
Chicago, Illinois 60611 USA  
800.477.7514 (Continental US, except Illinois, and Canada)  
+1.312.494.3055 (Illinois and International)  
+1.312.494.3015 fax  
travel.s97@siggraph.org

Receipt of your email will be acknowledged and confirmation of your reservation will be faxed. If you do not receive a response to your email housing request, you should assume that it was NOT received.

Please send your completed hotel form by mail, fax, or email. To avoid a duplicate hotel and possible cancellation penalties, do not send more than one hotel request.

## Confirmations, Cancellations, Changes

Reservations will be confirmed by mail. Flying Colors can assist with all cancellations and changes prior to 18 July 1997. Changes and cancellations after this date must be made directly with the hotel or dormitory.



## \*Special Requirements

It is important that you enjoy SIGGRAPH 97. If, due to a disability, you have special needs or requirements, please provide us with details in the designated space. Flying Colors will make every effort to accommodate your requests.

Last Name		First Name	
Organization			
Address			
City		State	
Country		Postal Code	
Telephone		Fax	
Email			

## Hotel Preference and Room Rate

Flying Colors will do its best to accommodate you on your first hotel choice. In the event that your preferred hotels are not available, an alternate hotel will be confirmed based on location and rate preferences.

First Choice:

Second Choice:

\$		\$	
Hotel Name	Rate	Hotel Name	Rate

Please indicate which is more important in the event that your first and second choices are not available.

☐ Rate ☐ Location

## Reservation Request

If you are making reservations for more than one room, please supply information on all rooms required.

Guest Room One	<input type="checkbox"/> Single	<input type="checkbox"/> Double	<input type="checkbox"/> Triple
\$			

Arrival Date	Departure Date	Rate
--------------	----------------	------

Share room with	Special requirements*
-----------------	-----------------------

Guest Room Two	<input type="checkbox"/> Single	<input type="checkbox"/> Double	<input type="checkbox"/> Triple
\$			

Arrival Date	Departure Date	Rate
--------------	----------------	------

Share room with	Special requirements*
-----------------	-----------------------

Guest Room Three	<input type="checkbox"/> Single	<input type="checkbox"/> Double	<input type="checkbox"/> Triple
\$			

Arrival Date	Departure Date	Rate
--------------	----------------	------

Share room with	Special requirements*
-----------------	-----------------------

## Reservation Guarantee

Your reservation will not be held unless it is guaranteed for the first night's stay by credit card.

Credit card type	Expiration date
------------------	-----------------

Credit card number	Signature
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If you wish to provide your guarantee by check please enclose a one night deposit (including tax) and make check payable to Flying Colors. Room reservations guaranteed by check will only be accepted through written correspondence.

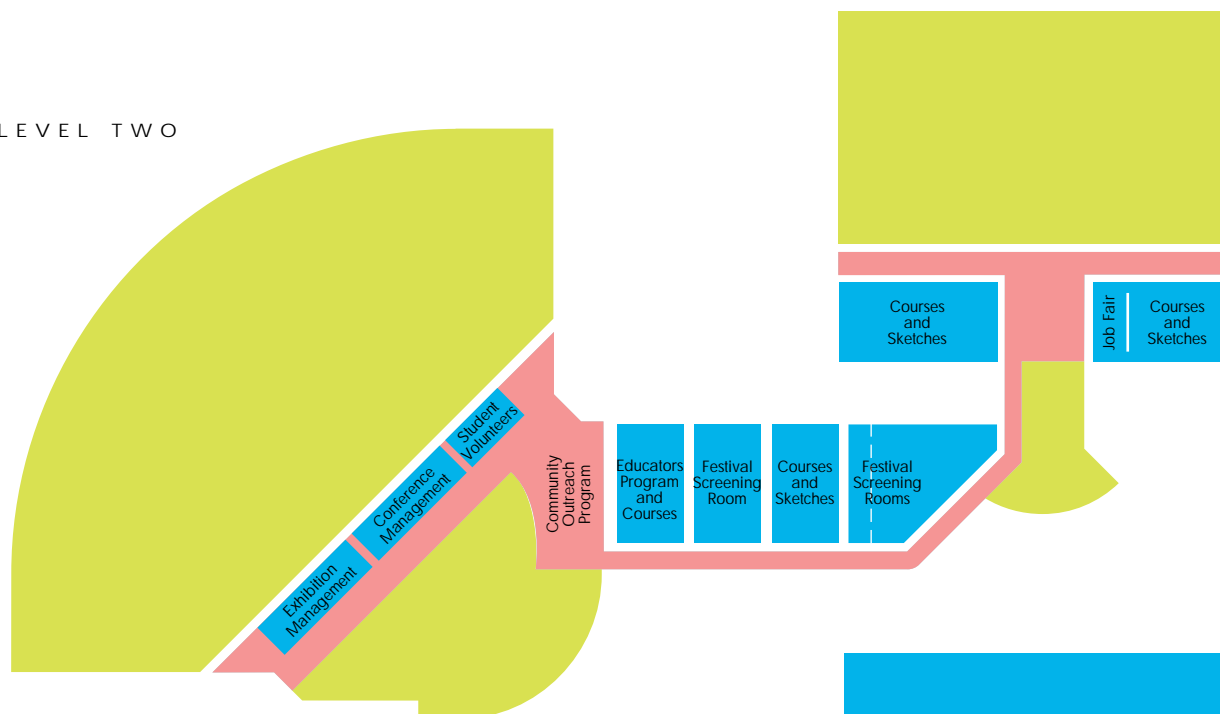


**"There is Boston in Los Angeles,  
a lower Manhattan and a South Bronx,  
a São Paulo, and a Singapore."**

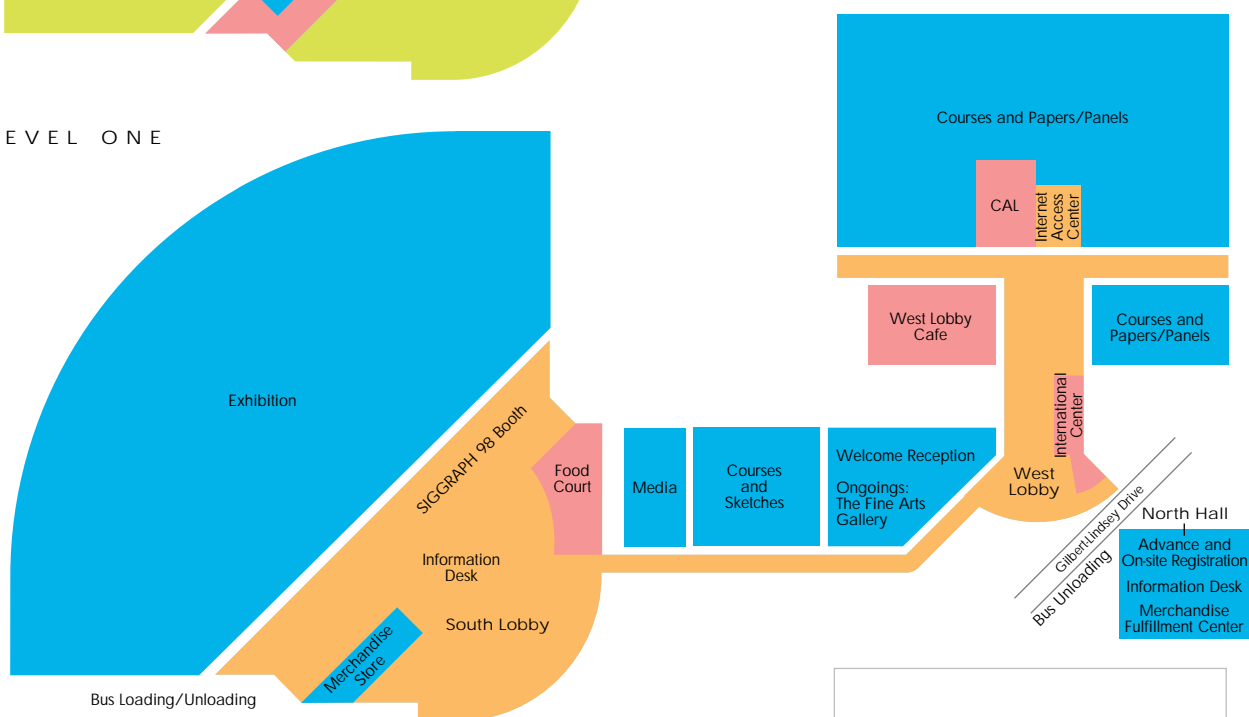
EDWARD SOJA



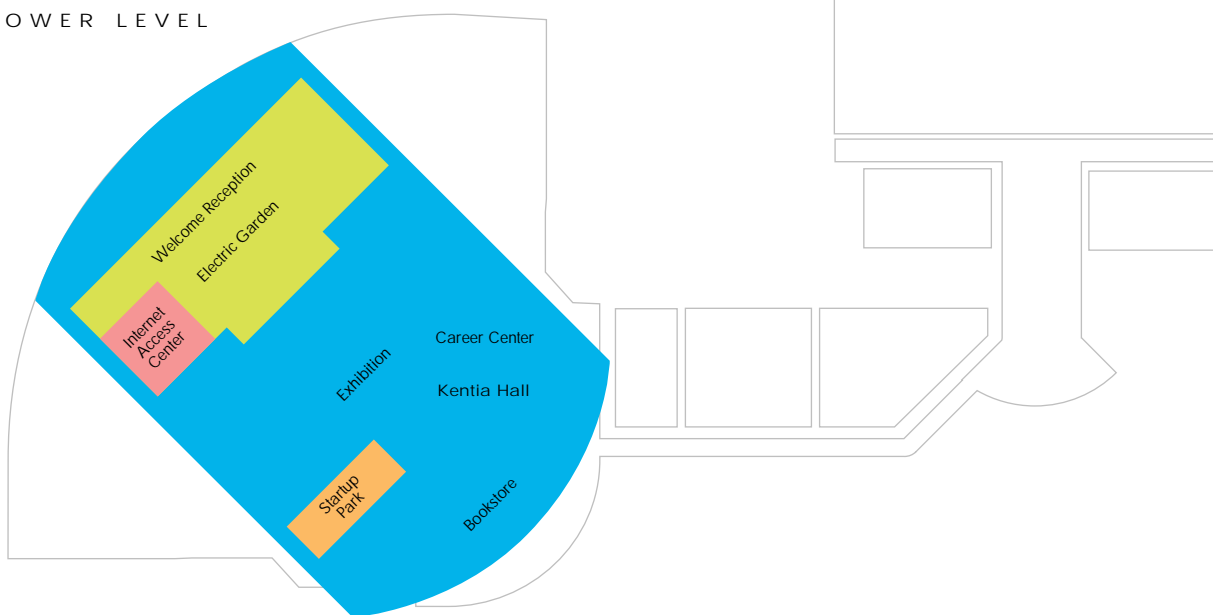
## LEVEL TWO



## LEVEL ONE



## LOWER LEVEL



# LA

## THE CITY

The Los Angeles Convention Center, a soaring space with a beautiful view of downtown LA, was designed by James Ingo Freed, who also created the Holocaust Memorial Museum in Washington, D.C. and the Jacob Javits Convention Center in New York City. Throughout the nearby downtown neighborhoods, fascinating architectural surprises accent parks, plazas, and pedestrian byways. In addition to conference hotel facilities, restaurants of every possible ethnic persuasion and clubs featuring entertainment for every taste abound in and around downtown LA.

Downtown also features the internationally acclaimed LA Central Library; the Museum of Contemporary Art; Union Station; Olvera Street; the American Film Institute; the Music Center, home of the LA Philharmonic; Mark Taper Forum, the home of Broadway-bound previews; Little Tokyo; and real-world scenery for the world's most famous films and television shows.

Beyond downtown, the visitor's options expand exponentially. Family wonders at Universal Studios and Disneyland. Movie nostalgia at Hollywood and Vine and the historic Mann's Chinese Theatre. Shopping and star gazing on Melrose Avenue and Rodeo Drive. The California Museum of Afro-American History. The Wat Thai Buddhist temple. Sidewalk cafes and in-line skaters on Venice Beach, Chinatown, and Koreatown.

### **For complete information on LA's tourist attractions, contact:**

Los Angeles Convention and Visitors Bureau  
633 West Fifth Street, Suite 6000  
Los Angeles, California 90071 USA  
+1.213.689.8822

## FORMLESS?

SIGGRAPH 97 registration and hotel forms are very popular items. If someone else has already detached the forms from this copy of the Advance Program, please go to the SIGGRAPH 97 Web site, where you can register and reserve your hotel accommodations online or print the forms and mail or fax them to SIGGRAPH 97.

### **Registration Form**

<http://www.siggraph.org/s97/registration/index.html>

### **Hotel Form**

<http://www.siggraph.org/s97/travhouse.html>

!

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[siggraph98@siggraph.org](mailto:siggraph98@siggraph.org)

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