

Program & Buyer's Guide

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US

SAN ANTONIO

SIGGRAPH
2002

The 29th International Conference on
Computer Graphics and Interactive Techniques

Henry B. Gonzalez Convention Center
San Antonio, Texas USA

CONFERENCE 21-26 July 2002
EXHIBITION 23-25 July 2002

ACM

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New York, New York 10036 USA

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SIGGRAPH 2002

Program & Buyer's Guide

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At a Glance

SIGGRAPH 2002 Conference Registration Categories:

★ Full Conference ● Conference Select ◆ Exhibits Plus

		Saturday 20 July	Sunday 21 July	Monday 22 July	Tuesday 23 July	Wednesday 24 July	Thursday 25 July	Friday 26 July
	Registration	6-8PM	8AM-5PM	8AM-4PM	8AM-4PM	8AM-4PM	8AM-3PM	8-10AM
	Merchandise Store/Pickup	6-8PM	8AM-5PM	8AM-4PM	8AM-4PM	8AM-5PM	8AM-6PM	8-11AM
★ ● ◆	Exhibition/Startup Park				10AM-6PM	10AM-6PM	10AM-5PM	
Presentations		S	S	M	T	W	T	F
★	Courses		8:30AM-5:15PM	8:30AM-5:15PM	8:30AM-5:15PM	10:30AM-5:15PM		
★	Papers				8:10AM-5:30PM	10:30AM-5:30PM	8:10AM-5:30PM	8:10AM-5:30PM
★	Panels				10:30AM-5:30PM	10:30AM-5:30PM	10:30AM-5:30PM	10:30AM-5:30PM
★ ●	Sketches & Applications				10:30AM-5:30PM	10:30AM-5:30PM	8:10AM-5:30PM	8:10AM-5:30PM
★ ●	Web Graphics					10:30AM-5:30PM	8:30AM-5:30PM	9AM-3:15PM
★ ●	Educators Program		5:45-7PM	8:30AM-5:15PM	8:30AM-5:15PM	10:30AM-5:15PM	8:30AM-5:15PM	8:30AM-5:15PM
★ ● ◆	Keynote Address/Awards					8:15-9:45AM		
	Special Sessions/Events:							
★ ●	Yoda and Beyond		6-8PM					
★ ●	The Fate of Play				12:30-2:15PM			
★ ●	Spider-Man						6-8PM	
★ ● ◆	What's Up, Doc?				8:30-10:15AM			
★ ● ◆	Fast Forward Papers Preview			5:30-6:30PM				
★ ● ◆	Exhibitor Tech Talks				10AM-6PM	10AM-6PM	10AM-5PM	
★ ● ◆	Fundamentals Seminar				9AM-NOON			
Experiences		S	S	M	T	W	T	F
★ ● ◆	Art Gallery		1-7PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-1PM
	Computer Animation Festival:							
★	Electronic Theater			7-9PM	2-4PM; 7-9PM	2-4PM; 7-9PM	7-9PM	
●	Electronic Theater Matinée				2-4PM	2-4PM		
★ ● ◆	Animation Theaters		3-7PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-3PM
★ ● ◆	Emerging Technologies			9AM-6PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-3PM
★ ●	Studio		1-7PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-6PM	9AM-1PM
★	Opening/Technical Receptions			8-10PM OPENING			8-10PM TECHNICAL	
Services		S	S	M	T	W	T	F
★ ● ◆	ACM SIGGRAPH Forum						12:15-1:30PM	
★ ● ◆	Birds of a Feather			THROUGHOUT THE WEEK				
★ ● ◆	Career Center		2-6PM	8AM-5PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-3PM
★ ● ◆	Get Involved					5-6:30PM		
★ ● ◆	International Resources	5-8PM	8AM-7PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-5PM
★ ● ◆	Internet Access Center		8AM-6PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-5PM
★ ● ◆	Job Fair				NOON-4PM	NOON-4PM		
★ ● ◆	Pathfinders	4-8PM	9AM-7PM	8AM-6PM	8AM-6PM	8AM-6PM	8AM-5PM	8AM-3PM



Welcome to San Antonio & Your Conference

The finest SIGGRAPH conference committee in history and one of the world's most beautiful cities welcome you to a week of surprises and systems, learning and laughter, advances and adventures, algorithms and art.

After 18 months of planning, preparation, and production, the SIGGRAPH 2002 committee provides an in-depth review of the current state of computer graphics and interactive techniques. Throughout this SIGGRAPH week, our presenters explain their research, developments, and art, while our exhibitors introduce all of us to the newest tools and resources we need to create, learn, produce, and teach. All this is happening in San Antonio, a wondrous and historic city that invites us to enjoy life in every way.

Every returning attendee has favorite SIGGRAPHS. We, the committee, invite you to immerse yourself in the cultures of both SIGGRAPH and San Antonio and make this one of your favorite SIGGRAPH conferences.

Tom Appolloni

**SIGGRAPH 2002 Conference Chair
Harris Corporation**

Conference Overview

SIGGRAPH 2002 The world's annual gathering of the international computer graphics community, where the digital future is defined and revealed. Learn the next generation of powerful hardware and software. Understand how technical innovations are changing your work, your profession, your company. Apply your new knowledge to creative and business breakthroughs. When you leave San Antonio, your future will be transformed.

Keynote Address and Awards ★ ● ◆

Identity and Control on the Net

Wednesday, 24 July 8:15 – 9:45 am

Ballroom C1 & C2

Identity and Control on the Net

Can you take it with you? As the online world becomes ubiquitous, people and things need a way to establish their identity worldwide. But who sets the standards, and who controls the data? Esther Dyson, chairman of EDventure Holdings and former chairman of ICANN (the Internet Corporation for Assigned Names and Numbers) considers the implications in a wide-ranging discussion that invites audience participation.

Immediately before the keynote address, ACM SIGGRAPH presents the Outstanding Service Award for extraordinary services to ACM SIGGRAPH by a volunteer to Bertram Herzog, Fraunhofer Center for Research in Computer Graphics in Providence, Rhode Island; the Significant New Researcher Award to Steven Gortler, Harvard University; and the Computer Graphics Achievement Award to David Kirk, NVIDIA Corporation.

SIGGRAPH: le rendez-vous annuel de la communauté internationale de l'infographie, où le futur numérique se dessine et se révèle. Découvrez la nouvelle génération de matériels et de logiciels encore plus performant. Comprenez comment les innovations techniques modifieront votre activité et votre société. Mettez vos nouvelles connaissances en pratique sur des projets d'avant-garde. Quand vous repartirez de San Antonio, votre futur sera modifié.

SIGGRAPH 2002 es la reunión anual de la comunidad internacional en gráficos por computadora del mundo, donde el futuro digital es definido y revelado. Aprenda con la siguiente generación de poderosos equipos y programas. Entienda como las innovaciones técnicas están cambiando su trabajo, su profesión, su compañía. Aplique este nuevo conocimiento para la creatividad e innovación en los negocios. Cuando deje San Antonio, su futuro será transformado.

세계각국의 컴퓨터 그래픽스 관련자들이 해마다 한 번씩 모여서 디지털 미래를 정의하고 보여주는 범 세계적인 행사입니다. 차세대의 강력한 하드웨어와 소프트웨어를 체험하실 수 있습니다. 혁신적인 기술들이 귀하의 업무, 직장, 혹은 회사들을 어떻게 변화시킬 지 이해하실 수 있습니다. 또한 새로운 지식을 적용하여 업무용 난제들을 창의적으로 해결하실 수 있습니다. 귀하께서 샌안토니오를 떠날 때쯤이면 귀하의 미래는 변화될 것입니다.

SIGGRAPH 2002 は、世界的に毎年行われる国際的コンピューターグラフィックスコミュニティーの集いであり、デジタルの未来が位置付けられ、明らかにされる所です。次世代の強力なハードウェアやソフトウェアを学び、テクノロジーの発達がどのように仕事、職業、企業を変えるかを吟味し、あなたの新しい知識を創造性とビジネスの躍進に役立てて下さい。サン・アントニオを発つ時にはあなたの未来が変わるでしょう。

Presentations

SIGGRAPH 2002 Conference
Registration Categories:

- ★ Full Conference
- Conference Select
- ◆ Exhibits Plus

Courses ★

Sunday, 21 July – Wednesday, 24 July

In-depth instruction on the latest innovations and research in the art, science, and engineering of computer graphics and interactive techniques. Learn how these principles are developed and applied in creative and production environments and how the latest applications catalyze digital breakthroughs. SIGGRAPH 2002 presents both lecture-style and hands-on tutorials, workshops, and courses in modular formats. Full Conference registration allows attendees access to all SIGGRAPH 2002 Courses. For a list of Courses, see pages 11.

Papers ★

Tuesday, 23 July – Friday, 26 July

Ballroom C1 & C2

The finest international forum for disseminating ground-breaking, provocative, and important new work in computer graphics and interactive techniques. SIGGRAPH 2002 presents papers on topics that overlap with computer graphics, such as computer vision, cognitive and behavioral modeling, computer games, robotics, audio, haptics, medicine, biology, visualization, and novel applications of graphics. For a list of Papers, see page 43.

Panels ★

Tuesday, 23 July – Friday, 26 July

Ballroom C3

Experts and adventurers debate each other and the audience on the entire range of topics in computer graphics and interactive techniques: animation, art, games, education, entertainment, human-computer interaction, film, modeling, rendering, virtual reality, visualization, and Web graphics. For a list of Panels, see page 43.

Sketches & Applications ★ ●

Tuesday, 23 July – Friday, 26 July

Room 103, 207, 217BCD, River Room 001,

Ballroom A

Short presentations on new research, works-in-progress, and novel applications of computer graphics and interactive techniques in three categories: Technical; Art, Design, and Multimedia; Animation and Video. SIGGRAPH 2002 Sketches & Applications reveal the future of computer games, computer vision, artificial intelligence, economics, mathematics, physics, sociology, agriculture, and beyond. For a list of Sketches & Applications, see page 55.

Educators Program ★ ●

Sunday, 21 July – Friday, 26 July

Room 201 & 205

Papers, panels, workshops, and forums for anyone who teaches or uses computer graphics and interactive techniques in the classroom. The Educators Program explores strategies, tools, pedagogies, and processes related to teaching, training, and education. For a list of the Educators Program, see page 81.

Web Graphics ★ ● **NEW!**

Wednesday, 24 July – Friday, 26 July

Room 006AB, 007AB, 206

Where the best and brightest demonstrate and discuss the most innovative online work in the world today. This new SIGGRAPH conference program features presentations and collaborative projects on Web design and technology, art and animation, entertainment, education, and research. For a complete list of Web Graphics, see page 75.

Exhibitor Tech Talks ★ ● ◆

Tuesday, 23 July – Thursday, 25 July

Hall D

In seminars and demos, companies present essential information on new technologies and how to use them. For a list of the Exhibitor Tech Talks, see page 8.

Presentations

SIGGRAPH 2002 Conference

Registration Categories:

- ★ Full Conference
- Conference Select
- ◆ Exhibits Plus

Special Sessions

Yoda and Beyond: Creating the Digital Cast of Star Wars Episode II ★ ●

Sunday, 21 July 6 – 8 pm

Ballroom A

Computer graphics play a starring role in the production of Star Wars Episode II: "Attack of the Clones." This session focuses on creation of the digital cast of the latest prequel to the Star Wars saga. Industrial Light + Magic developed a variety of systems to make the computer-generated characters in this film work credibly with live actors, both in visual quality and physical realism. These systems also made it possible for digital doubles to stand in for actors in scenes that were either too difficult or too dangerous to shoot practically. In an effort to match the fidelity of motion of the computer graphics characters to that of their live-action counterparts, physically based simulation was used extensively throughout the production of this film. Multi-layered clothing, skin with underlying musculoskeletal structures, and the motion of rigid bodies each played a key role in imparting a new level of physical realism to the performance of computer graphics elements. Another challenge in employing this level of proceduralism is directing the resulting performances. This session presents an overview of the pipeline and systems used to produce Episode II, focusing on the specialization required to evolve technologies, deeply rooted in academic research, into effective filmmaking tools. The panel includes individuals who played key roles in development of key digital characters for Episode II.

Organizer

Dawn Yamada

Industrial Light + Magic

Panelists

Geoff Campbell

Zoran Kacic-Alesic

Rob Coleman

Sebastian Marino

James Tooley

Industrial Light + Magic

The Fate of Play: Game Industry

Revolutionaries Speak Out ★ ●

Tuesday, 23 July 12:30 – 2:15 pm

Ballroom A

Prominent members of the International Game Developers Association investigate and discuss the direction of the game industry and how interactive entertainment will influence our future. This panel of game-industry revolutionaries explores how game design, character development, online connectivity, business models, and social and cultural implications all weave together with advances in technology to power the industry.

Organizer/Moderator

Jason Della Rocca

International Game Developers Association

Panelists

Raph Koster

Sony Online Entertainment

Lorne Lanning

Oddworld Inhabitants

Scott Miller

3D Realms

Warren Spector

ION Storm Austin

Will Wright

Maxis

Spider-Man: Behind the Mask ★ ●

Thursday, 25 July 6 – 8 pm

Ballroom A

Sony Pictures Imageworks takes you for a spin through the virtual world of Spider-Man. Visual effects supervisor Scott Stokdyk and his team reveal how the effects, buildings, and characters were created in the computer and integrated with the live action. CG Supervisor Ken Hahn discusses the complexities involved in creating the buildings for the synthetic environments of New York City. CG Supervisor Peter Nofz explains the challenges of setting up characters for animation. And Character Look Lead Greg Anderson shows us the process of look development for character lighting.

Organizer

Mary Reardon

Sony Pictures Imageworks

Panelists

Scott Stokdyk

Ken Hahn

Peter Nofz

Greg Anderson

Sony Pictures Imageworks

Special Events

Fast-Forward Papers Preview ★ ● ◆

Monday, 22 July 5:30 – 6:30 pm

Ballroom C1 & C2

Snapshot overviews of the paper sessions, in which authors give 50-second previews of their papers. It's a quick look at the latest and most significant findings in computer graphics and interactive techniques in just one hour.

What's Up, Doc? ★ ● ◆

A Fond Remembrance of Chuck Jones

Tuesday, 23 July 8:30 – 10:15 am

Ballroom A

Cartoons turned a corner when Chuck Jones came to town. He transformed Walt Disney's vision to one of wit, humor, and mischief. We watched as Wile E. Coyote repeatedly attempted to trap the Roadrunner, only to fall victim to his own falling anvils; Pepe Le Pew's aromatic expressions taught us everything we need to know about unsuccessful romance; Marvin Martian's Gladiator skirt, tennis shoes, and romanque helmet gave us an alternate view of aliens devoted to earth's destruction. And, of course, Bugs Bunny's gregarious self-confidence enabled him to outwit, outsmart, and outsing any adversary. For most of the 20th Century, Chuck Jones shaped the way we see a particular side of the world, and our art and our souls are all the better for it.

This very special Special Event unites animators from all over our industry, each of whom had a particular relationship with this amazing man and his work. Please join us for what is sure to be an inspiring, animated session about an inspiring, animated artist.

Organizer/Moderator

Jill Smolin

Independent

Panelists

Doug Sweetland

Scott Clark

Pixar Animation Studios

Barry Weiss

Sony Pictures Imageworks

Rob Coleman

Industrial Light + Magic

Stephen A. Fossati

DreamWorks SKG

Experiences

Art Gallery ★ ● ◆

Sunday, 21 July – Friday, 26 July
Hall A

Celebrating the creative spirit by taking a look “behind the scenes” at the process of making digital and electronic art. New this year: working artists create original art during the conference. Finished works are presented in the Art Gallery, where artists discuss their art-making processes. For a list of Art Gallery pieces, see page 86.

Computer Animation Festival ★ ● ◆

Electronic Theater: Lila Cockrell Theater
Monday, 22 July – Thursday, 25 July

Animation Theaters: Room 202 & 203

Sunday, 21 July – Friday, 26 July

The international showcase of significant advances in visual effects, interactive techniques, and the unlimited creative potential of computer graphics. Juried and selected works are presented in the matinée and evening shows of the highly anticipated Electronic Theater and throughout the day in the Animation Theaters. For a list of accepted work, see page 90.

Emerging Technologies ★ ● ◆

Hall D

Research and applications that explore tomorrow's advances in seamless human machine integration. Emerging Technologies explores the full spectrum of possibilities: graphics, simulation, robotics, interaction, haptics, display systems, artificial intelligence, medical applications, enabling technologies for collaborative projects, and any other area that enhances interaction between digital and human systems. For a list of Emerging Technologies projects, see page 98.

sigKIDS ★ ● ◆

Monday, 22 July – Thursday, 25 July

San Antonio Children's Museum

Interactive, stimulating educational experiences for parents and children presented in the San Antonio Children's Museum. SIGGRAPH 2002 sigKIDS also introduces younger children (4-8 years old) to technology-based learning materials in a series of “day camps” throughout the week.

Studio ★ ●

Sunday, 21 July – Friday, 26 July

Hall A

An integrated network of machines for realizing ideas in 2D, 3D, 4D, and n-dimensional media in a multi-level city of metaphorical pleasure gardens, urban centers, and underground factories. The Studio is a week-long opportunity to think across disciplinary boundaries and expand technological skills using the latest data capture devices, computer applications, and output processes.

Receptions ★

Opening Reception: Sunset Station

1174 East Commerce, San Antonio, Texas 78205

Monday, 22 July 8 – 10 pm

Technical Reception: Pedrotti's North Wind Ranch

13715 FM 1560 North, Helotes, Texas 78203

Thursday, 25 July 8 – 10 pm

Celebrate the annual reunion of the international computer graphics community with multi-lingual conversation, international cuisine, and thirst-quenching libations in San Antonio's fascinating after-dark ambience.

Services

ACM SIGGRAPH Forum ★ ● ◆

Thursday, 25 July 12:15 – 1:30 pm

ACM SIGGRAPH Booth/West Lobby

Each year at the conference, ACM SIGGRAPH holds an annual event to respond to members' concerns, provide information for people who may be interested in volunteering to help the community, answer questions, and report on its year-round projects and accomplishments. All SIGGRAPH 2002 attendees are invited.

Birds of a Feather ★ ● ◆

Attendee-organized sessions on shared interests, goals, technologies, environments, or backgrounds. At the conference, the Birds of a Feather sign up board in the Bridge Lobby allows scheduling of impromptu gatherings.

Career Center ★ ● ◆

Sunday, 21 July – Friday, 26 July

Room 214B

The annual world-class employment event for the international computer graphics industry. Job seekers post résumés and consult with career mentors. Employers post job openings and schedule interviews.

Community Outreach

The Community Outreach Program introduces SIGGRAPH to the San Antonio community with a series of special programs in the months leading up to the conference. Its purpose is to generate and disseminate computer graphics information and ideas in San Antonio, and to establish a network of ideas that will continue after the conference.

Creative Applications Lab

Room 214CD

The interactive classroom that hosts hands-on sessions for Courses and Educators Program.

Get Involved ★ ● ◆

Wednesday, 24 July 5 – 6:30 pm

Ballroom C Pre-Function Area

Some common questions about SIGGRAPH: What is it? Who's in charge? Who plans and produces this complex annual event? How can I let them know what I would do to make the SIGGRAPH conference even better? The best source for answers: SIGGRAPH Get Involved. Here's your chance to meet the current group of SIGGRAPH volunteers – from the organization and conference committees – for informative conversations about what they do and how you can help. All SIGGRAPH 2002 attendees are invited. Tell us what you want to do, and we'll help you find the right opportunity!

GraphicsNet

The electronic backbone of SIGGRAPH 2002. GraphicsNet's high-bandwidth infrastructure delivers network access to every machine in the Henry B. Gonzalez Convention Center and distributes everything from email to very large graphics files, multimedia streams, and Web content. For SIGGRAPH 2002, GraphicsNet also provides wireless Internet access, broadcast video over fiber, and gigabit transfers of scientific visualization data. GraphicsNet carries it all!

International Resources ★ ● ◆

Saturday, 20 July – Friday, 26 July

East Lobby

Information and insight for the worldwide computer graphics community. The International Center answers questions, makes connections, and provides multi-lingual student volunteers who help international attendees get the information they need from SIGGRAPH 2002. See page 109 for more information.

Job Fair ★ ● ◆

Tuesday, 23 July and Wednesday, 24 July

Tower View Foyer

Explore the full range of career options in computer graphics and interactive techniques. In the Job Fair, leading companies meet with attendees, review demo reels, and schedule follow-up interviews. New this year: four-hour Job Fair sessions on Tuesday, 23 July and Wednesday, 24 July.

Pathfinders ★ ● ◆

Sunday, 21 July – Friday, 26 July

Bridge Lobby

Experienced mentors and guides who introduce attendees to the SIGGRAPH conference experience. Learn what's new and amazing this year. Make sure your week includes everything that you need to see and do. If you need information, consultation, or expert recommendations, talk with a veteran SIGGRAPH mentor at the Pathfinders booth.

Tech Talks

In Exhibitor Tech Talks, SIGGRAPH 2002 exhibitors go beyond short demos of their products and services to present two-hour tutorials, panel discussions, or hands-on instruction.

Location: Hall D

Tuesday, 23 July 10 am - noon

ATI Research, Inc.

How to Develop, Implement, and Use Hardware Shaders

ATI introduces RenderMonkey, a development tool designed to solve many of the problems encountered in writing and using real-time, programmable shaders on mainstream graphics hardware. This session provides tools for developers and animators to take advantage of next-generation shading hardware.

In addition, Right Hemisphere, an ATI strategic partner, introduces various tools to take advantage of hardware shaders and demonstrates how users can efficiently share 3D content across a wide variety of media.

Jason Mitchell

ATI Research, Inc.

62 Forest Street

Marlboro, Massachusetts 01752 USA

Jasonm@ati.com

Tuesday, 23 July 1 - 3 pm

Discreet

Advanced Character Animation Techniques

In this session, animation professionals learn how to use character studio 4 in a high-volume production environment to efficiently create and manage believable character motions for games and rendered animations. New products demonstrated: 3ds max 5, and character studio 4.

Terry Ragan

Discreet

10 Duke Street

Montréal, Québec H3C 2L7 CANADA

terry.ragan@discreet.com

Tuesday, 23 July 4 - 5 pm

TGS, Inc.

Taking Advantage of the Industry-Leading Cross-Platform, Multi-Pipe Developers Toolkit

Exploration of the ever-growing capabilities of Open Inventor from TGS. From multi-pipe functionality to special effects, this toolkit has expanded to include all the tools the developer is looking for. Learn about the value-added extensions, including: VolumeViz, SolidViz, Multi-Pipe, TerrainViz, FxViz, HardCopy, and DataViz. Discuss current issues and trends within the visualization market with other developers.

Bill Henderson

TGS, Inc.

510 South Fourth Street

Richmond, Texas 77469 USA

info@tgs.com

Tuesday, 23 July 5 - 6 pm

TGS, Inc.

3D Visualization From Molecules to Immersion

From medical research to surgery simulation, see how virtual reality is affecting the way physicians look at solving problems and answering questions. Learn how the versatility of the amira 3D visualization application is applied to medical issues and how it can be utilized in other industries.

Bill Henderson

TGS, Inc.

510 South Fourth Street

Richmond, Texas 77469 USA

info@tgs.com

Wednesday, 24 July 10 am - noon

Intel Corporation

Multimedia & Graphics Development Using Intel Integrated Performance Primitives

This session teaches the Intel Integrated Performance Primitives, an API for image processing, graphics, computer vision, and small matrix operations suitable for geometry calculations, as well as specific functions for video, audio, and JPEG. For C++ programmers with limited or no previous knowledge of Intel IPP.

Stewart N. Taylor

Intel Corporation

SC 12-301

3600 Juliette Lane

Santa Clara, California 95054 USA

stewart.n.taylor@intel.com

Wednesday, 24 July 1 - 3 pm

Vancouver Film School

Careers in 3D Animation

Interested in a career in 3D animation? This session includes a screening of outstanding student work, a comprehensive overview of the Vancouver Film School's 3D animation programs and admissions requirements, discussion of career opportunities, and a question-and-answer period.

Janet Cacchiono

Vancouver Film School

200-198 West Hastings Street

Vancouver, British Columbia V6B 1H2

CANADA

registrar@vfs.com

Thursday, 25 July 10 am - noon

Intel Corporation

Maximizing 3D Application Performance on Next-Generation Intel Microarchitectures

Find out how you can get maximum performance for your demanding 3D applications with Intel NetBurst microarchitecture, a key component of the Pentium 4 processor and the latest Intel Xeon processor for servers and workstations. Discover what this technology means to you and how you can apply it to your software. An Intel expert explains the latest features of these Intel processors, including the Rapid Execution Engine, the Instruction Trace Cache, streaming SIMD Extensions 2, and hyper-threading technology. Also: new software tools that can help optimize your code to provide the fastest-possible performance.

Dean Macri

Intel Corporation

2111 North East 25th Avenue

Hillsboro, Oregon 97124-5961 USA

dean.p.macri@intel.com

Thursday, 25 July 1 - 3 pm

ATI Research, Inc.

How to Develop, Implement, and Use Hardware Shaders

Exhibitor Tech Talk repeated from Tuesday, 23 July.

Exhibitor Session

Location: Room 101B

Monday, 22 July through Thursday, 25 July

10:30 am - noon

1:30 - 3 pm

3:30 - 5 pm

NVIDIA Corporation

Shader Workshop

Shader development has become substantially easier with advances in graphics hardware capabilities and toolsets that support a higher-level abstraction of GPU programmability. This hands-on seminar introduces developers and artists to the tools and workflow for real-time shader development, and gives attendees a chance to write a number of shaders. It is primarily geared toward graphics programmers or technical directors who are searching for easier methods of writing compelling real-time shaders and who have a basic knowledge of lighting and shading as it applies to the real-time or film world.

NVIDIA Corporation

2701 San Tomas Expressway

Santa Clara, California 95050 USA

www.nvidia.com

Pathfinders

Invigorating, stimulating, exciting, intriguing: all these words have been used to describe the annual SIGGRAPH conference. The experience can also be hectic, overwhelming, staggering, mind-numbing. Do you have a question about what to see, how to make the best use of your time at the conference, or what sessions best fit your professional interests? Ask the mentors at Pathfinders to help you navigate the conference. Whether this is your first SIGGRAPH conference or your 10th, Pathfinders is here to help you get the most out of your conference experience.

Perhaps you want to know what sessions you can attend at your level of conference registration, or which sessions will be of the most benefit to your career interests. From the short question to in-depth analysis of what conference activities you just shouldn't miss, Pathfinders is here to help.

There are so many possible ways to spend time at SIGGRAPH 2002. Some programs present visual, tangible results. Others present ideas, concepts, and theories. With all SIGGRAPH 2002 has to offer, forming a strategy to get the most out of the conference takes time and resources. Pathfinders is a volunteer conference mentoring program dedicated to improving the conference experience through the wisdom and support of experienced conference veterans.

Chair

Ann Theresa Eakes
Northwest Vista College

Committee

Genevieve Matheson
Case Western Reserve University

Mary Nichols

SIGGRAPH 2003 Pathfinders Chair
Middle Tennessee State University

Location: Bridge Lobby

Days & Hours

Saturday, 20 July	4 – 8 pm
Sunday, 21 July	9 am – 7 pm
Monday, 22 July	8 am – 6 pm
Tuesday, 23 July	8 am – 6 pm
Wednesday, 24 July	8 am – 6 pm
Thursday, 25 July	8 am – 5 pm
Friday, 26 July	8 am – 3 pm

Courses

Full-day, half-day, and tutorial sessions on how to create computer graphics and interactive techniques, improve their application, and use them to achieve practical results in the real world. Full Conference registration allows attendees access to all SIGGRAPH 2002 Courses.

Seating in courses is on a first-come, first-served basis. Seating is very limited for courses scheduled in the Creative Applications Lab, Room 214CD.

Chair

Valerie Miller

Georgia State University

Committee

Rick Barry

*SIGGRAPH 2003 Courses Chair
Pratt Institute*

Keith Cok

SGI

Steve Hwan

Walt Disney Feature Animation

Alyce Kaprow

The New Studio

Anselmo Lastra

University of North Carolina at Chapel Hill

Nick Orland

MITRE Corporation

Nan Schaller

Rochester Institute of Technology

Harry Smith

University of North Carolina at Wilmington

Katie Rylander

*Program Coordinator
Capstone Solutions, Inc.*

Location: See Pages 11 – 41

Days & Hours

FULL DAY

Sunday, 21 July – Wednesday, 24 July
8:30 am – 5:15 pm

HALF DAY AM

Sunday, 21 July – Tuesday, 23 July
8:30 am – 12:15 pm

Monday, 22 July and Tuesday, 23 July
10:30 am – 3:15 pm

HALF DAY PM

Sunday, 21 July – Wednesday, 24 July
1:30 – 5:15 pm

TUTORIAL

Monday, 22 July and Tuesday, 23 July
8:30 – 10:15 am
3:30 – 5:15 pm

Wednesday, 24 July
10:30 am – 12:15 pm

Tuesday, 23 July

Room 103

9 am – Noon

Fundamentals Seminar ★●◆



Computer graphics jargon, concepts, techniques, and technologies explained by the experts, in plain English. The best starting point for attendees who are new to computer graphics and interactive techniques.

Lecturers

Mike Bailey

*University of California, San Diego
San Diego Supercomputer Center*

Wayne Carlson

The Ohio State University

Barbara Helfer

Warren N. Waggenpack, Jr.

Louisiana State University

Sunday, 21 July

Half Day

CAL/Room 214CD

8:30 am – 12:15 pm

1

Mathematics and Physics for Coding Motion and Interactivity in Web Graphics



Introduction to the mathematical, kinematics, and physics concepts used to develop interactive games and graphics for the Web, and how they can be applied. Attendees immediately learn how to apply these concepts in a hands-on environment.

Prerequisites

Beginning to intermediate programming experience with Macromedia Flash and ActionScript, the scripting language within Flash, which is based on the ECMA-262 standard. Basic familiarity with algebra, trigonometry, and physics is beneficial.

Topics

Theoretical explanations of key concepts within mathematics (linear algebra, trigonometric identities, applications of trigonometry, and vector algebra) and physics (displacement, speed, velocity, acceleration, kinematics equations, and applying kinematics).

Organizer

James L. Mohler
Purdue University

Lecturers

Nishant Kothary
James L. Mohler
Purdue University

Schedule

Module 1 – Mathematics in Multimedia

8:30 Introduction
Mohler

8:45 Multimedia Authoring Trends
Kothary

9:00 Introductory Algebra
Mohler

9:30 Interactive Class Problem: Dynamic Linear Slider Construction

9:45 Trigonometry and Vectors
Kothary

10:15 Break

Module 2 – Kinematics in Multimedia

10:30 Elementary Kinematics
Kothary

11:00 Two-dimensional Frame-based Motion
Kothary

11:15 Interactive Class Problem: Unrestricted OOP-based Motion: Tank

11:30 An Overview of 3D in New Media
Mohler

11:40 What to Expect
Kothary

11:50 Conclusion
Mohler

Noon Questions and Answers

River Room 001 **Half Day**
8:30 am – 12:15 pm

2

Advanced Global Illumination



The fundamentals of light transport and techniques for computing the global distribution of light in a scene. This course explains basic radiometric quantities, establishes a general framework for stochastic light transport algorithms, and touches on some image display issues.

Prerequisites

A basic understanding of classic photorealistic rendering algorithms such as basic ray tracing and radiosity is assumed. Knowledge of probability theory is very helpful. Some familiarity with transport equations and radiometry is useful, but not necessary.

Topics

Short overview of basic ray tracing and radiosity; radiometry and the rendering equation; material properties for computer graphics; general strategies for solving the rendering equation; stochastic radiosity techniques; current state of the art in photorealistic rendering research.

Organizers

Philip Dutré

Katholieke Universiteit Leuven

Kavita Bala

Cornell University

Lecturers

Kavita Bala

Cornell University

Philippe Bekaert

Max-Planck-Institut für Informatik

Philip Dutré

Katholieke Universiteit Leuven

Schedule

- 8:30** Introduction
Dutré
- 8:35** Radiometry & the Rendering Equation
Bala
- 9:15** General Strategies for Solving the Rendering Equation
Dutré
- 10:15** Break
- 10:30** Stochastic Radiosity
Bekaert
- 11:35** Recent Trends
Bala
- 12:05** Summary Statement
Dutré

Room 007AB **Half Day**
8:30 am – 12:15 pm

3

Developing Efficient Graphics Software



Creating a high-performance graphics application requires expertise in several areas, and it can be difficult. This course presents some of the concepts needed to understand how an application interacts with both the graphics subsystem and the computer operating system. It also presents several methods for measuring and analyzing performance of the graphics function calls and overall application performance, and techniques for tuning the graphics and application software.

Prerequisites

Working knowledge of software development, computer graphics techniques, and overall computer system architecture. This course is designed for software developers who are seeking to optimize graphics and system performance.

Topics

Interaction among CPUs, bus, memory, and graphics subsystems; general C and C++ optimization techniques; methods used to measure performance.

Organizer

Keith Cok

SGI

Lecturers

Keith Cok

Thomas True

SGI

Schedule

- 8:30** Introduction
Cok
- Module 1 - Software and System Performance*
- 8:35** Ideal vs. Realized Graphics Throughput
True
- 9:35** The Application Tuning Process
True
- 10:15** Break
- Module 2 - Code and Language Optimizations*
- 10:45** Methods of Measuring Code Performance
Cok
- 11:15** C/C++ Language Optimizations
Cok
- 11:45** Questions and Answers
Cok and True

Sunday, 21 July

Half Day

Room 205

1:30 – 5:15 pm

4

Multidimensional Visualization and Its Applications



Multidimensional perception is limited by our experience within our three-dimensional environment. This course begins with a short literature review of the mathematical foundations of parallel coordinates for visualization of multidimensional geometry. When these coordinates are interlaced with a variety of applications, visualization and recognition of multidimensional relations from their patterns are enabled, and this methodology can be applied to multivariate problems.

Prerequisites

This is a self-contained course for beginners. Mathematical sophistication, familiarity with computer graphics and interest in multidimensional (multivariate) problems are helpful but not necessary.

Topics

Visualization of multidimensional objects without loss of information. Selected applications to visual and automatic data mining (financial, process control, biomedical, military, and other examples with hundreds of variables). Collision-avoidance Algorithms. Computer vision. Non-linear models. Decision-support Systems with occasional numerological anecdotes and palindromic digressions.

Organizer/Lecturer

Alfred Inselberg
Tel Aviv University

Schedule

- 1:30** Introduction to Multidimensional Visualization
Inselberg
- 2:00** Parallel Coordinates in 2D + Data Mining Applications on Real Multivariate Datasets
Inselberg
- 2:35** Multidimensional Lines & Applications — Automatic Collision Avoidance Algorithms + One-shot Problem — Demos & Animations
Inselberg
- 3:15** Break
- 3:30** Exact and Approximated Planes and Hyperplanes — Applications to Computer Vision and Geometric Modeling — Automated Data Mining
Inselberg
- 4:30** Surfaces and Hypersurfaces — Interior Point Algorithm — Application to Decision Support, Feasible Points, Sensitivity and Trade-Off Analysis and Non-Linear Visual Modeling
Inselberg

Half Day

River Room 001

1:30 – 5:15 pm

5

Image-Based Lighting



Using images of real light to illuminate computer-generated scenes provides new levels of realism and new avenues for creativity. This course teaches everything from the theory behind the methods to the practical techniques of using image-based lighting in commercial production: high-dynamic-range photography, lighting acquisition, image-based lighting and compositing, real-time techniques, and ongoing research in illuminating real people and objects with sampled light.

Prerequisites

Basic knowledge of or experience with modeling and rendering in a traditional modeling or rendering package (for example, 3D Studio Max, LightWave 3D, Maya, or SoftImage). Familiarity with basic lighting and compositing. No advanced knowledge of ray tracing or global illumination is assumed.

Topics

Using high-dynamic-range imagery, acquiring light-probe images, using global illumination, performing image-based lighting in traditional rendering, and compositing real people into virtual environments with consistent lighting. Basic principles of light reflection and global illumination.

Organizer

Paul Debevec
USC Institute for Creative Technologies

Lecturers

Paul Debevec
USC Institute for Creative Technologies

Nickson Fong
Esc Entertainment

Masa Inakage
Keio University

Dan Lemmon
WETA Digital

Schedule

- 1:30** Introduction
Debevec
- 2:15** - Capturing, Representing, and Manipulating High Dynamic Range Imagery (HDRI)
- Capturing Real-World Illumination
- Illuminating Synthetic Objects With Real Light - Making "Rendering With Natural Light" (SIGGRAPH 98 Electronic Theater)
Debevec
- 3:15** Break
- 3:30** - Rendering Synthetic Objects into Real Scenes
- Image-Based Lighting in "Fiat Lux" (SIGGRAPH 99 Electronic Theater)
Debevec
- 3:40** Image-Based Lighting in Commercial Production
Lemmon
Image-Based Lighting Within Commercial Production
Fong
- 4:25** Image-Based Lighting Real Objects and Actors
Debevec and Inakage

Room 007AB **Half Day**
1:30 – 5:15 pm

6

Human-Centered Design Processes in Virtual Environments: Methodologies and Real-Life Case Studies



Using recent case-study material from Virtual Presence Limited and the National Aeronautics and Space Administration (including space and defense studies, surgery, automobile design and ceramics), this richly illustrated course demonstrates application of human-centered methodologies in delivering usable, affordable, and extensible interactive 3D or VR solutions for prototyping and training applications.

Prerequisites
No prior experience in the field of human factors or ergonomics. Those with some experience of introducing VR into real-world applications, or those considering or assessing VR technologies for their own organizations, will acquire useful knowledge in this course.

Topics
Virtual reality, virtual environments, interactive 3D. The pitfalls of "technology push." Human factors issues ("remember the user"). Human-centered design standards (NASA and international sources). Virtual reality and human factors methodologies and "best practices." US and UK evidence in support of human-centered design. US and UK case studies (surgery, aerospace, defense, automotive, engineering, ceramics, education). The need for future research and development (human-performance metrics, spatial and temporal situation awareness, collective training, transfer of training).

Organizer
Robert J. Stone
Virtual Presence Limited

Lecturers
Kathryn I. Clark
National Aeronautics and Space Administration
Robert J. Stone
Virtual Presence Limited

Schedule

1:30	Introduction <i>Stone and Clark</i>
1:40	The Importance of Human-Centered Design in VR and Interactive 3D Graphics <i>Stone</i>
2:00	Human Factors Standards and Processes Within NASA <i>Clark</i>
2:20	Emerging International Standards <i>Stone</i>
3:15	Break
3:30	Information Sources Supporting ISO 13407 – NASA <i>Clark</i>
4:00	Information Sources Supporting ISO 13407 – Other (Aerospace, Defense, etc.) <i>Stone</i>
5:00	Human Factors Guidelines and Methodologies Specific to Interactive 3D Graphics <i>Stone</i>

Room 205 **Full Day**
8:30 am – 12:15 pm **CAL/Room 214CD**
1:30 – 5:15 pm

7

Introducing X3D



X3D (eXtensible 3D graphics) is the open standard for interactive 3D graphics on the World Wide Web. X3D uses current web standards and technologies to describe 3D shapes, textures, animation, and interactivity viewable in a browser. Participants build their own world using X3D-Edit and leave this course with the basic knowledge to begin using the tools and libraries to build their own 3D worlds.

Prerequisites
Basic knowledge of 3D computer graphics such as that provided by SIGGRAPH's introductory course. Basic understanding of the World Wide Web. Beginners knowledge of XML and VRML is helpful, but not required.

Topics
Basics of Web-based 3D graphics with a focus on X3D. Fundamentals of X3D specification, profiles, animation, tools and authoring. X3D Software Development Kit (SDK) is used to demonstrate X3D authoring.

Organizer
Leonard Daly
Daly Realism

Lecturers
Don Brutzman
Naval Postgraduate School
Leonard Daly
Daly Realism
Nicholas Polys
VirtuWorlds LLC
Joe D. Williams
HyperMultiMedia.com

Schedule

Module 1 – X3D Overview, Syntax, and Tools

8:30	Overview <i>Daly</i>
9:00	XML Syntax and Profiles <i>Williams</i> Authoring Tools <i>Polys</i>
10:15	Break
<i>Module 2 – X3D SDK & Authoring</i>	
10:30	Software Development Kit <i>Polys</i>
11:30	Basic Authoring X3D <i>Daly</i>
12:15	Lunch
<i>Module 3 – Building X3D Worlds</i>	
1:30	Using X3D Nodes (Hands-on) <i>All</i>
3:15	Break
<i>Module 4 – Building X3D Worlds (continued)</i>	
3:30	Building X3D Worlds (Hands-on) <i>All</i>
5:10	Show, Review & Discussion

Sunday, 21 July

Room 103 **Full Day**
8:30 am – 5:15 pm

8

My Work Is Finished, Now What Do I Do? A Guide to Making a Dynamite Demo Reel



All your hard work has been invested in production of an animation or doing the research. Now that your work is finished, what are you going to do with it? This course outlines a step-by-step process for getting your movie or research into a video product, which you can present with confidence to colleagues and future employers.

Prerequisites

Knowledge of the basics of computer graphics and elementary video knowledge.

Topics

An overview of video, including terminology and definitions, pre-production issues such as storyboarding and content outline, production and equipment issues, post-production topics, and distribution of the product.

Organizers

Barbara Helfer

Tim Merritt

Georgia State University

Lecturers

Barbara Helfer

Tim Merritt

Georgia State University

Mary Nichols

Dan Pfeifer

Middle Tennessee State University

Schedule

- 8:30** Introductions
Helfer and Merritt
- 8:40** Comparison of Digital and Analog Video
- 9:00** Comparison of Audio Formats
Pfeifer
- 9:25** Compression Formats
Merritt
- 9:45** Pre-Production
Nichols
- 10:15** Break
- 10:30** Framing, Aspect Ratio, Composition
Merritt
- 10:50** Audio Production
Pfeifer
- 11:20** Equipment Issues
Helfer
- 11:40** Depth of Field Effects
Merritt
- 12:05** Audio Effects
Pfeifer
- 12:15** Lunch
- 1:30** Editing Styles
Nichols
- 1:50** Editing Audio
Pfeifer
- 2:00** Video Aesthetics
Merritt
- 2:20** Comparison of Tape Formats
Helfer
- 2:45** Tricks of the Trade
All
- 3:15** Break
- 3:30** Streaming Media
Merritt
- 4:15** Copyright Issues
Nichols
- 5:00** Questions

Ballroom A **Full Day**
8:30 am – 5:15 pm

9

Simulating Nature: Realistic and Interactive Techniques



This summary of the state-of-the-art for simulating natural phenomena in both research and commercial production environments covers realistic modeling, rendering, and animation of mountains; interactively navigable worlds; plants; trees; water; fire; smoke; and clouds. Practical aspects, interactive approximation, implementation, and future directions for research are discussed.

Prerequisites

Familiarity with standard graphics techniques for modeling and rendering. Experience with basic grammar-based modeling, procedural techniques, and particle systems is helpful but not required.

Topics

Fractal-based techniques for simulating mountains and interactive navigable planets; realistic modeling and rendering of oceanscapes viewed from above or below; stable and interactive simulation of motion in fluids; interactive simulation of fire; volumetric procedural cloud modeling and realtime issues for simulating volumetric natural phenomenon; rapid realistic smoke simulation; interactive grammar-based techniques for modeling of plants and plant ecosystems.

Organizer

David S. Ebert
Purdue University

Lecturers

Oliver Deussen
Technische Universität Dresden
David S. Ebert
Purdue University
Ron Fedkiw
Stanford University
Industrial Light + Magic
F. Kenton Musgrave
Pandromeda, Inc.
Przemyslaw Prusinkiewicz
University of Calgary
Jos Stam
Alias | Wavefront
Jerry Tessendorf
Cinesite Digital Studios

Schedule

- 8:30** Introduction
Ebert
- 8:35** Fractal Models of Natural Phenomena
Musgrave
- 9:35** Water More Real Than Real
Tessendorf
- 10:15** Break
- 10:30** Water More Real Than Real
Tessendorf (continued)
- 10:50** Stable Simulation of Fluids
Stam
- 11:50** Realistic Physics-based Smoke & Fire Simulation
Fedkiw
- 12:15** Lunch
- 1:30** Realistic Physics-based Smoke & Fire Simulation
Fedkiw (continued)
- 2:05** Procedural Volumetric Cloud Modeling, Animation, and Real-Time Techniques
Ebert
- 3:00** Break
- 3:15** The Science and Art of Plant Modeling
Prusinkiewicz
- 4:15** Fast Rendering and Modeling of Plants
Deussen

Room 206 **Full Day**
8:30 am – 5:15 pm

10

Level Set and PDE Methods for Computer Graphics



The underlying concepts, equations, and numerical methods for level set and partial differential equation (PDE) methods, and how they may be used in a variety of graphics applications, including image inpainting, pattern formation, 3D curve computation, 3D shape reconstruction, surface editing, image and shape morphing, and fire and water simulation.

Prerequisites

Knowledge of calculus, linear algebra, and computer graphics, including geometric modeling and computer animation. Some familiarity with differential geometry, differential equations, numerical computing, and image processing is strongly recommended but not required.

Topics

Fundamentals (level set and PDE concepts, derivation of level set equations and other PDEs, numerical methods). Practical considerations (building a level set library, importing conventional geometry). Applications (image inpainting, pattern formation, curve computation, image and volume processing, shape reconstruction, image and volume segmentation, image and shape morphing, surface editing, dynamic visibility, anisotropic diffusion, and natural phenomena simulation).

Organizers

David Breen
California Institute of Technology
Guillermo Sapiro
University of Minnesota

Lecturers

David Breen
California Institute of Technology
Ron Fedkiw
Stanford University
Industrial Light + Magic
Stanley Osher
University of California, Los Angeles
Guillermo Sapiro
University of Minnesota
Ross Whitaker
University of Utah

Schedule

- 8:30** Welcome
Breen
- 8:40** Introduction to PDEs and Solution Methods
Sapiro
- 9:30** Introduction to Level Set Methods and Technology
Osher
- 10:15** Break
- 10:30** Fast Surface Reconstruction Using the Level Set Method; Dynamic Visibility in an Implicit Framework
Osher
- 11:15** 3D Scan Conversion of Geometric Models; Level Set 3D Model Morphing; Level Set Surface Editing
Breen
- 12:15** Lunch
- 1:30** Image Inpainting; Computing Geodesics and Generalized Geodesics for Computer Graphics; A Geodesic Framework for Segmentation; Edge Tracing in 2D/3D; Shape and Color Preserving Representation of High Dynamic Range Images; Pattern Formation in 3D; Surface Fairing
Sapiro
- 2:45** VISPACK
Whitaker
- 3:15** Break
- 3:30** Direct Sinogram Reconstruction; Image/Shape Blending; Antialiasing Binary Volumes
Whitaker
- 4:15** Animation and Rendering of Complex Water Surfaces; Physically Based Modeling and Animation of Fire
Fedkiw

Room 207 **Full Day**
8:30 am – 5:15 pm

11

MPEG-4: Next-Generation Standard for Interactive Media



MPEG-4 is an international open standard that provides technology for creation and delivery of rich, interactive media transported via the Internet or broadcast or wireless channels to a broad spectrum of user terminals ranging from set-top boxes to PDAs. This course presents an overview of the tools and opportunities for creating interactive content with a blend of media technologies.

Prerequisites

Basic understanding of various media types including video, audio, images, and computer graphics.

Topics

MPEG-4 overview: anatomy and rationale for having a standard. Synthetic and natural media objects. Delivery of content over networks. Interactivity. Digital rights management. Applications.

Organizer

Klaus Diepold
DynaPel Laboratories GmbH

Lecturers

Klaus Diepold
DynaPel Laboratories GmbH
Radek Grzeszczuk
Intel Corporation
Igor Pandzic
Visage Technologies AB
Eric Petajan
face2face animation, inc.
Iraj Sodagar
PacketVideo Corporation
JC Spierer
The MITRE Corporation
Gabriel Taubin
IBM T. J. Watson Research Center

Schedule

- 8:30** Introduction to MPEG-4
Diepold
- 9:00** Streams of Media Objects
Spierer
- 9:30** Delivery of Object Streams
Spierer
- 10:15** Break
- 10:30** Video and Image Coding
Sodagar
- 11:15** Binary Format for Scene Description
Diepold
- 12:15** Lunch
- 1:30** Synthetic Media Objects
Taubin
- 2:15** Light Field Mapping in MPEG-4
Grzeszczuk
- 3:15** Break
- 3:30** Synthetic Media Objects – Face & Body Animation
Petajan and Pandzic
- 4:15** Introduction to Digital Rights Management
Spierer
- 4:45** Putting it all Together - Profiling in MPEG-4
Diepold
- 5:15** Proliferation of MPEG-4
Sodagar

Sunday, 21 July

Full Day
8:30 am – 5:15 pm

12

Modeling Techniques for Medical Applications



CANCELED

Full Day
8:30 am – 5:15 pm

Room 006AB

13

Perceptual and Artistic Principles for Effective Computer Depiction



For both artists and scientists: an exploration of artistic techniques, their successful adaptation to computer depiction, and how the perceptual and cognitive sciences illuminate the connections between human perception and picture production.

Prerequisites

Attendees should be familiar with pictures, open-minded, and curious about the connections between art and science.

Topics

Art and science, perception, visualization, color, cognitive psychology, perspective distortion, limitations of the medium, overcoming the flatness of pictures, depth cues, contrast management, Gestalt and picture organization, gaze and focus, route maps, neurology, aesthetics, effective shape visualization. This course does not include topics such as image difference metrics and perceptually adaptive rendering.

Organizer

Frédo Durand
Massachusetts Institute of Technology

Lecturers

- Maneesh Agrawala**
Stanford University
- Frédo Durand**
Massachusetts Institute of Technology
- Bruce Gooch**
University of Utah
- Victoria Interrante**
University of Minnesota
- Victor Ostromoukhov**
Université de Montréal
- Denis Zorin**
New York University

Schedule

Overcoming the Limitations of the Medium

8:30 – Introduction
– Limitations of the Medium
Durand

9:25 Perception and Representation of Shape and Depth
Interrante

10:15 Break

Color and Perspective

10:30 Color
Ostromoukhov

11:25 Perspective and Perception
Zorin

12:15 Lunch

Picture Composition and Organization

1:30 Focus and Gaze
Durand

1:55 Gestalt and Composition
Ostromoukhov

2:35 Neurological Theories of Aesthetic
Gooch

3:15 Break

Beyond Projection

3:30 Computational Vision and Pictures
Durand

4:25 Effective Visualization and Illustration Using Cognitive Science
Agrawala

Full Day
Room 006CD
8:30 am – 5:15 pm

14

Advanced Issues in Level of Detail



For graphics and game developers, Level of Detail (LOD) algorithms have become a crucial tool for managing complexity. This advanced course addresses some important issues in using LOD, including evaluating geometric and perceptual fidelity of LODs, balancing fidelity and performance, controlled topology reduction, and view-dependent LOD.

Prerequisites

Knowledge of the basic LOD concept and experience with interactive graphics systems. This course is designed for developers who want to become sophisticated LOD users and researchers who want to broaden their knowledge of the field.

Topics

Algorithms and frameworks (appearance-preserving simplification, continuous and view-dependent LOD, controlled topology reduction). Theory: measuring and controlling fidelity (LOD error metrics for geometry and attributes, perceptual analysis of degradation in detail, the fidelity-performance tradeoff, perceptual issues). Applications (terrain simplification, gaming optimizations).

Organizer

David P. Luebke
University of Virginia

Lecturers

Jonathan D. Cohen
The Johns Hopkins University
Rob Huebner
Nihilistic Software
David P. Luebke
University of Virginia
Martin Reddy
SRI International
Amitabh Varshney
University of Maryland
Benjamin Watson
Northwestern University

Schedule

- Module 1 – Frameworks*
- 8:30** Welcome: Introductions Overview
Luebke
 - 8:50** Frameworks: Static, Continuous, and View-Dependent LOD
Luebke
 - 10:15** Break

Module 2 – Algorithms

 - 10:30** Algorithms for Simplifications
Varshney
 - 11:30** Appearance-Preserving Simplification
Cohen
 - 12:15** Lunch

Module 3 – Theory: Measuring and Regulating Fidelity

 - 1:30** Fidelity: Measuring Geometric and Attribute Error
Cohen
 - 1:50** Perception: Theoretical Underpinnings
Reddy
 - 2:30** Tradeoffs: Balancing Fidelity and Performance
Watson
 - 3:15** Break

Module 4 – Applications: Games and Terrains

 - 3:30** Gaming Optimizations
Huebner
 - 4:15** Terrain Simplification
Reddy
 - 4:45** Out-of-Core Simplification
Watson

Full Day
Room 007CD
8:30 am – 5:15 pm

15

Design of Interactive Multimodal Media Systems



How traditional human-computer-interaction methodologies augmented with theories and experimental findings from cognitive science address challenges posed by multimodal interaction using vision, haptics, and sound in conventional and immersive computer graphics environments. Attendees learn the theory and practice of multimodal interaction design in a multidisciplinary setting.

Prerequisites

This course is intended for people who are involved in the design of interactive media and applications for emerging computer display technologies. Attendees should be familiar with the basics of computer graphics and interactive media, but they do not need any particular technical background.

Topics

The cognitive science of intersensory processing (vision, hearing, haptics) in scene understanding and interaction, including attention, change blindness, haptics, ventriloquism, and space constancy. Enhanced iterative design (the reflective practitioner model) for integration of visual display design, haptic devices, and sonified and integrated visual-auditory environments including virtual environments and community or performance spaces.

Organizer

Kellogg Booth
The University of British Columbia

Lecturers

Kellogg Booth
Sidney Fels
Brian Fisher
Karon Maclean
Ronald Rensink
The University of British Columbia

Schedule

- 8:30** Welcome and Course Overview
Booth
- 8:45** Intersensory Interactions
Fisher
- 10:05** Discussion, Questions, and Follow-up Exercises
Booth
- 10:15** Break
- 10:30** Attentional and Nonattentional Processes in Human Vision
Rensink
- 12:05** Discussion, Questions, and Follow-up Exercises
Booth
- 12:15** Lunch
- 1:30** Physical Interaction Design for Haptics and Multimodal Interfaces
Maclean
- 3:05** Discussion, Questions, and Follow-Up Exercises
Booth
- 3:15** Break
- 3:30** Novel Human Interface Technologies
Fels
- 4:50** Discussion, Questions, and Follow-Up Exercises
Booth
- 5:00** Summary and Conclusions
Booth

Sunday, 21 July

Full Day

Ballroom C1 & C2

8:30 am – 5:15 pm

16

RenderMan in Production



The RenderMan Standard and its various implementations are critical pieces of modern animation and effects production at many studios large and small. This course teaches working and prospective technical directors (including students) the major concepts of use and abuse of advanced rendering with RenderMan and related systems.

Prerequisites

Some familiarity with basic concepts of computer graphics and animation production, but no prior detailed experience with RenderMan.

Topics

Basic concepts of rendering and RenderMan. Writing shaders and organizing shader libraries. Light and surface illumination. A variety of production issues, including global illumination, handling complexity, and blending CG and live-action footage.

Organizer

Larry Gritz
Exluna, Inc.

Lecturers

Tony Apodaca
Pixar Animation Studios
Guido Quaroni
Sony Pictures Imageworks
Dan Goldman
Hayden Landis
Industrial Light + Magic
Larry Gritz
Matt Pharr
Exluna, Inc.

Schedule

- 8:30** Introduction
Gritz
The Lore of the TD's
Apodaca
- 10:15** Break
- 10:30** Texture Baking and Shader Libraries
Gritz
Light/Surface Interactions
Pharr
- 12:15** Lunch
- 1:30** Prepro Planning for Rendering Complex Scenes
Goldman
Production-Ready Global Illumination
Landis
- 3:15** Break
- 3:30** RenderMan on Film: Combining CG and Live Action
Bredow
Furry Monsters in a Foggy World
Quaroni
- 5:00** Questions and Answers
All

Full Day

Ballroom C3

8:30 am – 5:15 pm

17

State of the Art in Hardware Shading



Hardware supporting basic procedural shading is no longer just a reality. It is increasingly common. In this course, representatives of most of the current players in this young field present practical comparisons of their latest hardware products and application interfaces.

Prerequisites

Working knowledge of a modern real-time graphics API like OpenGL or DirectX and familiarity with the concepts of procedural shading.

Topics

Practical comparisons of procedural shading interfaces and capabilities of most current hardware. Rendering hardware, procedural shading extensions, multi-pass rendering, and new graphics APIs.

Organizer

Marc Olano
SGI

Lecturers

Chas Boyd
Microsoft Corporation
Michael McCool
University of Waterloo
Bill Mark
NVIDIA Corporation
Jason L. Mitchell
ATI Research
Marc Olano
SGI
Randi Rost
3Dlabs, Inc.

Schedule

- Module 1 – Shading Hardware*
- 8:30** Introduction
Olano
- 9:00** NVIDIA
Mark
- 10:00** ATI
Mitchell
- 10:15** Break
- Module 2 – Shading Hardware*
- 10:30** ATI (continued)
Mitchell
- 11:15** SGI
Olano
- 12:15** Lunch
- Module 3 – APIs*
- 1:30** DirectX
Boyd
- 2:30** OpenGL 2.0
Rost
- 3:15** Break
- Module 4 – APIs*
- 3:30** OpenGL 2.0 (continued)
Rost
- 3:45** API Design Issues
McCool
- 4:45** Panel-Style Questions and Answers
All

Monday, 22 July

CAL/Room 214CD **Tutorial**
8:30 – 10:15 am

18

XML Basics for XHTML, SVG, and SMIL



Scalable Vector Graphics (SVG) and Synchronized Multimedia Integration Language (SMIL) are two up-and-coming XML-based languages. Starting with HTML, this course shows why the need for XML arose, explains the basics of XML (including well-formed documents and the DTD) and explores simple examples of SMIL and SVG.

Prerequisites

A basic understanding of HTML.

Topics

Review of HTML. Why we need XML. XML basics. Document type definition. Schemas. XHTML and CSS. Basic SVG and SMIL documents, both standalone and embedded in a Web page.

Organizer/Lecturer

Kathy Barshatzky

SAIC

Schedule

- 8:30** Introduction
Barshatzky
- 8:35** HTML
Barshatzky
- 9:00** XML
Barshatzky
- 9:40** XHTML
Barshatzky
- 9:55** Advanced Topics
Barshatzky
- 10:05** Questions and Answers
Barshatzky

Room 206 **Tutorial**
3:30 – 5:15 pm

19

Panic-Free Public Speaking



This tutorial teaches nervous speakers how to manage speech anxiety and how to transform their unproductive “panic” energy into constructive enthusiasm and self control. Tips on preparation and delivery will also be given.

Prerequisites

No formal prerequisite, but the tutorial will benefit anyone who is presenting a course or a paper, participating in a panel, or introducing or chairing a session at SIGGRAPH 2002.

Topics

New ways of viewing the activity of public speaking. Tips for developing a smooth physical presentation. An anxiety reduction technique that uses your physiological processes to balance your overcharged nervous system and your apprehensive mind. Reducing panic by being prepared. Braving the questions and answers.

Organizer

Barbara Morris

Lecturers

Barbara Morris

Charles Poynton

Schedule

- 3:30** Managing Speech Anxiety
Morris
- 4:30** Preparation and Delivery
Poynton
- 5:00** Questions and Answers
All

Monday, 22 July

Half Day

Room 207

8:30 am – 12:15 pm

20

Design and Implementation of Direct Manipulation in 3D



This course on how to incorporate direct manipulation interfaces into their 3D applications covers the basics of manipulator design and implementation, and advanced topics such as robust input processing, modular construction, and constraint handling.

Prerequisites

Module 1: Basic knowledge of user interface design ideas. Familiarity with terms such as “affordances” and “modes.” Some high-school mathematics. Module 2: Familiarity with basic scene-graph concepts, coordinate systems and transformations, and fundamentals of programming interactive applications (such as picking, selection, and dragging).

Topics

The primary focus is on manipulators for affine transformations. Other topics include: design issues such as using modes, creating a consistent graphic language, dealing with visibility and collision, and choosing useful interaction behavior. The implementation module covers issues such as the relationship between the manipulator and the model, projecting input events onto geometric shapes, locate highlighting, maintaining geometric integrity, and constraining motion.

Organizer

Paul S. Strauss

Pixar Animation Studios

Lecturers

Paul S. Isaacs

Eyematic Interfaces, Inc.

John Schrag

Alias | Wavefront

Paul S. Strauss

Pixar Animation Studios

Schedule

Module 1: Design

8:30 Introduction
 -What is 3D Direct Manipulation?
 -Advantages
 -Challenges
 -History
Strauss

9:00 Design Issues
 -What Makes a Manipulation Good?
 -Temporal and Spatial Modes
 -Manipulator Appearance
 -Designing Useful Transformation Behavior
 -Usability
Schrag

10:15 Break

Module 2: Implementation

10:30 Implementation Issues
 -Using Scene Geometry
 -Maintaining Consistency
 -Providing Variety
 -Avoiding Modes
Isaacs

Half Day

River Room 001

8:30 am – 12:15 pm

21

A Field Guide to Digital Color



A survey of color disciplines relevant to computer graphics, from color vision to color design, that provides a clear overview of the world of digital color, plus pointers to in-depth references on a wide range of color topics.

Prerequisites

This course should be accessible to all SIGGRAPH attendees who understand basic scientific and mathematical presentation (simple graphs, diagrams, and equations).

Topics

Color vision and perception, color image reproduction, color modeling and rendering, and tools for design and selection of colors in various applications, followed by real-world examples from Rhythm & Hues of these topics applied to the design of visual effects and computer animation.

Organizers/Lecturers

Maureen Stone

StoneSoup Consulting

Pauline Ts'o

Rhythm & Hues

Schedule

Module 1 – Modeling, Perceiving and Reproducing Color

8:30 Vision and Appearance
Stone

9:15 Color Reproduction and Management
Stone

9:45 Color Models: Natural and Simulated
Stone

10:15 Break

Module 2 – Color in Graphics and Design

10:30 Color in Graphics Systems
Stone

10:45 Color Selection and Design
Stone

11:15 Color at Rhythm & Hues
Ts'o

Half Day
8:30 am – 12:15 pm

Room 007AB

22

Practical Parallel Rendering



Important new insights for anyone who plans to render graphics in a parallel environment. The course focuses on practical issues that arise in rendering on traditional shared and distributed-memory multi-processors as well as clusters of PCs and workstations, including render farms. Case studies of real, challenging practical applications and how they address these issues are described in detail.

Prerequisites

Some knowledge of the rendering techniques discussed in the course (ray tracing, radiosity, and RenderMan). No prior knowledge of parallel or distributed processing is assumed, though previous experience with these topics is helpful.

Topics

Basic issues: load-balancing, task subdivision, communication and migration, and data management. Rendering techniques and hardware in parallel systems. Several successful applications that demonstrate real practical examples of parallel rendering.

Organizer

Alan Chalmers
University of Bristol

Lecturers

Alan Chalmers
University of Bristol
Timothy A. Davis
Clemson University
Toshi Kato
Square USA
Erik Reinhard
University of Utah

Schedule

- 8:30** Introduction
Davis
- 8:40** Parallel/Distributed Rendering Issues
Chalmers
- 9:25** Classification of Parallel Rendering Systems
Davis
- 9:50** Practical Applications
Davis
- 10:15** Break
- 10:30** Getting the Most From Your Machine
Reinhard
- 11:10** The "Kilauea" Massively Parallel Global Illumination Renderer
Kato
- 11:55** Summary
Chalmers
- 12:05** Discussion and Questions
All

Half Day
8:30 am – 12:15 pm

Ballroom C1 & C2

23

Recent Advances in Non-Photorealistic Rendering for Art and Visualization



A concise introduction to non-photorealistic rendering (NPR): generation of artistic imagery and perceptually effective scientific visualization. This course delivers working knowledge of fundamental NPR techniques and some of the advanced approaches at the forefront of NPR research.

Prerequisites

Basic understanding of computer graphics and visualization.

Topics

Understanding NPR, the relevance of visual perception and artistic techniques to NPR, and appropriate use of NPR. Introduction of a suite of fundamental techniques for generating NPR imagery. Brush-stroke rendering, style rendering, paint-inspired techniques, mixing photorealistic rendering and NPR, hardware-accelerated NPR, and parallel NPR.

Organizer

Kwan-Liu Ma
University of California, Davis

Lecturers

Aaron Hertzmann
University of Washington
Victoria Interrante
University of Minnesota
Eric B. Lum
Kwan-Liu Ma
University of California, Davis

Schedule

- 8:30** Introduction
Ma
- 8:40** NPR and Scientific Visualization
Interrante
- 9:40** Stroke-Based NPR
Hertzmann
- 10:15** Break
- 10:30** Example-Based NPR
Hertzmann
- 11:05** Interactive NPR
Lum
- 12:05** Open Discussions
Ma

Monday, 22 July

Half Day

CAL/Room 214CD

10:30 am – 3:15 pm

24

Introduction to SVG and SMIL



Scalable Vector Graphics (SVG) and Synchronized Multimedia Integration Language (SMIL) are XML-based languages for representing interactive, graphical documents. In this course, attendees learn to author presentations in both SVG and SMIL. The first half of each module is a lecture, followed by hands-on exercises.

Prerequisites

Basic understanding of HTML and XML. Suggested prerequisite: XML Basics for XHTML, SVG, and SMIL.

Topics

Module 1: Intro to SMIL (purpose, scope, and intent), players and their idiosyncrasies, SMIL syntax, SMIL 2.0 modules, XHTML and SMIL, exercises.

Module 2: Intro to SVG (purpose, scope, and intent), SVG Adobe plug-in, SVG syntax, SVG and SMIL, exercises.

Organizer

Kathy Barshatzky
SAIC

Lecturers

Kathy Barshatzky
SAIC
Brian Kromrey
Information Aesthetics

Schedule*Module 1 – Introduction to SMIL*

- 10:30** Introduction
Barshatzky
- 10:35** Players
Barshatzky
- 10:40** Basic Document Structure
Barshatzky
- 11:05** Modules
Barshatzky
- 11:10** Animation
Barshatzky
- 11:20** Exercises
Kromrey
- Noon** Exercise Solutions, Questions and Answers
Barshatzky and Kromrey
- 12:15** Lunch
- Module 2 – Introduction to SVG*
- 1:30** Introduction
Barshatzky
- 1:35** Players
Barshatzky
- 1:40** Basic Document Structure
Barshatzky
- 1:45** Basic Shapes
Barshatzky
- 1:55** Defs and Grouping
Barshatzky
- 2:05** Interactivity, Scripting, Event Handling, and Animation
Barshatzky
- 2:20** Exercises
Kromrey
- 3:00** Exercise Solutions, Questions and Answers
Barshatzky and Kromrey

Half Day

River Room 001

1:30 – 5:15 pm

25

Using Tensor Diagrams to Represent and Solve Geometric Problems



Introduction to tensor diagrams, a really cool algebraic manipulation tool that can help solve many problems in analytic geometry.

Prerequisites

Familiarity with homogeneous coordinate geometry and basic matrix operations. Distaste for page-long algebraic expressions.

Topics

Review of homogeneous coordinate math. Notational problems with matrices. Einstein Index notation. How tensor diagrams represent basic operations. Application of tensor diagrams to 1D homogeneous equations (polynomials), 2D homogeneous equations (curves), 3D homogeneous equations (surfaces). Unsolved (at least to the knowledge of the speaker) problems.

Organizer/Lecturer

James F. Blinn
Microsoft Corporation

Schedule*Module 1 – Basic Tools*

- 1:30** Problems With Conventional Notation
Blinn
- 1:45** Overview of Tensor Diagrams
Blinn
- 2:30** Substitution and Unknown Roots
Blinn
- 2:50** The Epsilon-Delta Identity
Blinn
- 3:15** Break
- Module 2 – Applications*
- 3:30** 1D Homogeneous Problems (Polynomials)
Blinn
- 4:00** 2D Homogeneous Problems (Curves)
Blinn
- 4:45** 3D Homogeneous Problems (Surfaces)
Blinn
- 5:00** Review of Main Points and Unsolved Problems
Blinn

Room 007AB

Half Day
1:30 – 5:15 pm

26

Light Interaction With Plants



Physically and biologically based models of light interaction with foliar tissues. This course provides implementation details and background information that are often omitted from publications. The emphasis is on scientific issues that must be addressed to achieve a synthesis of realistic and predictable plant images.

Prerequisites

Familiarity with rendering techniques such as ray tracing and path tracing. Working knowledge of basic optics concepts and radiometric terms. Experience with Monte Carlo methods is helpful, but not required.

Topics

Spectrophotometric and goniophotometric measurements, biological factors that affect scattering and absorption of light by plants, models used in botany and remote-sensing applications, and biologically based models aimed at rendering applications. Advanced components of this course will address accuracy and performance issues.

Organizers/Lecturers

Gladimir Baranoski
University of Waterloo
Jon G. Rokne
University of Calgary

Schedule

- 1:30** Introduction
Rokne
- 1:35** Measurement Procedures
Rokne
- 2:00** Biological Issues
Rokne
- 2:20** Review of Models Used in Botany and Remote Sensing Applications
Baranoski
- 3:15** Break
- 3:30** The Multiple-Layer Scattering Model (Hanrahan and Krueger, 1993)
Baranoski
- 3:45** The Algorithmic Reflectance and Scattering Model (Baranoski and Rokne, 1997)
Baranoski
- 4:20** The Foliar Scattering Model (Baranoski and Rokne, 2001)
Rokne
- 4:45** What is Next?
Rokne
- 5:00** Summary
Rokne
- 5:05** Panel Discussion
Baranoski and Rokne

Ballroom C1 & C2

Half Day
1:30 – 5:15 pm

27

Recreating the Past



Recent developments in computer graphics and interactive techniques are providing powerful tools for modeling multi-dimensional aspects of data gathered by archaeologists. This course addresses the problems associated with reconstructing archaeological and heritage sites with computer systems and evaluating the realism of the resultant models. The crucial questions: are the results misleading, and are we in fact misinterpreting the past.

Prerequisites

An interest in "recreating the past" and a basic knowledge of computer graphics. No prior knowledge of laser scanning, lighting simulation, or visual perception evaluation is assumed, although it is helpful.

Topics

Creating models of archaeological sites, including laser scanning; very realistic lighting simulation; quantifying the realism of the results using human visual perception and psychophysical methods; valid interpretation of the results by archaeologists and general public. All topics are illustrated by case studies.

Organizers

Alan Chalmers
Kate Devlin
University of Bristol

Lecturers

Duncan Brown
Southampton City Heritage
Alan Chalmers
Kate Devlin
University of Bristol
Paul Debevec
USC Institute for Creative Technologies
Philippe Martinez
École Normale Supérieure
Greg Ward
Exponent

Schedule*Module 1 – Creating the Past*

- 1:30** Introduction to Recreating the Past
Chalmers
- 1:50** Creating the Models
Debevec and Martinez
- 2:40** Very Realistic Lighting Simulation
Ward and Brown

3:15 Break*Module 2 – Interpreting the Past*

- 3:30** Quantifying Realism
Chalmers
- 4:00** Interpretation of the Models
Brown and Devlin
- 4:40** Conclusion and Summary
Chalmers and Martinez
- 5:00** Discussion and Questions
All

Full Day

Monday, 22 July
Room 207
1:30 – 5:15 pm

Tuesday, 23 July
CAL/Room 214CD
8:30 am – 12:15 pm

28

Motion Capture: Pipeline, Applications, and Use



An introduction to motion capture, from initial planning to final mapping of data to characters. Various uses of motion capture, including dance, human-motion analysis and recognition, character animation, and facial animation are presented. Using Maya, attendees gain hands-on experience with applying motion to characters.

Prerequisites

Basic knowledge of computer animation concepts. Familiarity with an animation package is beneficial for the CAL sessions.

Topics

Overview of motion-capture technologies and pipeline, strategies for successful captures, various applications of motion capture, and typical problems encountered. CAL sessions cover data formats for motion capture; importing acclaim, bhv, and c3d files; constraining motion capture to existing models; and motion blending and warping.

Organizer

Suba Varadarajan
The Ohio State University

Lecturers

Charlotte Belland
James W. Davis
Suba Varadarajan
The Ohio State University
Michael Gleicher
University of Wisconsin

Barbara Helfer

Scott King
University of Otago

Schedule

Monday, 22 July – Part 1

Module 1 – Motion Capture Pipeline

- 1:30** Introduction
Varadarajan
- 1:40** Motion Capture: History, Systems, and Pipeline
Varadarajan
- 2:25** What Happens to Your Data After Its Shot
Gleicher

3:15 Break

Module 2 – Motion Capture Applications

- 3:30** Capturing Marceau
Varadarajan
- 3:55** Computer Analysis and Recognition of Human Actions Using Motion Capture
Davis
- 4:20** Motion Capture for Facial Animation Research
King
- 4:45** Mocap Game Reserve
Belland

Tuesday, 23 July – Part 2

Module 3 – Applying Motion Capture to Characters

- 8:30** - Introduction
 - Motion Capture Data Formats
 - Importing Acclaim Files
Belland, Helfer, and Varadarajan

10:15 Break

Module 4 – Binding and Looping Clips

- 10:30** - Binding Models to Acclaim Skeleton
 - Looping Clips
Belland, Helfer, and Varadarajan

Full Day

Room 206
8:30 am – 3:15 pm

CAL/Room 214CD
3:30 – 5:15 pm

29

Beyond Blobs: Recent Advances in Implicit Surfaces



Recent advances in implicit surfaces for shape modeling, computer vision, and medical visualization, and how implicit surface methods can represent polygonal objects, sharp features, volumetric medical data, noisy computer-vision data, and shape morphing. Tools include variational methods, level sets, and Morse theory, as well as a new freely available implicit surfaces library that can be used to implement these techniques.

Prerequisites

Basic knowledge of 3D computer graphics and some understanding of elementary linear algebra. Familiarity with basic implicit surface techniques is useful, but not required.

Topics

Generating implicit surfaces that interpolate 3D point data, using implicit surfaces in shape transformation, surface reconstruction from computer-vision data, medical applications, modern level sets and digital Morse theory, and a library of software tools for interactive modeling with implicit surfaces.

Organizers

Terry S. Yoo
National Institutes of Health
Greg Turk
Georgia Institute of Technology

Lecturers

H. Quynh Dinh
Greg Turk
Georgia Institute of Technology
John C. Hart
University of Illinois at Urbana-Champaign
James F. O'Brien
University of California, Berkeley
Ross Whitaker
University of Utah
Terry S. Yoo
National Institutes of Health

Schedule

Module 1

- 8:30** Interpolating Implicit Surfaces
Turk
- 9:30** Shape Transformation
O'Brien
- 10:15** Break

Module 2

- 10:30** Implicit Surfaces in Medicine
Yoo
- 11:20** Implicit Surfaces for Computer Vision
Dinh

12:15 Lunch

Module 3

- 1:30** Computational Topology for Graphics
Hart
- 2:15** An Interactive Implicit Surface Modeler
Hart

3:15 Break

Module 4

- 3:30** Level Sets: Introduction
Whitaker
- 4:15** Applications of Level Sets
Whitaker

Monday, 22 July

Full Day

Room 006CD

8:30 am – 5:15 pm

30

Character Setup From Rig Mechanics to Skin Deformations: A Practical Approach



How body rigs, face rigs, pipeline integration, and muscles are used in character setup for rig mechanics and skin deformations, with an emphasis on practical, production-tested approaches that use off-the-shelf products.

Prerequisites

Working knowledge of high-end 3D software and understanding of basic 3D animation concepts such as inverse and forward kinematics, key frames, geometry types, and deformations. Highly recommended: ability to script and write expressions. Working knowledge of Maya or Softimage XSI is an advantage.

Topics

Module 1: rotation order, extra controls, selection masks, mirroring controls, feet and leg setup, IK fingers, limit notification, automatic positioning of animation controls. Module 2: multi-layered rig setup, blending between behavioral and hand keyframe animation. Module 3: Improving skin deformations, workflows, bones geometry (acquiring and reassigning skin weights), muscles (anatomy and layering deformer). Module 4: Face rig (facial modeling, modeling in polygons, anatomy, subdivided surfaces, proper arrangement of geometry), jaw setup (multiple-joint jaw rigs with control expressions), facial deformer (using wire deformer, lattices, and blend targets to create expressions).

Organizer

Yaron Canetti
Summer Breeze

Lecturers

Yaron Canetti
Summer Breeze
Mark A. Piretti
Blue Sky Studios
Raffaele Scaduto-Mendola
DreamWorks SKG
Jason Schleifer
Weta Digital Ltd.

Schedule

Module 1 – Character Animation Rig Mechanics

8:30 Introduction
Schleifer

10:15 Break

Module 2 – Building A Better Puppet

10:30 Introduction
Scaduto-Mendola

12:15 Lunch

Module 3 – Improving Skin Deformations and the Integration of Muscles in a Pipeline

1:30 Skin Deformation System Overview
Canetti

3:15 Break

Module 4 – Facial Setup

3:30 Face Rig
Piretti

Full Day

Room 103

8:30 am – 5:15 pm

31

Interactive Geometric Computations Using Graphics Hardware



The increasing performance capabilities of 3D graphics rasterization have made it an excellent candidate for solving complicated geometric problems, beyond image synthesis. This course provides an overview of hardware features, issues in programming, and applications to various geometric problems, including visibility, collisions, simplification, motion planning, etc.

Prerequisites

A first course in computer graphics and some background in graphics software APIs. Familiarity with some of the geometric problems: visibility, collision detection, motion planning, and simplification.

Topics

Graphics rasterization hardware; OpenGL graphics hardware (features and programming); novel approaches to geometric problems; algorithms for visibility and occlusion culling, global visibility, shadow volumes and mapping, 2D map simplification, depth contours, collision detection, penetration depth estimation, and path planning; issues in programming graphics hardware; processing discretized outputs and applications to interactive computer graphics, robot-motion planning, physically based modeling, and data visualization.

Organizer

Dinesh Manocha
University of North Carolina at Chapel Hill

Lecturers

Michael Doggett
ATI Technologies Inc.
Ned Greene
Mark Kilgard
NVIDIA Corporation
Ming C. Lin
Dinesh Manocha
University of North Carolina at Chapel Hill
Shankar Krishnan
AT&T Research Labs

Schedule

8:30 Introduction and Course Overview
Manocha

9:00 Overview of Graphics Hardware
Kilgard

9:45 Programmability Features of Graphics Hardware
Doggett

10:15 Break

10:30 Fast Voronoi Computations Using Graphics Hardware Rasterization Hardware
Manocha

11:15 Shadow Volumes and Mapping
Kilgard

12:15 Lunch

1:30 Proximity and Path Planning Computations using Graphics Hardware
Lin

2:15 Digital Geometry Processing using Graphics Hardware
Krishnan

3:15 Break

3:30 Visibility Culling using Graphics Hardware
Greene

4:30 Interactive Walkthroughs and Conclusions
Manocha

Monday, 22 July

Full Day

Ballroom A

8:30 am – 5:15 pm

32

Stuart Little 2: Let the Feathers Fly



An in-depth look into creation of the live-action feature film "Stuart Little 2." The course emphasizes lessons learned from the first "Stuart Little" and new techniques used in the sequel, including those required to create the film's digital birds and their CG environments.

Prerequisites

Intermediate understanding of 3D modeling and rendering terms and techniques. Exposure to Pixar's Photorealistic RenderMan shading language and procedural geometry techniques is helpful but not required. Some familiarity with 2D compositing terms and techniques is useful.

Topics

Visual effects production process, character design, character animation, digital cinematography, CG fur, CG feathers, CG clothing, CG environments and props, effects animation and rendering, compositing, digital film finishing, production pipeline optimization.

Organizer

Rob Engle
Sony Pictures Imageworks

Lecturers

Eric Armstrong
Rob Bredow
Jerome Chen
Rob Engle
Bob Peitzman
Jay K. Redd
Sony Pictures Imageworks

Schedule

Module 1 – Show Overview

8:30 Introduction; Scope of the Show; New York Backdrop; New Technical and Artistic Requirements; Review of Fur and Cloth Techniques
Chen and Redd

10:15 Break

Module 2 – Character Design and Animation

10:30 Character Design; Character Animation; Cat Animation
Armstrong and Redd

12:15 Lunch

Module 3 – Feathers and Digital

1:30 Environments CG Feathers; CG Clothing; CG Environments, Vehicles and Props
Bredow and Engle

3:15 Break

Module 4 – Putting It All Together

3:30 Compositing; Digital Film Finishing; Production Pipeline Optimization; A Day in the Life of "Stuart Little 2"
Bredow, Engle, and Peitzman

Full Day

Room 217BCD

8:30 am – 5:15 pm

33

Introduction to Computer Graphics



This course is designed to ease newcomers into computer graphics and the whole SIGGRAPH conference experience. It covers how graphics works (hardware and software) and some key application areas such as modeling, rendering, animation, visualization, virtual reality, and Web-based graphics. It also includes many illustrative examples, both static and dynamic, both live and taped.

Prerequisites

A basic understanding of computers and algebra.

Topics

Computer graphics from data to photons. The fundamentals of geometry, interaction, hardware, modeling, rendering, and animation. Applications of computer graphics such as scientific visualization, virtual reality, and graphics on the Web. How to attend a SIGGRAPH conference, to help attendees navigate the week-long schedule.

Organizer

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

Lecturers

Mike Bailey
University of California at San Diego
San Diego Supercomputer Center
Andrew Glassner
Coyote Wind Studios

Schedule

8:30 Welcome and Overview
Bailey

9:00 Modeling
Glassner

10:15 Break

10:30 Rendering
Glassner

11:15 Graphics Display Hardware
Bailey

12:15 Lunch

1:30 Animation
Glassner

2:30 Scientific and Data Visualization
Bailey

3:15 Break

3:30 More Scientific and Data Visualization
Bailey

3:30 Graphics on the World Wide Web
Bailey

3:45 Virtual Reality
Bailey

4:00 How to Attend a SIGGRAPH
Bailey

4:20 Finding Additional Information
Bailey

4:30 Questions and General Discussion
Bailey and Glassner

Room 006AB **Full Day**
8:30 am – 5:15 pm

34

Building Interactive Spaces



A survey of traditional and emerging technologies used for design and construction of new forms of immersive and interactive physical spaces for offices, homes, and location-based entertainment. Basic concepts are explored in four case studies and a participatory design exercise.

Prerequisites

No programming or specific mathematical background is required. This course is appropriate for beginners and interactive-experience professionals who want to review the latest technologies and techniques. Environmental and interactive artists are also encouraged to attend.

Topics

Definition and examples of interactive spaces; sensing technologies (visual, auditory, and haptic); output technologies (projectors, displays, speakers, lighting, and physical actuators); design and evaluation of interfaces for interactive physical spaces; architecture, control, and authoring of experiences for interactive spaces; case studies (a children's bedroom, an office, a home environment, and a theatrical stage).

Organizers

Claudio Pinhanez
IBM T.J. Watson Research Center
Stephen Intille
Massachusetts Institute of Technology

Lecturers

Oliver Bimber
Fraunhofer CRG, Inc.
Stephen Intille
Joe Paradiso
Massachusetts Institute of Technology, Media Laboratory
Claudio Pinhanez
IBM T.J. Watson Research Center

Schedule

- 8:30** Interactive Spaces: Concept
Pinhanez and Intille
- 9:00** Output Technologies
Pinhanez
- 9:45** Case Study 1: "BlueSpace"
Pinhanez
- 10** Discussion
- 10:15** Break
- 10:30** Sensing Technologies
Intille
- 11:15** Case Study 2: "The KidsRoom"
Intille
- 11:30** Sensing and Output in Emerging Technologies
Bimber and Paradiso
- Noon** Discussion
- 12:15** Lunch
- 1:30** Interface Design for Future Environments
Intille
- 2:00** Rapid Prototyping Interface Design Exercise
Participants
- 3:00** Discussion
- 3:15** Break
- 3:30** Case Study 3: "House_n"
Intille
- 3:45** Authoring and Controlling Case Study 4: "It/!"
Pinhanez
- 4:45** Final Discussion

Room 007CD **Full Day**
8:30 am – 5:15 pm

35

Super-Size It! Scaling Up to Massive Virtual Worlds



We're now building virtual worlds that are too large to comprehend: too many entities, commanded by too many players, filling too large a space, run across too many networks. This course describes popular approaches to ameliorating the indigestion common to these tremendously complex artificial spaces. It focuses on issues related to very-large-terrain spaces, interaction and collision among thousands of entities, scaling artificially intelligent behavior, and managing thousands of networked actors.

Prerequisites

Some familiarity with the course topics: collision, rendering, artificial intelligence, and networking.

Topics

The major issues that must be managed in very complex, interactive virtual worlds with thousands of entities: interacting with large-terrain datasets; communications among many entities and users; simulation of intelligence; physical interactions among many entities; semantic interactions among many entities.

Organizer

Michael Capps
Naval Postgraduate School

Lecturers

Michael Capps
Don McGregor
Naval Postgraduate School
Stephen Chenney
University of Wisconsin
David Holmes
Numerical Design Limited
Zachary Simpson
Marek Teichmann
Critical Mass Labs, Inc.
Thatcher Ulrich
Oddworld Inhabitants, Inc.

Schedule

- 8:30** Introduction to Massive Networked Environments
Capps
- 9:00** Networked Dynamic Entities
McGregor
- 10:15** Break
- 10:30** Network Infrastructure of America's Army: Operations
Capps
- 11:15** Simulation Level of Detail
Chenney
- 12:15** Lunch
- 1:30** Introduction to Massive Dynamic Worlds
Capps
- 1:45** Rendering Massive Terrains
Ulrich
- 2:30** Massive Terrain-Filled Worlds
Holmes
- 3:15** Break
- 3:30** Collision in Massive Worlds
Teichmann
- 4:15** Interaction in Massive Communities
Simpson

Monday, 22 July

Full Day

Ballroom C3

8:30 am – 5:15 pm

36

Real-Time Shading



Not long ago, real-time procedural shading languages were a fantasy. Now they are not just a reality, they have been achieved through several approaches. In this course, leading researchers present the strengths and weaknesses of their methods and offer a glimpse of the future.

Prerequisites

Working knowledge of a modern real-time graphics API like OpenGL. Familiarity with the concepts of procedural shading and shading languages.

Topics

How interactive procedural shading languages can be implemented using advanced programmable hardware, using more modest extensions to graphics hardware, or even with existing graphics hardware. SIMD rendering hardware, parameterized and procedural solid texturing, hardware extensions, and multi-pass rendering.

Organizer

Marc Olano
SGI

Lecturers

John C. Hart
University of Illinois at Urbana-Champaign
Wolfgang Heidrich
The University of British Columbia
Bill Mark
NVIDIA Corporation
Marc Olano
SGI
Ken Perlin
New York University

Schedule

- 8:30** Introduction
Olano
- 8:50** Noise
Perlin
- 9:30** Hardware Shading Effects
Heidrich
- 10:15** Break
- 10:30** In the Beginning: the Pixel Stream Editor
Perlin
- 11:00** PixelFlow Shading
Olano
- 11:40** Procedural Solid Texturing
Hart
- 12:15** Lunch
- 1:30** Shading Through Multi-pass Rendering
Olano
- 2:05** Single Pass and Multiple Complex Pass Shading
Mark
- 2:45** Sampling Procedural Shaders
Heidrich
- 3:15** Break
- 3:30** Multi-pass RenderMan
Olano
- 4:10** Analysis of Shading Pipelines
Hart
- 4:45** Panel-Style Questions and Answers
All

Tuesday, 23 July

Tutorial

Room 207

8:30 – 10:15 am

37

Performance OpenGL: Platform-Independent Techniques



Platform-independent techniques for improving the correctness and performance of OpenGL applications, including an in-depth analysis of each phase of the OpenGL's geometry and rasterization pipelines, and tools and other hints for improving OpenGL's performance.

Organizer

Dave Shreiner
SGI

Lecturers

Brad Grantham
Dave Shreiner
SGI

Schedule

- 8:30** Introduction and Performance Bottleneck Analysis
Grantham
Shreiner
- 9:00** OpenGL Pipeline Performance Analysis
Grantham
Shreiner
- 9:35** Optimization Techniques and Analysis
Grantham
Shreiner
- 10:10** Questions and Answers
Grantham
Shreiner

Room 206

Tutorial
3:30 – 5:15 pm

38

Introduction to the Impact of Public Policy on Computer Graphics



This first course in the policy sequence provides computer graphics developers, users, and researchers with an overview of the impact of policy issues that are particularly relevant to computer graphics: use and protection of intellectual property, digital copy protection, deployment of broadband telecommunications, convergence of computing and television, and research support.

Prerequisites

No formal prerequisites, but an interest in the use of computer graphics by the general public and how policy affects our professional lives is useful. Only minor knowledge of computer graphics technology is required.

Topics

Overview of computing and public policy, deployment of broadband telecommunications, use and protection of intellectual property, digital copy protection, convergence of computing and television, research support, and public policy activities.

Organizer

Robert A. Ellis

Lecturers

Robert A. Ellis

Myles Losch

Barbara Simons

Stanford University

Schedule

- 3:30** Introduction to Public Policy
Ellis and Simons
- 3:35** Overview of Computing and Public Policy
Simons and Ellis
- 4:00** Deployment of Broadband Telecommunications
Ellis
- 4:10** Use and Protection of Intellectual Property (IP)
Simons
- 4:20** Digital Copy Protection
Losch and Ellis
- 4:30** Convergence of Computing and Television
Ellis
- 4:40** Research Support
Ellis
- 4:50** Public Policy
Ellis and Simons
- 5:00** Discussion
Ellis and Simons

Room 006AB

Half Day
8:30 am – 12:15 pm

39

Acquiring Material Models Using Inverse Rendering



Recent work, relevant background information, and specific practical methods of capturing the appearance of materials from sets of photographs.

Prerequisites

Working knowledge of how materials are described for realistic rendering, including texture maps and the BRDF. Familiarity with shading and reflectance models and their use in rendering.

Topics

Methods for acquiring material properties from photographs. First session: inverse methods for determining material properties in complex scenes; inverse rendering in a signal-processing framework. Second session: capturing spatially varying BRDFs; estimation of BSSRDF and BTF models.

Organizers

Steve Marschner
Ravi Ramamoorthi
Stanford University

Lecturers

Samuel Boivin
University of Toronto
George Drettakis
INRIA Sophia-Antipolis
Hendrik P. A. Lensch
Max-Planck-Institut für Informatik
Steve Marschner
Ravi Ramamoorthi
Stanford University
Yizhou Yu
University of Illinois at Urbana-Champaign

Schedule

- Inverse Methods*
- 8:30** Introduction and Preliminaries
Marschner
- 8:45** Determining Reflectance for Interactive Relighting
Drettakis
- 9:15** Fitting Complex Materials From a Single Image
Boivin
- 10:00** Complex Illumination; Signal-Processing Framework
Ramamoorthi
- 10:15** Break
- Complex Material Properties*
- 10:30** Measuring Spatial Variation With Complex BRDFs
Lensch
- 11:00** Estimating and Synthesizing BTF Models
Yu
- 11:30** Measuring BSSRDF
Marschner
- Noon** Questions and Answers
All

Tuesday, 23 July

Half Day

Room 006CD

8:30 am – 12:15 pm

40

The Web as a Procedural Sketchbook



Ideas that effectively integrate new technology with new visual design can be quickly developed and published on the Web, using only Java applets. Using a selection of applets as illustrative examples, this course teaches, step by step, how to rapidly develop and publish new ideas on the Web.

Prerequisites

The first module requires no prerequisites. The second module requires knowledge of programming on the level of C or Java or an equivalent language. Attendees may benefit more from some subtopics if they have a knowledge of graphics.

Topics

Good design principles for short, focused “idea sketches” that require some degree of procedural simulation. Designing for small children, technologists, or people with disabilities.

Organizer/Lecturer

Ken Perlin
New York University

Schedule

Module 1: Focus on Design

- 8:30** Overview
Perlin
- 8:35** Discussion of Principles
Perlin
- 8:55** Examples
Perlin
- 9:55** Happy Accidents
Perlin
- 10:05** Summing up
Perlin
- 10:15** Break
- Module 2: Focus on Technology*
- 10:30** Overview of Technology Module
Perlin
- 10:35** Principles
Perlin
- 10:45** Tools
Perlin
- 11:10** Animation
Perlin
- 11:20** Unusual Math
Perlin
- 11:30** Where Do You Put The Content?
Perlin
- Noon** Conclusions
Perlin

Half Day

Room 007AB

8:30 am – 12:15 pm

41

Non-Traditional Modeling



The state of the art in three areas of modeling that might be considered non-traditional; procedural-volume modeling, implicit-surface modeling, and point-based modeling. The course presents methods for designing, storing, manipulating, and rendering these models, and summarizes their advantages, their practical applications, and future directions for research.

Prerequisites

Familiarity with standard graphics techniques for modeling and rendering. Familiarity with parametric and polygon modeling, procedural techniques, and particle systems is helpful but not required.

Topics

General procedural modeling techniques; algorithmic representations of geometry; L-systems, fractals, and procedural cloud modeling; data structures and algorithms for implicit modeling, including controlled blending techniques, precise contact modeling, constructive solid geometry, space warping; point-based rendering methods; spectral processing of point-sampled geometry.

Organizer

Brian Wyvill
University of Calgary

Lecturers

David S. Ebert
Purdue University
Marcus Gross
ETH Zürich
Brian Wyvill
University of Calgary

Schedule

- 8:30** Introduction
Wyvill
- 8:45** Procedural Volumetric Modeling
Ebert
- 9:45** Implicit Modeling - Beyond Soft Objects
Wyvill
- 10:15** Break
- 10:30** Implicit Modeling - Beyond Soft Objects (Continued)
Wyvill
- 11:00** Point Modeling
Gross
- Noon** Questions and Answers
Wyvill, Ebert, and Gross

Room 207
CAL/Room 214CD
Half Day
10:30 am – 12:15 pm
1:30 – 3:15 pm

42

High-Quality Volume Graphics on Consumer PC Hardware



How to leverage new features of modern graphics hardware to build interactive, high-quality volume rendering applications for scientific visualization and entertainment. The course covers many aspects of volume rendering, including illumination, transfer function design, interaction, hardware-accelerated filtering, and effects. And it provides attendees with code samples and implementation details.

Prerequisites

Basic programming skills and familiarity with OpenGL. Basic knowledge of graphics hardware is helpful but not required.

Topics

Physical background (transport theory of light and sampling theory, ray casting). Texture-based volume rendering. Illumination (non-polygonal shaded isosurfaces, per-pixel illumination, texture-dot products, diffuse and specular light maps). Transfer functions. Transfer function design. Advanced techniques (pre-integrated classification, pixel-shader techniques, rasterization isosurfaces, hardware-accelerated high-quality filtering, Perlin noise techniques, and volumetric FX).

Organizer

Joe M. Kniss
 University of Utah

Lecturers

Klaus Engel
 Universität Stuttgart
Markus Hadwiger
 VRVis Zentrum für Virtual Reality und Visualisierung Forschungs GmbH
Joe Kniss
 University of Utah

Christof Rezk-Salama
 Friedrich-Alexander-Universität Erlangen-Nürnberg

Schedule

Module 1 – Basic Hardware Volume Rendering

- 10:30** Introduction
Hadwiger
- 10:45** Texture-Based Methods
Hadwiger
- 11:20** Illumination Techniques
Rezk-Salama
- 12:15** Lunch

Module 2 – Advanced Hardware Volume Rendering

- 1:30** Classification
Kniss
- 2:00** Transfer Function Design
Kniss
- 2:30** Advanced Techniques
Engel
- 3:15** Questions and Answers
All

Room 207
Half Day
1:30 – 5:15 pm

43

A Practical Guide to Global Illumination Using Photon Mapping



A detailed description of the photon-mapping algorithm for efficient simulation of global illumination, including color bleeding, caustics, participating media, and subsurface scattering. The purpose of the course is to provide the practical insight necessary for using and implementing photon mapping.

Prerequisites

Good working knowledge of global-illumination algorithms (in particular Monte Carlo ray-tracing methods).

Topics

Efficient and practical techniques for generating and using photon maps: photon tracing, scattering of photons, building the photon map, rendering of caustics, color bleeding and participating media (including subsurface scattering), use of visual importance, and practical tips to make things more efficient. Review of the latest research in photon mapping and animations that demonstrate the use of photon mapping in movie production.

Organizer

Henrik Wann Jensen
 Stanford University

Lecturers

Per H. Christensen
 Pixar Animation Studios
Henrik Wann Jensen
 Stanford University
Toshiaki Kato
 Square USA
Frank Suykens
 Katholieke Universiteit Leuven

Schedule

- 1:30** Introduction and Welcome
Jensen
- 1:35** Overview of Global Illumination
Jensen
- 1:50** Photon Tracing: Building the Photon Maps
Jensen
- 2:30** Rendering Using Photon Mapping
Jensen
- 3:15** Break
- 3:30** Visual Importance
Suykens
- 4:05** Faster Photon Mapping
Christensen
- 4:35** Photon Mapping at SquareUSA (the Kilauea Renderer)
Kato
- 5:05** Final Remarks and Questions
All

Tuesday, 23 July

Half Day

Room 006AB

1:30 – 5:15 pm

44

Image-Based Modeling



As the complexity of image-based models grows, researchers are facing increasing challenges associated with collecting and processing massive amounts of radiance data. This course is an overview of new technologies for collecting and analyzing densely sampled radiance data and building image-based models that are compact, accurate, and easy to render.

Prerequisites

Basic knowledge of rendering and illumination, including reflectance models, shading, and texture mapping. Some knowledge of 3D modeling from images is helpful but not required.

Organizer

Radek Grzeszczuk
Intel Corporation

Lecturers

Jean-Yves Bouguet
Radek Grzeszczuk
Intel Corporation

Leonard McMillan
Massachusetts Institute of Technology
Ko Nishino

University of Tokyo

Hanspeter Pfister
Mitsubishi Electric Research Lab

Marc Pollefeys
Katholieke Universiteit Leuven

Schedule

- 1:30** Introduction
Grzeszczuk
Re-Rendering From a Dense/Sparse Set of Images
Nishino
- 2:15** Acquisition of Surface Light Fields
Bouguet
- 2:45** Hardware-Accelerated Rendering of Surface Light Fields
Grzeszczuk
- 3:15** Break
- 3:30** Acquisition of Light Field Data using Hand-Held Camera
Pollefeys
- 4:15** Image-Based 3D Photography Using Opacity Hulls (Part 1)
McMillan
- 4:45** Image-Based 3D Photography Using Opacity Hulls (Part 2)
Pfister

Half Day

Room 006CD

1:30 – 5:15 pm

45

Sounds Good to Me! Computational Sound for Graphics, Virtual Reality, and Interactive Systems



Concepts, models, techniques, and systems for simulation and rendering of sound in virtual environments. The focus is on real-time methods for spatializing sounds in interactive systems. Discussion includes both technical aspects of algorithms and practical aspects of applications. This course is appropriate for researchers interested in learning about sound simulation and developers interested in including spatialized sounds in their virtual environments.

Prerequisites

Some knowledge of signal processing and geometric computation.

Topics

Topics include simulating sound propagation (for example, ray tracing for sound), auralizing spatialized sounds (for example, multi-speaker output), and controlling perceptually-based reverberation models.

Organizers

Thomas Funkhouser
Princeton University

Lecturers

Thomas Funkhouser
Princeton University
Jean-Marc Jot
Creative Technology, Ltd.
Nicolas Tsingos
REVES/INRIA

Schedule

- Module 1 – Geometric Models*
- 1:30** Introduction
Funkhouser
- 1:45** Geometric Acoustic Modeling Methods
Funkhouser
- 2:10** Recent Work in Geometric Acoustic Modeling
Funkhouser
- 2:35** From Geometric Models to Spatialized Sound
Tsingos
- 2:55** 3D Auditory Displays
Tsingos
- 3:15** Break
- Module 2 – Perceptual Models*
- 3:30** Overview of Perceptual Models
Jot
- 3:55** Artificial Reverberation Algorithms
Jot
- 4:20** Standards, Tools, & Demonstrations
Jot
- 4:50** Conclusions and Future Directions
Tsingos
- 5:00** Questions
Funkhouser, Jot, and Tsingos

Room 007AB

Half Day
1:30 – 5:15 pm

46

OpenGL 2.0



OpenGL 2.0 is a major upgrade to the preeminent cross-platform 3D graphics standard, OpenGL. This course presents a status report on the OpenGL 2.0 effort and an overview of all of the new features in the new version, including programmable shaders, programmable image formats, support for multipass rendering, better synchronization, and improved performance.

Prerequisites

Programming experience in C or C++ and some graphics programming experience are required. Working knowledge of OpenGL 1.3 is useful.

Topics

The vision for OpenGL 2.0; shading language overview; objects and memory management; synchronization and time control; OpenGL graphics requirements; OpenGL 2.0 shading language; compiling and running shaders; Shading language details; Shading language comparison.

Organizer

Randi J. Rost
3DLabs, Inc.

Lecturers

Evan Hart
Bill Licea-Kane
ATI Research, Inc.
Randi J. Rost
3DLabs, Inc.

Schedule

<i>Module 1: OpenGL 2.0 Overview</i>	
8:30	Introduction Background The Vision for OpenGL 2.0 Shading Language Overview Objects and Memory Management Synchronization and Time Control OpenML Graphics Requirements Open Issues Rost Break
10:15	Break
<i>Module 2: OpenGL 2.0 Shading Language</i>	
10:30	Overview Rost
10:40	- Compiling and Running Shaders - Shading Language Details Rost
11:25	Shading Language comparison Licea-Kane
11:55	Demos
12:05	Wrap-up and questions Rost
12:15	Lunch
<i>Module 3: OpenGL 2.0 Objects, Memory Management, and Synchronization</i>	
1:00	OpenGL 2.0 Objects Rost
2:00	Memory Management Lichtenbelt
2:30	Asynchronous OpenGL Kessenich
3:00	Demos
3:10	Wrap-up and questions Rost
3:15	Break
<i>Module 4: OpenGL 2.0 Other New Features, ISV update, and Roadmap</i>	
3:30	Pack/Unpack Processor Language Rost
4:00	Other OpenGL 2.0 Features ISVs and OpenGL 2.0 Hart
4:30	Additional Code Examples and Demos All
4:55	- OpenGL 2.0 Roadmap - Wrap-up and Questions Rost

Room 206
8:30 am – 3:15 pm

Full Day
CAL/Room 214CD
3:30 – 5:15 pm

47

Commodity Clusters for Immersive Projection Environments



Commodity clusters have become an attractive platform for powering immersive projection environments. This course presents practical hardware knowledge and free software tools that enable attendees to immediately use commodity clusters for virtual reality.

Prerequisites

Some familiarity with virtual reality technology. While no previous knowledge of cluster computing is assumed, attendees should have basic knowledge of computer programming and networking.

Topics

Understanding how the system characteristics of a commodity cluster affect its use for virtual reality and graphics. How to design, construct, and manage a commodity cluster from scratch. How to design, port, develop, and evaluate applications for the cluster platform.

Organizers

Hank Kaczmariski
University of Illinois at Urbana-Champaign
Marcelo Knorich Zuffo
Universidade de São Paulo

Lecturers

Camille Goudeseune
Hank Kaczmariski
Benjamin Schaeffer
University of Illinois at Urbana-Champaign
Philippe Augerat
Bruno Raffin
IMAG
Paulo Bressan
Luciano Soares
Marcelo Knorich Zuffo
Universidade de São Paulo

Schedule

8:30	Architecture Overview Schaeffer
8:50	Hardware Overview Kaczmariski
9:05	Software Overview Zuffo
9:25	I/O Device Integration Goudeseune
10:15	Break
10:30	Administration Overview Soares
10:50	Basic Hardware Set-Up Issues Raffin
11:15	Advanced Issues and Solutions Kaczmariski
11:30	Useful Devices Goudeseune
11:45	- Systems Administration - Software Development Methodologies Augerat
12:15	Lunch
1:30	Software Architecture Overview Schaeffer
1:45	WireGL Case Study Zuffo
2:00	Net Juggler Case Study Raffin
2:20	CORBA-Based Application Distribution Case Study Zuffo
2:40	- Syzygy Case Study - Examples of Implementing Applications Schaeffer
3:15	Break
3:30	Module IV: Hands-On Laboratory

Tuesday, 23 July

Full Day

Room 217BCD

8:30 am – 5:15 pm

48

Dynamic Media on Demand: Exploring Wireless and Wired Streaming Technologies and Content



This course highlights issues associated with streaming media technologies and delivery of dynamic media and 3D content in wired and wireless environments. It summarizes media architectures and media management (storage, retrieval, and indexing challenges) and compression, coding, and decoding issues. And it reviews protocols and strategies for transmitting content via local, metropolitan, and wide-area wired and wireless networking. Since small, portable, wireless gadgets are becoming ubiquitous, it also addresses multimedia (2D and 3D) rendering on handheld devices, phones, and other thin clients.

Prerequisites

Understanding of the fundamentals presented in an Introduction to Computer Graphics course and some prior experience in creating computer graphics content or a 3D application. Advanced knowledge of video compression techniques or networking infrastructure concepts is not necessary.

Topics

The course is presented in four modules: Overview of 2D and 3D streaming media in wired and wireless environments.

Organizer

Theresa-Marie Rhyne

North Carolina State University

Lecturers

Lars Bishop

David Holmes

Numerical Design Limited

Alan Turner

Pacific Northwest National Laboratory

Theresa-Marie Rhyne

North Carolina State University

Ron Vetter

University of North Carolina at Wilmington

Schedule

- 8:30** Module 1 – Overview of 2D & 3D Streaming Media in Wired & Wireless Environments
Rhyne
Case Study: Project Numina - A Multidisciplinary Application of Handheld Computers to Enhance Student Learning
Vetter
- 10:15** Break
- 10:30** Module 2 – Media Architectures, Management, and Exploitation
Turner
Case Study: Project Hurricane - Creating a 3D Engine for the Pocket PC Platform
Bishop and Holmes
- 12:15** Lunch
- 1:30** Module 3 – Continuous Media in Wired and Wireless Environments
Vetter
Case Study: SMIL Templates, Captioned Content, and Other Web Guides for Online Instruction
Rhyne
- 3:15** Break
- 3:30** Module 4 – Games and 3D Rendering on Handheld Devices
Bishop and Holmes
Case Study: Integrated Multimedia Information Capture, Management and Exploitation at the FBI
Turner

Full Day

River Room 001

8:30 am – 5:15 pm

49

Understanding Virtual Environments: Immersion, Presence, and Performance



People in immersive virtual environments often report that they are transported out of everyday physical reality to another world. The concept that describes this sense of transformed “presence” is important to understanding the engineering of virtual reality experiences, and it is thoroughly explored in this course.

Prerequisites

Some knowledge of experimental design and some personal experience with graphics displays and systems are helpful but not required.

Topics

Description and critical assessment of several approaches to defining and measuring presence within a virtual environment. Experimental methods for understanding causative factors. Implications for design and engineering of a highly presence-inducing virtual experience. Application examples from the clinical domain.

Organizer

Mel Slater

University College London

Lecturers

Frank Biocca

Michigan State University

Frederick P. Brooks, Jr.

University of North Carolina at Chapel Hill

Mary C. Whitton

Georgia Institute of Technology

Larry F. Hodges

University of Sussex

Katerina Mania

Stanford University

Mike Meehan

University College London

Mel Slater

Anthony Steed

University College London

Schedule

- 8:30** - A Model for Presence
- Measuring Presence
Slater
- 9:20** Presence and Usability
Steed
- 10:05** Discussion
Slater and Steed
- 10:15** Break
- 10:30** Physiological Measures in Training
Brooks
- 10:40** - Commonly Measured Responses
- Physiological Responses and Presence
- Collecting and Interpreting
- Physiological Data
Whitton and Meehan
- 12:05** Discussion
Brooks, Whitton & Meehan
- 12:15** Lunch
- 1:30** - Presence and Performance
- Spatial Awareness and Memory Tasks
Mania
- 2:15** Social Presence
Biocca
- 3:05** Discussion
Biocca & Mania
- 3:15** Break
- 3:30** - Designing and Application for Presence
- Presence as the Defining Factor
Hodges
- 4:20** The Design Process
Brooks
- 5:00** General Discussion
All

Wednesday, 24 July

Room 007CD

Full Day

8:30 am – 5:15 pm

50

Image Processing for Volume Graphics



This course explores the essential tools and techniques for processing volume data as part of rendering and visualization. It examines several aspects in depth: mathematical foundations of volume image processing, transfer function management, wavelets, shape modeling, and level-set techniques. Attendees are invited to bring their questions about their most difficult volume datasets.

Prerequisites

Basic knowledge of 3D computer graphics and an understanding of the basic principles of image processing.

Topics

The mathematics of the elements of effective volume visualizations and the processes by which they are created. Emerging topics in volume-data processing including level sets, shape extraction using adaptive implicit systems, and model-based segmentation.

Organizers

Terry S. Yoo

National Institutes of Health

Raghu Machiraju

The Ohio State University

Lecturers

Guido Gerig

University of North Carolina at Chapel Hill

Gordon Kindlmann

University of Utah

Raghu Machiraju

The Ohio State University

Torsten Möller

Simon Fraser University

Terry S. Yoo

National Institutes of Health

Schedule

Module 1 – Foundations of Filtering

8:30 Welcome and Overview
Yoo

8:40 Filtering and Frequency Fundamentals
Yoo

9:00 Sampling, Interpolation, and Filter Design
Möller

10:15 Break

Module 2 – Transfer Functions and Feature Detection

10:30 Transfer Function: Design and Management
Kindlmann

11:45 Feature Extraction
Machiraju

12:15 Lunch

Module 3 – Wavelets and Shape Models

1:30 Wavelets for Graphics and Visualization
Machiraju

2:15 Model Based Segmentation
Gerig

3:15 Break

Module 4 – Deformable Implicit Surfaces and Level Sets

3:30 Deformable Implicit Surfaces
Yoo

4:00 Level Sets
Whitaker

Room 206

Tutorial

10:30 am – 12:15 pm

51

Mathematical Optimization in Graphics and Vision



A conceptual analysis of problems in computer graphics and how to solve them using mathematical optimization methods. The tutorial includes examples of how optimization techniques are used in different areas of graphics and vision.

Prerequisites

Mathematical background in linear algebra and calculus of one and several variables. Computational background in algorithms. Basic knowledge of geometric modeling, animation, image processing, computer vision, and visualization.

Topics

Applications of combinatorial, continuous, variational and global optimization techniques to graphics and vision problems.

Organizer

Luiz Velho

Instituto de Matemática Pura e Aplicada

Lecturers

Paulo Cezar

Pinto Carvalho

Luiz Velho

Instituto de Matemática Pura e Aplicada

Schedule

10:30 Part 1: Optimization Problems in Graphics
Velho

11:20 Part 2: Overview of Optimization Techniques
Cezar and Carvalho

Wednesday, 24 July

Tutorial

Room 217BCD

10:30 am – 12:15 pm

52

Advanced Virtual Medicine: Techniques and Applications for Virtual Endoscopy



Virtual endoscopy is among the most active topics in virtual medicine and medical imaging. It focuses on training, planning, and diagnosis from view-points inside the body without an actual invasive procedure. This tutorial covers concepts used in current systems in research and how they might be applied to daily health-care practice.

Prerequisites

Basic understanding of 3D graphics, visualization, and medical imaging technology.

Topics

Introduction of fundamental techniques from data acquisition, pre-processing, visualization, and navigation. Actual virtual endoscopy applications and systems. Brief introduction to related medical problems and indications of virtual endoscopy for non-medical attendees.

Organizer/Lecturer

Dirk Bartz

Universität Tübingen

Schedule

- 10:30** Introduction
Bartz
- Examples of Virtual Endoscopy
- 10:55** Foundations
Bartz
- Medical Imaging Techniques
- Data-Preprocessing Visualization and Navigation Techniques
- 11:55** Available Systems
Bartz
- Advantages and Limitations of Virtual Endoscopy
- Questions + Answers

Tutorial

Room 006AB

10:30 am – 12:15 pm

53

Intellectual Property, Copyright, and Digital Rights Management for Computer Graphics



This second course in the policy sequence gives computer graphics practitioners, developers, and researchers an in-depth look at the growing conflicts between owners and users of intellectual property.

Prerequisites

Introduction to the Impact of Public Policy on Computer Graphics (Tuesday, 3:30 – 5:15 pm - Course 38) or equivalent knowledge. The tutorial assumes a fundamental understanding of public policy, its effect on our professional lives, and how it is effected and affected.

Topics

The concerns of owners and users of intellectual property, the origins of intellectual property rights and copyright, current laws regarding copyright (national and international), the tension between copyright and free speech, digital-rights-management (DRM) systems, implications of the use of DRM, and possible responses (from individuals, ACM, and ACM SIGGRAPH).

Organizer

Robert A. Ellis

Lecturers

Dan L. Burk

University of Minnesota

Barbara Simons

Stanford University

Schedule

- 10:30** Copyright Overview
Burk
- 10:40** Copyright Basics
Burk
- 10:55** Copyright in Digital Media
Burk
- 11:10** Digital Rights Management Systems
Simons
- 11:25** Implications of the Use of Digital Rights Management Systems
Simons
- 11:45** Actions/Discussion
Burk and Simons

Room 006CD **Tutorial**
10:30 am – 12:15 pm

54

Obtaining 3D Models With a Hand-Held Camera



How 3D models can be obtained from images acquired with a hand-held camera. The approach is based on advanced automatic techniques that avoid camera calibration and a priori scene knowledge, which gradually retrieve more and more information about the images, the cameras, and the scene.

Prerequisites

Basic understanding of 3D geometry and perspective projection. Full appreciation of this course requires some knowledge of projective geometry, computer vision, and image-processing techniques.

Topics

Feature-point extraction and matching, multi-view relations, robust matching, projective structure and motion recovery, self-calibration, bundle adjustment, image-pair rectification, dense stereo matching, multi-view matching, 3D surface modeling, texturing, and applications.

Organizer/Lecturer

Marc Pollefeys

Katholieke Universiteit Leuven

Schedule

- 10:30** Introduction
Pollefeys
- 10:45** Structure and Motion Recovery
 - Feature Point Extraction and Matching
 - Relating Images
 - Projective Structure and Motion
 - Self-Calibration*Pollefeys*
- 11:45** Dense Model Reconstruction
 - Dense Depth Estimation
 - Modeling*Pollefeys*
- Noon** Examples, Applications and Questions
Pollefeys

Room 206 **Half Day**
1:30 – 5:15 pm

55

Projector-Based Graphics



A survey of the latest computer graphics techniques for projector-based applications. The course covers rendering and calibration algorithms, practical issues, and case studies for single and multi-projector environments. In addition to the conventional projector-based systems, attendees learn about applications in augmented reality and in theater and entertainment installations.

Prerequisites

General knowledge of basic computer graphics theory and practice, including perspective projection and rendering. Also helpful: familiarity with video projection and camera calibration.

Topics

Rendering basics, warping and edge-blending in multi-projector tiled or panoramic displays, spatially augmented reality and shader lamps, closed-loop calibration of display environments, practical issues in large-scale displays, applications in entertainment simulators and digital dome theaters, future directions and discussions.

Organizer

Ramesh Raskar

Mitsubishi Electric Research Laboratories

Lecturers

Ed Lantz

Spitz, Inc.

Ramesh Raskar

Mitsubishi Electric Research Laboratories

Schedule

Module 1 – Overview and Rendering

- 1:30** Introduction
Raskar
- 1:35** Overview of Configuration and Techniques
Lantz
- 2:15** Rendering Basics
Raskar
- 3:00** Questions and Answers
All
- Module 2 – Multi-Projector Setups and Modern Applications*
- 3:30** Multi-projector Displays
Raskar
- 4:00** Projector-based Augmentation of Real Objects
Raskar
- 4:30** Applications
Lantz
- 5:00** Summary, Questions and Answers
All

Wednesday, 24 July

Half Day

Room 217BCD

1:30 – 5:15 pm

56

Imagery, Symbolism, and Human Consciousness



Computer graphics is old enough to be entering mid-life, the years when humans start looking for deeper relevance and meaning, when we start asking ourselves “why?” This course opens a door to the symbolic realm where our images can lead us to those answers.

Prerequisites

None. Since this is an attempt to build a bridge to a new domain previously outside the SIGGRAPH experience, the course provides everything necessary for the journey and does not require prior knowledge of what’s on the other side. Familiarity with analytic psychology is helpful. More helpful still: a willingness to relax one’s preconceptions and a desire to see the world in new ways.

Topics

Symbolism; different forms of perception; consciousness and the unconscious; analytic psychology; dreamwork; mythology; mathematics, physics, computation, and the origin of time; use of imagery in medicine and healing; deeper symbolic communication in film and television; collective consciousness of groups; questions of personal responsibility as creators of images; examining SIGGRAPH itself through its own imagery; how images and self-reflection tell us about ourselves.

Organizer

Bruce McDiffett
Evil Genius

Lecturers

Loren Carpenter
Pixar Animation Studios
Cinematrix, Inc.

Loren Eskenazi
California Pacific Medical Center

Carole Kammen
Pathways Institute

Bruce McDiffett
Evil Genius

Schedule

Module 1 – The Inner World

1:30 Forms of Perception and Consciousness
McDiffett

1:50 Organization of the Psyche
Kammen and McDiffett

2:15 Psychology, Mythology, and Collective Consciousness
Kammen and McDiffett

2:35 Images, Dreams, Mathematics, Physics, and Time
McDiffett

3:00 Experiential Exercises
Kammen and McDiffett

3:15 Break

Module 2 – The Outer World

3:30 Medicine and Healing
Eskenazi

3:50 Group Entertainment
Carpenter

4:10 Film
Kammen

4:30 Computer Graphics and Society
McDiffett

4:50 Group Discussion and Questions and Answers
All

5:10 Closing Remarks and Open Questions
McDiffett

Half Day

Room 006AB

1:30 – 5:15 pm

57

NURBS (NonUniform Rational B-Splines): A Primer



A working knowledge of the underlying mathematics of NURBS is provided. Approaching the topic from an engineering point of view, it focuses on the fundamental principles required to understand and develop a fast rational B-spline (NURBS) surface algorithm.

Prerequisites

College algebra and plane geometry are useful. Some programming experience or experience using Bézier, B-Spline, or NURBS packages is useful.

Organizer/Lecturer

David F. Rogers
U.S. Naval Academy

Schedule

1:30 - Bézier and B-Spline Curves
- The Genesis of NURBS
- Bézier Curves
- B-Spline Curves
- General Questions
Rogers

2:30 Advanced B-Spline Curves
- Rational B-spline Curves (NURBS)
- General Questions
Rogers

3:15 Break

3:30 Bézier and B-Spline Surfaces
- Bézier Surfaces
- B-Spline Surfaces
Rogers

Half Day
1:30 – 5:15 pm

Room 006CD

58

Psychometrics 101: How to Design, Conduct, and Analyze Perceptual Experiments in Computer Graphics



Psychometric methods from experimental psychology can be used to quantify relationships between the properties of images and what people perceive. This course provides an introduction to the use of psychometric methods in computer graphics and teaches attendees how to design perceptual experiments to advance graphics research and applications.

Prerequisites

Basic understanding of issues in computer graphics and electronic imaging. Familiarity with freshman-level college mathematics is helpful. No specific knowledge of perception psychology or statistical methods is necessary.

Topics

Experimental methods used to study human visual perception and performance; how to interpret the results of published experiments; how to design, run, and analyze psychophysical user studies to develop perceptually based graphics algorithms and applications.

Organizer

James A. Ferwerda
Cornell University

Lecturers

James A. Ferwerda
Cornell University

Holly Rushmeier

IBM T. J. Watson Research Center

Benjamin Watson

Northwestern University

Schedule

Module 1: Motivation, Psychophysical Methods

1:30 Welcome, Introductions, Schedule Review
Ferwerda

1:40 Motivation/Orientation
Rushmeier

2:20 Psychophysical Methods
Ferwerda

3:15 Break

Module 2: Experimental Design, Case Studies

3:30 Experimental Design
Watson

4:30 Case Studies
Rushmeier

4:55 Panel / Group Discussion
All

Full Day
10:30 am – 5:15 pm

CAL/Room 214CD

59

An Interactive Introduction to OpenGL Programming



The knowledge and tools that beginning OpenGL programmers need to author interactive, 3D, computer-graphics applications are presented. The course covers basic topics such as modeling, lighting, depth buffering, and texture mapping, as well as, advanced topics such as using the stencil and accumulation buffers.

Prerequisites

Ability to read simple computer programs written in C. Knowledge of linear algebra is helpful but not required.

Topics

Geometric rendering primitives and how they can be assembled into 3D objects; matrix operations for virtual camera manipulation (viewing and projection transformations) and modeling transformations; animation and double buffering; depth buffering; simulated lighting effects for geometric objects; texture mapping of geometric objects and utilizing texture mapping for simple image manipulation; alpha-blending and anti-aliasing; using the accumulation and stencil buffers for advanced rendering techniques; image blending and simple image-processing techniques.

Organizer

Dave Shreiner
SGI

Lecturers

Ed Angel

University of New Mexico

Dave Shreiner

Vicki Shreiner

SGI

Schedule

Module 1 – OpenGL Fundamentals

10:30 Introduction

10:35 OpenGL and GLUT Fundamentals

11:00 OpenGL Rendering and State

11:15 Transformations

12:15 Lunch

Module 2 – Lighting and Texture Mapping (Part 1)

1:30 Double Buffering and Hidden Surface Removal

1:40 Lighting

2:25 Imaging and Raster Operations

2:30 Texture Mapping (Part 1)

3:15 Break

Module 3 – Texture Mapping (Part 2) and Advanced OpenGL Topics

3:30 Texture Mapping (Part 2)

4:30 Advanced OpenGL Topics

5:10 Conclusion and Questions and Answers

Course Organizers

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Papers & Panels

NEW!

SIGGRAPH 2002

**Papers & Panels begin
on Tuesday, 23 July.**

Papers:

The premier international forum for the latest and most significant findings in computer graphics and interactive techniques. Papers are submitted for review by a committee of world-renowned experts in computer graphics. Each accepted paper is presented by the author(s) at SIGGRAPH 2002 and printed in the SIGGRAPH Conference Proceedings, a special issue of ACM Transactions on Graphics.

Chair

John F. Hughes
Brown University

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Gary Bishop
*University of North Carolina
at Chapel Hill*

Michael Black
Brown University

Marie-Paule Cani
iMAGIS/IINP Grenoble

Michael Cohen
Microsoft Research

Rob Cook
Pixar Animation Studios

Mathieu Desbrun
University of Southern California

David Dobkin
Princeton University

Ron Fedkiw
Stanford University

Steve Feiner
Columbia University

Bill Freeman
*Massachusetts Institute of
Technology, Artificial Intelligence
Laboratory*

Larry Gritz
Exluna, Inc.

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Microsoft Research

Mark Kilgard
NVIDIA Corporation

Gordon Kurtenbach
Alias/Wavefront

JP Lewis
University of Southern California

Lee Markosian
Princeton University

Joe Marks
*Mitsubishi Electric Research
Laboratories*

Steve Marschner
Stanford University

Tomoyuki Nishita
University of Tokyo

Dinesh Pai
The University of British Columbia

Hanspeter Pfister
*Mitsubishi Electric Research
Laboratories*

Jarek Rossignac
Georgia Institute of Technology

Heung-Yeung Shum
Microsoft Research Asia

Francois Sillion
INRIA

Mel Slater
University College London

Richard Szeliski
Microsoft Research

Gabriel Taubin
*IBM T.J. Watson
Research Center*

Seth Teller
*Massachusetts Institute of
Technology, Lab for Computer
Science*

Greg Turk
Georgia Institute of Technology

Michiel van de Panne
University of British Columbia

Luiz Velho
*Instituto de Matematica Pura e
Aplicada*

Denis Zorin
New York University

Vicki Caulfield
*Program Coordinator
Capstone Solutions, Inc.*

Full Conference registration allows attendees access to all SIGGRAPH 2002 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.

Location: Ballroom C1 & C2

Days & Hours

Tuesday, 23 July	8:10 am - 5:30 pm
Wednesday, 24 July	10:30 am - 5:30 pm
Thursday, 25 July	8:10 am - 5:30 pm
Friday, 26 July	8:10 am - 5:30 pm



Panels:

A highly interdisciplinary program that sparks animated discussions and provides thought-provoking insights from some of the top professionals in the interactive and graphics world.

Chair

Christopher Shaw

Georgia Institute of Technology

Jury

John Buchanan

Electronic Arts Canada

David S. Ebert

Purdue University

Diane Gromala

Georgia Institute of Technology

Lou Harrison

*SIGGRAPH 2003 Panels Chair
North Carolina State University*

Holly Rushmeier

IBM T. J. Watson Research Center

April Ramey

*Program Coordinator
Capstone Solutions, Inc.*

Location: Ballroom C3

Days & Hours

Tuesday, 23 July	10:30 am - 5:30 pm
Wednesday, 24 July	10:30 am - 5:30 pm
Thursday, 25 July	10:30 am - 5:30 pm
Friday, 26 July	10:30 am - 5:30 pm

Tuesday, 23 July

8:10 - 10:15 am

Papers

Ballroom C1 & C2

Images and Video

Chair

Greg Turk

Georgia Institute of Technology

Video Matting of Complex Scenes

Yung-Yu Chuang

Aseem Agarwala

Brian Curless

University of Washington

David Salesin

University of Washington, Microsoft Research

Richard Szeliski

Microsoft Research

Gradient Domain High Dynamic

Range Compression

Raanan Fattal

Dani Lischinski

Michael Werman

The Hebrew University of Jerusalem

Fast Bilateral Filtering for the Display of High Dynamic Range Images

Frédo Durand

Julie Dorsey

Massachusetts Institute of Technology, Laboratory for Computer Science

Photographic Tone Reproduction for Digital Images

Erik Reinhard

Michael Stark

Peter Shirley

University of Utah

James Ferwerda

Cornell University

Transferring Color to Grayscale Images

Tomihisa Welsh

Michael Ashikhmin

Klaus Mueller

State University of New York at Stony Brook

Tuesday, 23 July

10:30 am - 12:15 pm

Papers

Ballroom C1 & C2

Modeling and Simulation

Chair

Ron Fedkiw

Stanford University

CHARMS: A Simple Framework for Adaptive Simulation

Eitan Grinspun

California Institute of Technology

Petr Krysl

University of California, San Diego

Peter Schröder

California Institute of Technology

Graphical Modeling and Animation of Ductile Fracture

James F. O'Brien

Adam W. Bargteil

University of California, Berkeley

Jessica K. Hodgins

Carnegie Mellon University

Creating Models of Truss Structures With Optimization

Jeffrey Smith

Jessica K. Hodgins

Irving Oppenheim

Carnegie Mellon University

Andrew Witkin

Pixar Animation Studios

A Procedural Approach to Authoring Solid Models

Barbara Cutler

Julie Dorsey

Leonard McMillan

Matthias Müller

Robert Jagnow

Massachusetts Institute of Technology

Panel

Ballroom C3

When Will Ray-Tracing Replace Rasterization?

Theorists and practitioners at the forefront of interactive graphics development debate whether ray-tracing will ever replace rasterization or whether something better will supplant both of them. Additional topics include: what a future API might look like, how new algorithms may be embedded in hardware, and exactly how many teapots can be ray-traced per second on the head of a pin.

Organizer/Moderator

Brad Grantham

Applied Conjecture/SGI

Panelists

Kurt Akeley

David Kirk

NVIDIA Corporation

Brad Grantham

Applied Conjecture/SGI

Larry Seiler

ATI Research, Inc.

Philipp Slusallek

Universität des Saarlandes

Tuesday, 23 July

1:30 – 3:15 pm

Papers

Ballroom C1 & C2

Geometry

Chair

Hanspeter Pfister

Mitsubishi Electric Research Laboratories

Cut-and-Paste Editing of Multiresolution Surfaces

Henning Biermann

New York University

Ioana Martin

Fausto Bernardini

IBM T.J. Watson Research Center

Denis Zorin

New York University

Pointshop 3D: An Interactive System for Point-Based Surface Editing

Matthias Zwicker

Mark Pauly

Oliver Knoll

Markus Gross

ETH Zürich

Level Set Surface Editing Operators

Ken Museth

David E. Breen

California Institute of Technology

Ross T. Whitaker

University of Utah

Alan H. Barr

California Institute of Technology

Dual Contouring of Hermite Data

Tao Ju

Frank Losasso

Scott Schaefer

Joe Warren

Rice University

Panel

Ballroom C3

Digital Humans: What Roles Will They Play?

Computer graphics technology is now creating digital humans that are virtually indistinguishable from the real thing. The potential benefits are immense in a wide range of applications, including film, video, the Web, and gaming, but there are other implications to consider as well. This panel of experts from each of the major applications of computer graphics examines how far we have come in the use of digital humans, where they are heading, and what they will mean to us.

Organizer/Moderator

Phil LoPiccolo

Computer Graphics World

Panelists

Norman I. Badler

University of Pennsylvania

Athomas Goldberg

Improv Technologies Inc.

Evan Marc Hirsch

Electronic Arts

Laurie McCulloch

Digital Animation Group

Nadia Magnenat-Thalmann

University of Geneva

Tuesday, 23 July

3:30 – 5:30 pm

Papers

Ballroom C1 & C2

Parameterization and Meshes

Chair

Gabriel Taubin

IBM T.J. Watson Research Center

Interactive Geometry Remeshing

Pierre Alliez

University of Southern California

INRIA Sophia-Antipolis

Mark Meyer

California Institute of Technology

Mathieu Desbrun

University of Southern California

Geometry Images

Xianfeng Gu

Steven J. Gortler

Harvard University

Hugues Hoppe

Microsoft Research

Least Squares Conformal Maps for Automatic Texture Atlas Generation

Bruno Lévy

INRIA Lorraine

Sylvain Petitjean

Nicolas Ray

CNRS

Jérôme Maillot

Alias|Wavefront

Progressive and Lossless Compression of Arbitrary Simplicial Complexes

Pierre-Marie Gandoin

Olivier Devillers

INRIA Sophia Antipolis

Linear Combination of Transformations

Marc Alexa

Technische Universität Darmstadt



Tuesday, 23 July

3:30 – 5:30 pm

Panel

Ballroom C3

Extending Interface Practice: An Ecosystem Approach

Interface ecology is an emerging meta-disciplinary approach in which creation of rich interactive experiences spans many disciplines, including computer graphics, mathematics, gaming, visual art, performance, and cultural theory. Interfaces extend beyond interactive artifacts, activities, and social spaces, forming intricate ecosystems. Interfaces are the catalytic border zones where systems of representation meet, mix, and recombine. Through this recombination, interface ecosystems generate fundamental innovations of form, experience, knowledge, and technology. This panel brings together a diverse range of practitioners who work from concept to experience to interconnect multiple systems within the whole.

Organizer/Moderator
Andruid Kerne
New York University

Panelists
Natalie Jeremijenko
Yale University

Andruid Kerne
New York University

Michael Mateas
Carnegie Mellon University

Thecla Schiphorst
Simon Fraser University

Wolfgang Strauss
Fraunhofer Institute for Media Communication

Will Wright
Maxis Software

Wednesday, 24 July

10:30 am – 12:15 pm

Papers

Ballroom C1 & C2

Character Animation

Chair
Heung-Yeung Shum
Microsoft Research Asia

Trainable Videorealistic Speech Animation

Tony Ezzat
Gadi Geiger
Tomaso Poggio
Massachusetts Institute of Technology, Center for Biological and Computational Learning

Turning to the Masters: Motion Capturing Cartoons

Christoph Bregler
Lorie Loeb
Erika Chuang
Hrshikesh Deshpande
Stanford University

Synthesis of Complex Dynamic Character Motion From Simple Animations

C. Karen Liu
Zoran Popović
University of Washington

Integrated Learning for Interactive Synthetic Characters

Bruce Blumberg
Marc Downie
Yuri Ivanov
Matt Berlin
Michael Patrick Johnson
William Tomlinson
Massachusetts Institute of Technology, Media Laboratory

Panel

Ballroom C3

The Future of Computer Graphics: An Enabling Technology?

High-quality computer graphics technology is becoming ubiquitous. Soon, computer graphics will be where word processing is today: everyone uses it, but there are very few people doing basic research in word processing. Our challenge now is to apply computer graphics technology to research in other areas. This panel combines experts in computer graphics and associated technology with experts from a few application areas to discuss how computer graphics can advance discovery in many fields.

Organizer
David S. Ebert
Purdue University

Moderator
Andrew Glassner
Coyote Wind Studios

Panelists
Bill Buxton
Alias|Wavefront

Patricia Davies
David S. Ebert
Purdue University

Elliot K. Fishman
The Johns Hopkins University

Andrew Glassner
Coyote Wind Studios

Wednesday, 24 July

1:30 – 3:15 pm

Papers

Ballroom C1 & C2

3D Acquisition and Image Based Rendering

Chair
Markus Gross
ETH Zürich

Image-Based 3D Photography Using Opacity Hulls

Wojciech Matusik
Massachusetts Institute of Technology

Hanspeter Pfister
Mitsubishi Electric Research Laboratories

Addy Ngan
Massachusetts Institute of Technology

Paul Beardsley
Remo Ziegler
Mitsubishi Electric Research Laboratories

Leonard McMillan
Massachusetts Institute of Technology

Real-Time 3D Model Acquisition

Szymon Rusinkiewicz
Princeton University

Olaf Hall-Holt
Marc Levoy
Stanford University

Light Field Mapping: Efficient Representation and Hardware Rendering of Surface Light Fields

Wei-Chao Chen
University of North Carolina at Chapel Hill

Jean-Yves Bouguet
Michael H. Chu
Radek Grzeszczuk
Intel Corporation

Feature-Based Light Field Morphing

Zhunping Zhang
Tsinghua University

Lifeng Wang
Baining Guo
Heung-Yeung Shum
Microsoft Research Asia

Panel

Ballroom C3

Symposium on Computer Animation in Fast Forward

"Three-minute madness." Papers from the new ACM SIGGRAPH Symposium on Computer Animation are summarized in three minutes or less, followed by a discussion of new directions in computer animation research.

Organizer
Michael Gleicher, *University of Wisconsin*

Panelists
Michael Cohen, *Microsoft Corporation*
Jessica K. Hodgins, *Carnegie Mellon University*
Michiel van de Panne, *University of British Columbia*
Nancy Pollard, *Brown University*

Wednesday, 24 July

3:30 – 5:30 pm

Papers

Ballroom C1 & C2

Animation From Motion Capture

Chair
Michiel van de Panne
The University of British Columbia

Motion Texture: A Two-Level Statistical Model for Character Motion Synthesis

Yan Li
Microsoft Research Asia

Tianshu Wang
Xi'an Jiaotong University

Heung-Yeung Shum
Microsoft Research Asia

Motion Graphs

Lucas Kovar
Michael Gleicher
University of Wisconsin-Madison

Fred Pighin
USC Institute for Creative Technologies

Interactive Motion Generation From Examples

Okan Arikan
D.A. Forsyth
University of California, Berkeley

Interactive Control of Avatars Animated With Human Motion Data

Jehee Lee
Jinxiang Chai
Carnegie Mellon University

Paul S. A. Reitsma
Brown University

Jessica K. Hodgins
Carnegie Mellon University

Nancy S. Pollard
Brown University

Motion Capture Assisted Animation: Texturing and Synthesis

Katherine Pullen
Christoph Bregler
Stanford University

Panel

Ballroom C3

The Demoscene

For 20 years, an underground movement has produced short real-time animations running on PCs. This group, the "demoscene," primarily consists of students who pursue their technical and artistic interests beyond the classroom, to create inspiring works of real-time art. These productions encompass a broad range of computer graphics techniques such as procedural geometry, real-time ray-tracing, and real-time shading. Game developers have been utilizing this talent pool yet it has little visibility in the SIGGRAPH community. This panel explores the demoscene, technical tricks used in demos, and how scene educational and creative aspects can contribute to the SIGGRAPH community.

Organizer/Moderator
Vincent Scheib
The Demoscene Outreach Group
University of North Carolina at Chapel Hill

Panelists
Theo Engell-Nielsen
hybris/NEMESIS

Eric Haines
Autodesk, Inc.

Saku Lehtinen
Remedy Entertainment, Ltd.

Vincent Scheib
The Demoscene Outreach Group
University of North Carolina at Chapel Hill

Phil Taylor
Microsoft Corporation



Thursday, 25 July

8:10 – 10:15 am

Papers

Ballroom C1 & C2

Lighting and Appearance

*Chair***Steve Marschner**
Stanford University

Homomorphic Factorization of BRDF-Based Lighting Computation

Lutz Latta
Andreas Kolb
University of Applied Sciences Wedel

Frequency Space Environment Map Rendering

Ravi Ramamoorthi
Pat Hanrahan
Stanford University

Precomputed Radiance Transfer for Real- Time Rendering in Dynamic, Low-Frequency Lighting Environments

Peter-Pike Sloan
*Microsoft Research***Jan Kautz**
*Max-Planck-Institut für Informatik***John Snyder**
Microsoft Research

Interactive Global Illumination in Dynamic Scenes

Parag Tole
Fabio Pellacini
Bruce Walter
Donald P. Greenberg
Cornell University

A Lighting Reproduction Approach to Live-Action Compositing

Paul Debevec
*USC Institute for Creative Technologies***Andreas Wenger**
*Brown University***Chris Tchou**
Andrew Gardner
Tim Hawkins
USC Institute for Creative Technologies

Thursday, 25 July

10:30 am – 12:15 pm

Papers

Ballroom C1 & C2

Shadows, Translucency, and Visibility

Chair
Larry Gritz
Exluna, Inc.

Perspective Shadow Maps

Marc Stamminger
George Drettakis
REVES/INRIA Sophia-Antipolis

A User Interface for Interactive Cinematic Shadow Design

Fabio Pellacini
Parag Tole
Donald P. Greenberg
Cornell University

Robust Epsilon Visibility

Florent Duguet
George Drettakis
REVES/INRIA Sophia-Antipolis

A Rapid Hierarchical Rendering Technique for Translucent Materials

Henrik Wann Jensen
*Stanford University***Juan Buhler**
PDI/DreamWorks

Panel

Ballroom C3

Animation's Turning Tide

3D character animation is experiencing a sea change. Not long ago, getting 3D animation into Hollywood films was a major battle. Now, the industry can't get enough of it. Traditional animators and artists are giving up their reluctance and embracing 3D in droves. What does that mean for those already working in 3D? What can we learn from the traditional animator? What does it portend for the future of animated filmmaking?

*Organizer/Moderator***Matt Elson**
*Walt Disney Feature Animation**Panelists***Eric Armstrong**
*Sony Pictures Imageworks***Eamonn Butler**
*Walt Disney Feature Animation***Scott Clark**
*Pixar Animation Studios***Carlos Saldanha**
Blue Sky Studios, Inc.

Thursday, 25 July

1:30 – 3:15 pm

Papers

Ballroom C1 & C2

Soft Things

*Chair***Marie-Paule Cani**
iMAGIS/INP Grenoble

DyRT: Dynamic Response Textures for Real Time Deformation Simulation With Graphics Hardware

Doug L. James
Dinesh K. Pai
The University of British Columbia

Interactive Skeleton-Driven Dynamic Deformations

Steve Capell
Seth Green
Brian Curless
Tom Duchamp
Zoran Popović
University of Washington

Robust Treatment of Collisions, Contact, and Friction for Cloth Animation

Robert Bridson
*Stanford University***Ronald P. Fedkiw**
Stanford University
*Industrial Light + Magic***John Anderson**
Industrial Light + Magic

Stable but Responsive Cloth

Kwang-Jin Choi
Hyeong-Seok Ko
Seoul National University

Panel

Ballroom C3

Unsolved Problems in Mobile Computer Graphics and Interaction

The worldwide total of mobile computing devices now exceeds the installed base of PCs, but mobile technology has still not overcome problems with interaction, streaming, graphics algorithms, and bandwidth in current and future devices. This panel examines the state of the art from both an industrial and research point of view, and provides directions for future work in this area.

*Organizer/Moderator***Mark Ollila**
*Linköpings Universitet**Panelists***Staffan Björk**
*Interactive Institute***Kevin Bradshaw**
*Digital Bridges Ltd.***Steven Feiner**
*Columbia University***Mark Ollila**
*Linköpings Universitet***Kari Pulli**
Nokia

**Thursday, 25 July**

3:30 – 5:30 pm

Papers

Ballroom C1 & C2

Humans and Animals*Chair***Jessica K. Hodgins**
*Carnegie Mellon University***Human Body Deformation
From Range Scan Data****Brett Allen**
Brian Curless
Zoran Popović
*University of Washington***Interactive Multi-Resolution
Hair Modeling and Editing****Tae-Yong Kim**
Ulrich Neumann
*University of Southern California***Modeling and Rendering of
Realistic Feathers****Yanyun Chen**
Yingqing Xu
Baining Guo
Heung-Yeung Shum
*Microsoft Research Asia***Eyes Alive****SooHa Park Lee**
*University of Pennsylvania***Jeremy B. Badler**
*The Smith-Kettlewell Eye Research Institute***Norman I. Badler**
*University of Pennsylvania***Physiological Measures of Presence
in Stressful Virtual Environments****Michael Meehan**
Brent Insko
Mary Whitton
Frederick P. Brooks, Jr.
University of North Carolina at Chapel Hill

Panel

Ballroom C3

**Graphics in the Large: Is
Bigger Better?**

The world of display devices is expanding rapidly, both literally and figuratively. New commercial and research devices come in larger sizes (measured in meters, not inches) and different physical forms (rectangular surfaces, cylindrical segments, truncated spheres). These new devices make computer graphics and interactive techniques far more amenable to group activities, because they can display more and more data simultaneously. This panel examines the impact of displaying and interacting with more and more data and debates a key question: Is bigger necessarily better?

*Organizer/Moderator***David J. Kasik**
*Boeing Corporation**Panelists***Loren Carpenter**
*Pixar Animation Studios***Brian Fisher***The University of British Columbia***David J. Kasik***Boeing Corporation***Richard A. May***University of Washington***Norbert Streitz***GMD Darmstadt***Friday, 26 July**

8:10 – 10:15 am

Papers

Ballroom C1 & C2

Texture Synthesis*Chair***Bill Freeman**
*Massachusetts Institute of Technology,
Artificial Intelligence Laboratory***Synthesis of Bidirectional
Texture Functions on Arbitrary Surfaces****Xin Tong**
*Microsoft Research Asia***Jingdan Zhang**
*Tsinghua University***Ligang Liu**
*Microsoft Research Asia***Xi Wang**
*Tsinghua University***Baining Guo**
Heung-Yeung Shum
*Microsoft Research Asia***Jigsaw Image Mosaics****Junhwan Kim**
Fabio Pellacini
*Cornell University***Self-Similarity Based Texture Editing****Stephen Brooks**
Neil Dodgson
*University of Cambridge***Hierarchical Pattern Mapping****Cyril Soler**
Marie-Paule Cani
Alexis Angelidis
*iMAGIS/GRAVIR – IMAG/IINRIA***Improving Noise****Ken Perlin**
New York University

Friday, 26 July

10:30 am – 12:15 pm

Papers

Ballroom C1 & C2

Graphics Hardware

Chair

Mark Kilgard
NVIDIA Corporation

The SAGE Graphics Architecture

Michael F. Deering
David Naegle
Sun Microsystems, Inc.

Chromium: A Stream Processing Framework for Interactive Rendering on Clusters

Greg Humphreys
Mike Houston
Ren Ng
Stanford University

Randall Frank
Sean Ahern

Lawrence Livermore National Laboratory

Peter Kirchner
James Klosowski

IBM T.J. Watson Research Center

Ray Tracing on Programmable Graphics Hardware

Timothy J. Purcell
Ian Buck
Stanford University

William R. Mark
Stanford University (now at NVIDIA Corporation)

Pat Hanrahan
Stanford University

Shader-Driven Compilation of Rendering Assets

Paul Lalonde
Eric Schenk
Electronic Arts (Canada) Inc.

Panel

Ballroom C3

How Does Motion Capture Affect Animation?

In recent years, motion capture has been used more often and more intensively in the movie industry, for applications ranging from background action to major characters. This panel examines the critical motion-capture questions: When should motion capture be applied? How has it affected animators? How does the technology, both hardware and software, need to change?

Organizer

Suba Varadarajan
The Ohio State University

Moderator

Barbara Helfer

Panelists

Margaret S. Geroch
Wheeling Jesuit University

Evan Hirsch
Electronic Arts

Joan Staveley
Faust Logic Inc.

Tom Tolles
House of Moves Motion Capture Studios, LLC

Friday, 26 July

1:30 – 3:15 pm

Papers

Ballroom C1 & C2

Fluids and Fire

Chair

Dinesh K. Pai
The University of British Columbia

Physically Based Modeling and Animation of Fire

Duc Quang Nguyen
Ronald P. Fedkiw
Stanford University
Industrial Light + Magic

Henrik Wann Jensen
Stanford University

Structural Modeling of Flames for a Production Environment

Arnaud Lamorlette
Nick Foster
PDI/DreamWorks

Animation and Rendering of Complex Water Surfaces

Douglas P. Enright
Stanford University
Industrial Light + Magic

Stephen R. Marschner
Stanford University

Ronald P. Fedkiw
Stanford University
Industrial Light + Magic

Image Based Flow Visualization

Jarke J. van Wijk
Technische Universiteit Eindhoven



Friday, 26 July

1:30 – 3:15 pm

Panel

Ballroom C3

Interactive Stories: Real Systems, Three Solutions

Enough theorizing and expostulating! These panelists build real interactive story systems, and they're ready to share their hard-earned knowledge of what works and what doesn't. They're also anticipating a lively debate on the relative merits of their approaches.

Organizer/Moderator

Noah Wardrip-Fruin
Brown University
University of Baltimore

Panelists

Michael Mateas
Carnegie Mellon University

Peter Molyneux
Lionhead Studios

Andrew Stern
InteractiveStory.net

Bernard Yee
En-Tranz Entertainment

Noah Wardrip-Fruin
Brown University
University of Baltimore

Friday, 26 July

3:30 – 5:30 pm

Papers

Ballroom C1 & C2

Painting and Non-Photorealistic Graphics

Chair

JP Lewis
University of Southern California

WYSIWYG NPR:**Drawing Strokes Directly on 3D Models**

Robert D. Kalnins
Lee Markosian
Princeton University

Barbara J. Meier
Michael A. Kowalski
Joseph C. Lee
Brown University

Philip L. Davidson
Matthew Webb
Princeton University

John F. Hughes
Brown University

Adam Finkelstein
Princeton University

Octree Textures

David Benson
Joel Davis
Industrial Light + Magic

Painting and Rendering Textures on Unparameterized Models

David (grue) DeBry
Jonathan Gibbs
Devorah DeLeon Petty
Nate Robins
Thrown Clear Productions

Stylization and Abstraction of Photographs

Doug DeCarlo
Anthony Santella
Rutgers University

Object-Based Image Editing

William Barrett
Alan Cheney
Brigham Young University

Panel

Ballroom C3

Games: the Dominant Medium of the Future

Driven by trends in silicon and software, computer gaming is the medium that will define 21st-century recreation in the way that motion pictures and their offspring, television, defined the culture of the 20th century. This panel of believers, skeptics, and observers debates whether and how gaming will dominate the future.

Organizer

Robert Nicoll
Electronic Arts

Moderator

Ken Perlin
New York University

Panelists

Glenn Entis
Electronic Arts Worldwide Studios

Patrick Gilmore
DreamWorks SKG

J.C. Herz
Joystick Nation Inc.

Alex Pham
Los Angeles Times

Will Wright
Maxis Software

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Sketches & Applications

This program has grown from its inception to become one of the most vital parts of the annual SIGGRAPH conference. Sketches fulfill a number of different purposes:

- For technical researchers and developers, it provides a forum for presentation of novel ideas and early or incremental work.
- For people in the entertainment industry, it is an ideal place to explain how they did effects in their movies and games.
- For artists, it is the place to talk about the details of their art.
- For people in different disciplines, this program gives them the opportunity to show how they use computer graphics in their field.

The Sketches & Applications program is a great place to hear about the details of blockbuster movies. We have presentations from the makers of "Star Wars," "Lord of the Rings," "Ice Age," and many more!

The presentations on Art, Design, and Multimedia cover interacting with art, using computer graphics for exploring art, and quite a bit more. New for this year, the Sketches & Applications program is a forum for some of the Emerging Technologies presenters to talk about their pieces in more detail.

Chair

Doug Roble
Digital Domain

Committee

Brian Barsky
University of California, Berkeley

Katerina Mania
University of Sussex

Juan Buhler
PDI/DreamWorks

Ioana Martin
IBM T.J. Watson Research Center

David "Grue" DeBry
Thrown Clear Productions

Jacquelyn Martino
Massachusetts Institute of Technology

Steve Derrick
Vicarious Visions, Inc.

Rick Parent
The Ohio State University

Mark Elendt
Side Effects Software

Fred Pighin
USC Institute for Creative Technologies

Darin Grant
SIGGRAPH 2003 Sketches & Applications Chair
Digital Domain

Holly Rushmeier
IBM T.J. Watson Research Center

Chuck Hansen
University of Utah

Cheryl Stockton
Studio Firefly
Pratt Institute

Dorothy Krause
Emeritus/Massachusetts
College of Art

Emru Townsend

Linda Lauro-Lazin
Pratt Institute

Vicki Caulfield
Program Coordinator
Capstone, Solutions, Inc.

Location:

Ballroom A, River Room 001
Rooms 103, 207, 217BCD

Days & Hours

Tuesday, 23 July	10:30 am – 5:30 pm
Wednesday, 24 July	10:30 am – 5:30 pm
Thursday, 25 July	8:10 am – 5:30 pm
Friday, 26 July	8:10 am – 5:30 pm

Tuesday, 23 July

10:30 am – 12:15 pm

Ballroom A

2D Aesthetic in a 3D World

Session Chair: Emru Townsend

2D/3D Hybrid Character Animation on "Spirit"

The hybrid techniques used to produce character animation for DreamWorks' "Spirit." Often, both hand-drawn and digital character animation were used within the same shot.

Doug Cooper

*DreamWorks Feature Animation
coop@anim.dreamworks.com*

Shape-Based Character Animation

Strong poses in character animation are supported by their silhouettes. When the ultimate goal is to create 3D character shapes represented in 2D screen space, shouldn't tools better support posing silhouettes?

Eric Guaglione

*Walt Disney Feature Animation
eric.guaglione@disney.com*

Doug Sweetland

Pixar

Creating 3D Painterly Environments for Disney's "Treasure Planet"

Disney's "Treasure Planet" presented new artistic challenges to integration of 2D and 3D painterly environments. The result: significant technical innovations to the DeepCanvas process and rendering engine.

Chris Springfield

*Walt Disney Feature Animation
chis.springfield@disney.com*

Kyle Odermatt

Walt Disney Feature Animation

Sketchy Rendering

Practical techniques employed in emulating pencil, bleeding ink, and pastel drawings in producing a short computer animation, including image processing, cellular automata, curve tracing and plotting, and some common sense.

John Haddon

*The Moving Picture Company
Bournemouth University
theboyhaddon@hotmail.com*

Tuesday, 23 July

1:30 – 3:15 pm

Room 103

Touchy Feely

Session Chair: Cheryl Stockton, Studio Firefly and Pratt Institute

FlowField: Investigating the Semantics of Caress

FlowField is a new interactive piece in which participants touch and caress a multi-touch controller in a CAVE, manipulating the flow of particles in a way that suggests hands in water.

Timothy Chen

*University of British Columbia
tichen@ece.ubc.ca*

Sidney Fels

Thecla Schiphorst
University of British Columbia

Art and Education Using Direct Manipulation of a Sensor Array

Direct manipulation systems in art and education domains using a pressure-sensitive computer-projected canvas for user manipulation. As users press the canvas, the art piece is created or image layers are revealed.

Taly Sharon

*Massachusetts Institute of Technology, Media Laboratory
taly@media.mit.edu*

ASR - Augmented Sound Reality

A summary of the mixed-reality application ASR, which uses overlays of virtual images on the real world to support placement of three-dimensional sound sources.

Michael Haller

*Fachhochschule Hagenberg
haller@fh-hagenberg.at*

**Daniel Dobler
Philipp Stampf**

Fachhochschule Hagenberg

Hover: Conveying Remote Presence

Hover is a device that enhances telecommunication by providing a sense of the activity and presence of remote collaborators using the playful movements of a ball floating in midair.

Dan Maynes-Aminzade

*Massachusetts Institute of Technology, Media Laboratory
monzy@media.mit.edu*

Beng-Kiang Tan

The Harvard Graduate School of Design

Ken Goulding

Catherine Vaucelle

Massachusetts Institute of Technology, Media Laboratory

Tuesday, 23 July

3:30 – 5:30 pm

Ballroom A

Behind the CG Camera

Session Chair: Steve Derrick, Vicarious Visions, Inc.

Cameras and Point of View in the Gamespace

A survey of the evolution of game perspective and the reasons behind the choice of perspective, some of which are practical, while others are legacies.

Jay Riddle

Electronic Arts
jriddle@ea.com

MOCAP Game Reserve: A Study of Puppetry and Motion Capture

A study of human-driven character animation with motion capture as presented as part of the SIGGRAPH 2002 Course: Motion Capture: Pipeline, Applications, and Use.

Charlotte Belland

The Ohio State University
belland.2@osu.edu

Motion Capture Done Dirt Cheap

A simple real-time motion capture system based on a skeleton rig with potentiometer angle sensors. The total hardware cost was about \$300. Assembly time: one week.

Stefan Gustavson

Linköpings Universitet
stegu@itn.liu.se

Real-Time Video Effects on a PlayStation2

The Sony PlayStation2's powerful rendering and vector-processing capabilities can be used to produce sophisticated video effects, including nonlinear 3D transformations, in real time.

Sarah Witt

Sony B&P Research Labs
sarah.witt@adv.sonybpe.com

Wednesday, 24 July

10:30 am – 12:15 pm

Room 103

Defining Space

Session Chair: Jacquelyn Martino, Massachusetts Institute of Technology

Hiding Spaces: a CAVE of Elusive Immateriality

An immersive VR artwork developed for the CAVE environment explores the new spatial ambiguities that can delight the viewer in the virtual world.

Cynthia Beth Rubin

Rhode Island School of Design
cbrubin@risd.edu

Daniel F. Keefe

Brown University

Synchronous Pronouncement

A generative, immersive, interactive installation that explores organic visual patterns generated by displacement of users in a space. Projections of animations are presented in a 360-degree semi-transparent wall.

Sandra Villarreal

Pratt Institute
sandra@villarrealstudio.com

CT (City Tomography)

A 3D information city on the Web. Visitors can interact by "building wall browsers" to get information about the city and communicate with others.

Fumio Matsumoto

Plannet Architectures
matsumoto@plannet-arch.com

Akira Wakita

Keio University

Wegzeit: The Geometry of Relative Distance

Six models for visualizing non-isotropic space in virtual reality—space that uses relative units like seconds instead of absolute units. The work explores the time-space structure of Los Angeles.

Dietmar Offenhuber

Ars Electronica Center
didi@fl.aec.at

Wednesday, 24 July

10:30 am – 12:15 pm

Ballroom A

New Uses for Cloth, Hair, & Fire

Session Chair: Emru Townsend

How to Dress Like a Jedi: Techniques for Digital Clothing

Techniques and user-interface aspects of Industrial Light + Magic's cloth-simulation system, which was used to create and control computer-generated clothing for digital characters in several recent films.

Ari Rapkin

Industrial Light + Magic
ari@ilm.com

Painterly Fire

A technique used in DreamWorks' "Spirit" to create forest-fire scenes, using a combination of particle dynamics and hand-painted artwork.

Saty Raghavachary

DreamWorks Feature Animation
saty@dreamworks.com

Fernando Benitez

DreamWorks Feature Animation

Dynamic Skin Deformation and Animation Controls Using Maya Cloth for Facial Animation

How to create dynamic skin deformation using Maya Cloth and artist-friendly facial-animation controls.

Jimmy Chim

School of VISUAL ARTS
jchim@acm.org

Hyunsuk Kim

School of VISUAL ARTS

Stylized Flowing Hair Controlled With NURBS Surfaces

A set of techniques to model and animate hair using NURBS surfaces, apply dynamics to the hair in a controlled manner, and render hair in a stylized and efficient way.

Ramon Montoya-Vozmediano

Walt Disney Feature Animation
Ramon.Montoya@disney.com

Mark Hammel

Walt Disney Feature Animation

Wednesday, 24 July

10:30 am – 12:15 pm

Room 207

Shape

Session Chair: Ioana Martin, IBM T. J. Watson Research Center

Shape Analogies

A method for learning line styles from examples. When users draw strokes in a desired style, the system generates new imagery in that style.

Aaron Hertzmann

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Nuria Oliver

Microsoft Research

Brian Curless

Steven M. Seitz

University of Washington

A 2D Sketch Interface for a 3D-Model Search Engine

Creating query interfaces for an online search engine for 3D models and examining a 2D sketch interface in more detail.

Patrick Min

Princeton University
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Joyce Chen

Thomas Funkhouser

Princeton University

Motion-Based Shape Illustration

A novel visualization technique that uses particle systems to add supplemental motion cues that can aid in perception of shape and spatial relationships of static objects.

Kwan-Liu Ma

University of California, Davis
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Eric B. Lum

Aleksander Stoppel

University of California, Davis

Harmonic 3D Shape Matching

A new 3D model representation, based on spherical harmonics, that is well suited for the task of model matching and retrieval.

Michael Kazhdan

Princeton University
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Thomas Funkhouser

Princeton University

Wednesday, 24 July

10:30 am – 12:15 pm

River Room 001

Textures

Session Chair: David "Grue" DeBry, Thrown Clear Productions

Textures From Nonlinear Dynamical Cascades

A texture-synthesis system consisting of iterated convolution and nonlinear mapping. The textures exhibit tension between roughness and smoothness, and can have the multiscale characteristic identified as "natural."

David Mould

University of Toronto
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Eugene Fiume

University of Toronto

Image-Based Environment Matting

Environment matting for realistic rendering of refractive materials currently requires complex laboratory apparatus for acquisition of the matte. This sketch shows how environment mattes can be computed from real-world imagery.

Yonatan Wexler

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Andrew W. Fitzgibbon

Andrew Zisserman
University of Oxford

Video Textures Using the Auto-Regressive Process

How to create video textures using an auto-regressive process in image eigenspace. This approach generates new facial-expression sequences using image-based techniques.

Neill Campbell

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Colin Dalton

David Gibson

Barry Thomas

University of Bristol

Editable Dynamic Textures

A simple and efficient algorithm for modifying the temporal behavior of image sequences that exhibit some form of temporal regularity, such as flowing water, steam, smoke, and flames.

Gianfranco Doretto

University of California, Los Angeles
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Stefano Soatto

University of California, Los Angeles

Wednesday, 24 July

1:30 – 3:15 pm

Room 103

Innovative Approaches

Session Chair: Dorothy Krause, Emeritus/Massachusetts College of Art

BioMorphic Typography

A new concept of a writing and a morphing typeface that responds, in real time, to a user's continually changing physiological states as measured by biofeedback devices.

Diane Gromala

Georgia Institute of Technology
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Pravin Prabhakar Bhat

Jenna Bilotta

Nassim Jafarinami

Florian Vollmer

Georgia Institute of Technology

Integrating Lenticular Into Digital Printmaking

Using photographs to make an animated lenticular image with 3D Genius software. Saved as a TIFF file, the lenticular image is printed, aligned with the lens, and set into a digital print.

Dorothy Simpson Krause

Digital Atelier
dotkrause@dotkrause.com

Custom Designs for Digital Imaging on Textiles

Digital imaging presents opportunities for one-of-a-kind artist's designs on textile. As processes are refined, digital imaging will be used for mass customization in fabric applications.

Bonny Lhotka

Digital Atelier
bonny@lhotka.com

Wednesday, 24 July

1:30 – 3:15 pm

Ballroom A

Making of Ice Age

Session Chair: **Juan Buhler**, PDI/DreamWorks

3D Layout and Propagation of Environmental Phenomena for “Ice Age”

Summary of the 3D layout process using Blue Sky Studios’ software tools and methods on “Ice Age.”

Robert V. Cavaleri

*Blue Sky Studios
rob@blueskystudios.com*

Kevin Thomason

Blue Sky Studios

Dynamics and Dodos: Rigging and Animation Methods for “Ice Age”

How the animation team at Blue Sky Studios streamlines the animation process with time-saving software and workflows.

Adam Burr

*Blue Sky Studios
adamb@blueskystudios.com*

Ross Scroble

Blue Sky Studios

How a CSG-Based Ray-Tracer Saves Time: Lighting and Scripting for “Ice Age”

Workflows using Blue Sky Studios’ proprietary ray-tracer and scripting language, cgiStudio.

Mitch Kopelman

*Blue Sky Studios
mitch@blueskystudios.com*

Jodi Whitsel

David Esneault
Blue Sky Studios

Wednesday, 24 July

1:30 – 3:15 pm

Room 207

Human Figure Animation

Session Chair: **Fred Pighin**, USC Institute for Creative Technologies

Example-Based Interpolation of Human Motion

A method for interpolating human motion with examples using ICA.

Hiroshi Mori

*University of Tsukuba
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Junichi Hoshino

University of Tsukuba/PRESTO, JST

Expressive Features for Movement Exaggeration

A method for warping a motion-capture sequence of a person performing an activity at a particular intensity into a natural-looking exaggerated version of that action.

James W. Davis

*The Ohio State University
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Vignesh S. Kannappan

The Ohio State University

3D Reconstruction of Walking Behavior Using a Single Camera

Synthetic 3D reconstruction of walking behavior based on video from a single, calibrated camera. The method assumes fairly normal walking behavior (for example, people in a lobby).

Rick Parent

*The Ohio State University
somasund@cis.ohio-state.edu*

Arunachalam Somasundaram

The Ohio State University

Magical Face: Integrated Tool for Muscle-Based Facial Animation

A facial animation tool for CG creators implemented as a Maya plug-in. This tool provides easy operation for anatomical muscle model and lip-synchronization with natural voices.

Tatsuo Yotsukura

*Seikei University
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Mitsunori Takahashi

Shigeo Morishima
Seikei University
Hirokazu Kudoh
Kazunori Nakamura
SEGA Corporation

Wednesday, 24 July

1:30 – 3:15 pm

River Room 001

Weather & Information Visualization

Session Chair: **Jacquelyn Martino**, Massachusetts Institute of Technology

Bringing Computer Graphics to Everyday Environments With Informative Art

How can computer graphics displays be integrated into everyday environments? One answer: a dynamic weather forecast displayed in the style of a modern painter and installed in a public space.

Tobias Skog

Interactive Institute
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Sara Ljungblad

Lars Erik Holmquist
Viktoria Institute

Recent Exact Aesthetics Applications

Exact aesthetics is a challenging field of computer-aided visual creativity. It reconstructs design and criticism methods on an algorithmic basis and integrates computers into artistic creation and aesthetic evaluation.

Tomas Staudek

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Petr Machala

Masarykova Univerzita v Brně

Occidio

A computer-mediated sound and DVD installation that interprets scientific visualizations of global warming through interplay of video, computer-mediated sound synthesized by theremins, and sculptural forms.

Timothy Nohe

University of Maryland, Baltimore County
nohe@umbc.edu

GEO-COSMOS: The World's First Spherical Display

GEO-COSMOS, the world's first spherical display, uses 3,715 LED panels. The images and movies on this display can be viewed from all directions.

Tamotsu Machida

ViNO azul, Inc.
mach@vino.co.jp

Tsuyoshi "Go" Hotta

DENTSU Inc.
National Museum of Emerging Science and Innovation

Wednesday, 24 July

3:30 – 5:30 pm

Room 103

Narrative Explorations

Session Chair: **Dorothy Krause**, Emeritus/Massachusetts College of Art

A Semiotic Approach to Narrative Manipulation

A tool based on semiotics to support the transposition of written synopses to filmic multimodal language. Users analyze the narrative to reveal its structure and simulate different effects of meaning.

Maria Alberta Alberti

Università degli Studi di Milano
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Dario Maggiorini

Università degli Studi di Milano

Paola Trapani

Politecnico di Milano

Tangible Viewpoints: A Physical Interface for Exploring Character-Driven Narratives

The Tangible Viewpoints project explores how physical objects and augmented surfaces can be used as tangible embodiments of the different character perspectives in a multi-viewpoint interactive narrative.

Ali Mazalek

Massachusetts Institute of Technology, Media Laboratory
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Glorianna Davenport

Hiroshi Ishii
Massachusetts Institute of Technology, Media Laboratory

Three Angry Men: Dramatizing Point of View Using Augmented Reality

An augmented-reality experience that mixes a physical jury room with virtual jurors debating a man's fate. The participant experiences each juror's viewpoint and prejudices.

Blair MacIntyre

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Jay David Bolter

Jeannie Vaughan

Brendan Hannigan

Emmanuel Moreno

Markus Haas

Maribeth Gandy

Georgia Institute of Technology

Wednesday, 24 July

3:30 – 5:30 pm

Ballroom A

Feature Film Production Techniques

Session Chair: **Darin Grant**, Digital Domain

Shader Analytical Approximations for Terrain Animation in "The Time Machine"

An overview of two novel approaches to procedurally animating displacement shaders for erosion of volumes of earth and rock: bouldering and gullying.

John Gibson

Digital Domain
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Evolution of a VFX Voxel Tool

The philosophy and development history of Digital Domain's voxel modeling, animation, and rendering tool.

Alan Kapler

Digital Domain
zima@d2.com

Lucio Flores

Digital Domain

Star Fields in 2D

A star-field generation technique that reduces production time for rendering star fields and provides controls to generate 3D effects at composite time.

Maria Giannakouros

Digital Domain
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Creation of a Photo-Real CG Human

For upcoming feature releases, the Digital Domain team created a full screen, completely believable, CG stunt double for a well-known motion-picture star.

Brian Goldberg

Digital Domain
bgold@d2.com

Wednesday, 24 July

3:30 – 5:30 pm

Room 207

Non-Photorealistic Rendering

Session Chair: **Chuck Hansen**, University of Utah

Pastel-Like Rendering Considering the Properties of Pigments and Support Medium

A new NPR technique that reproduces pastel drawing-like textures by focusing especially on the attributes of pastel pigments.

Kyoko Murakami

Kyushu Institute of Design Graduate School
kyoko@verygood.kyushu-id.ac.jp

Reiji Tsuruno

Kyushu Institute of Design

Automatic Generation of Pencil Drawing Using Line-Integral Convolution

A new technique for automatically generating pencil drawings from 2D gray-scale images using line-integral convolution.

Xiaoyang Mao

Yamanashi University
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Yoshinori Nagasaka

Atsumi Imamiya
Yamanashi University

Rich Curve Drawing

A new drawing algorithm that applies variable widths, like G-pen drawing, to general 2D curve data.

Suguru Saito

Tokyo Institute of Technology
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Akane Kani

Youngha Chang
Masayuki Nakajima

Tokyo Institute of Technology

The World is Flat: Exploiting Screen Space

Development of a program that renders 3D animation by drawing on frames with vector-based tools.

Ian Mackinnon

Bournemouth University
ianmackinnon@hotmail.com

Thursday, 25 July

8:10 – 10:15 am

Room 207

Artificial Intelligence

Session Chair: Fred Pighin, USC Institute for Creative Technologies

“Low-Level” Intelligence for “Low-Level” Animation

Models of certain “low-level” cognitive abilities (such as object persistence) in synthetic characters can be used to control “low-level” behavior, such as eye gaze and facial expression.

Damian Isla

Massachusetts Institute of Technology, Media Laboratory
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Bruce Blumberg

Massachusetts Institute of Technology, Media Laboratory

Virtual Human Interface: Building an Intelligent Animated Agent

An interactive animation and communication platform that employs photo-real virtual humans to form the basis of a new generation of educational and entertainment tools.

Bernadette Kiss

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BernadetteKiss@yahoo.com

Gábor Szijártó

VerAnim Bt.
Barnabás Takács
CTO

Towards Visualizing HCI for Immersive Environments: The Meta-Situational Tracker

The Meta-Situational Tracker provides researchers with the ability to visualize user situations within immersive environments.

Christopher Jaynes

University of Kentucky
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Joan Mazur

Cindy Lio
University of Kentucky

Lewis the Robotic Photographer

Lewis is a human-sized robot wedding photographer who collects images and displays them in a “photo album” that celebrants can print or store in digital format.

Cindy Grimm

Washington University in St. Louis
cmg@cs.wustl.edu

William D. Smart

Zachary Byer
Michael Dixon
Jacob Cynamon
Hui Zhang

Thursday, 25 July

8:10 – 10:15 am

Room 217BCD

Visualizing Humans

Session Chair: Rick Parent, The Ohio State University

Computer Graphics to Illustrate the Development of a Human Embryo for Professional Medical Education

Using 3D computer graphics to illustrate development of a human embryo for education in embryology, one of the basic subjects in professional medical education.

Koh Kakusho

Kyoto University
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Yutaka Minekura

Michihiko Minoh
Shinobu Mizuta
Tomoko Nakatsu
Kohei Shiota
Kyoto University

Investigating Face Space

A development system created to explore what it means to “surf” through face space.

Steve DiPaola

Simon Fraser University
steve@dipaola.org

The Development of a Functional Visualization System for the Creation of Digital Human Models

An attempt to realize a functional visualization system for creation of digital models of people with disabilities for use by designers and clinicians.

John Jay Miller

Mississippi State University
jmiller@sarc.msstate.edu

Weidong Wang

Craig Bennett Associates, Architects
Gavin R. Jenkins
Mississippi State University

DocuDrama Conversations

DocuDrama supports generation of interactive narratives that are based on activities in a collaborative virtual environment.

Leonie Schaefer

Fraunhofer-Institut für Angewandte Informationstechnik
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Elaine M. Raybourn

Sandia National Laboratories
Amanda Oldroyd
BTexact Technologies

Thursday, 25 July

10:30 am – 12:15 pm

Room 103

Virtual Re-Creations

Session Chair: Linda Lauro-Lazin, Pratt Institute

Reconstructing or Inventing the Past: A Computer Simulation of the Unbuilt Church by Alvar Aalto

A discussion of the rules for resurrecting unbuilt structures, focusing on virtual reconstruction of an unbuilt church employing state-of-the-art simulation techniques to communicate the experience and the essence of unbuilt space.

Andrzej Zarzycki

*Tsoi/Kobus & Associates
zarzycki@alum.mit.edu*

A Virtual Reconstruction of the Cone Sisters' Apartments

How the real-time 3D interactive simulation, Virtual Tour of the Cone Sisters' Apartment (SIGGRAPH 2002 Art Gallery), was authored for two types of installations.

Alan Price

*University of Maryland, Baltimore County
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**Dan Bailey
Brinton Jaecks
Christina Hung
Sala Wong
Bea Bufrahi**

University of Maryland, Baltimore County

Now and Then, Here and There: Industrilandskapet

An industrial landscape's role in society changes over time. This project examines one such landscape in Norrköping, Sweden, where computer graphics technology creates an environment of cultural learning and evolution.

Mark Ollila

*Linköpings Universitet
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**Konstantin Economou
Anders Ynnerman
Martin Etherton Friberg**

Linköpings Universitet

Thursday, 25 July

10:30 am – 12:15 pm

Room 207

Surface & Volumetric Techniques

Session Chair: Ioana Martin, IBM T.J. Watson Research Center

Slow-Growing Volumetric Subdivision

A new subdivision technique that refines volumetric meshes at the same rate as surface meshes. The scheme builds adaptive refinements and sharp edges without using special cell decompositions.

Valerio Pascucci

*Lawrence Livermore National Laboratory
pascucci@llnl.gov*

Fracture Generation on Polygonal Meshes Using Voronoi Polygons

Using Voronoi polygons generated on poly meshes to synthesize visually realistic cracks and fragments.

Saty Raghavachary

*DreamWorks Feature Animation
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Modified Marching Octahedra for Optimal Regular Meshes

Volumetric data on cubic meshes are not optimally sampled. Optimal meshes use tetrahedra and octahedra. This technique optimizes isosurfaces on these meshes by substituting octahedra for groups of tetrahedra.

Hamish Carr

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Thomas Theußl

*Vienna University of Technology
Torsten Möller
Simon Fraser University*

Sandwiching Surfaces

Comparison sandwiched surfaces and demonstration of their performance in silhouette and collision detection.

Jörg Peters

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Xiaobin Wu

University of Florida

Thursday, 25 July

10:30 am – 12:15 pm

Room 217BCD

Hardware Rendering

Session Chair: Mark Elendt, Side Effects Software

Hardware-Accelerated Texture and Edge Antialiasing Using FIR Filters

Novel texture and edge-antialiasing algorithms for hardware implementation. Compared to traditional methods, these algorithms yield superb image quality at no higher costs.

Frans Peters

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Bart Barenbrug

Koen Meinds
Philips Research

Spatial Bi-Directional Reflectance Distribution Functions

A method to simultaneously measure the BRDF at each point on a surface, compactly represent the results as a texture map, and render these surfaces in graphics hardware.

David K. McAllister

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Benjamin P. Cloward

Vicious Cycle Software
Anselmo A. Lastra
University of North Carolina at Chapel Hill
Wolfgang Heidrich
The University of British Columbia

Curvature-Driven Sampling of Displacement Maps

An algorithm for adaptive re-meshing of a displaced surface depending on the curvature of the displacement map.

Johannes Hirche

Universität Tübingen

Alexander Ehlert

Universität Tübingen

User-Customizable Real-Time Fur

This sketch outlines a number of advances to the shell-and-fin-based fur rendering technique by Lengyel et al, using the pixel and vertex shader capabilities of 3D hardware.

Jason L. Mitchell

ATI Research, Inc.
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John Isidoro

ATI Research, Inc.

Thursday, 25 July

10:30 am – 12:15 pm

River Room 001

Physical Simulation

Session Chair: Holly Rushmeier, IBM T. J. Watson Research Center

Modeling the Accumulation of Wind-Driven Snow

A method for modeling the appearance of snow drifts formed by accumulation of wind-blown snow near buildings and other obstacles.

James F. O'Brien

University of California, Berkeley
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Bryan E. Feldman

University of California, Berkeley

The Simulation of Fluid-Rigid Body Interaction

Modeling of the interaction between fluid and rigid bodies, and how to simulate scenes with consistent motion of fluid and rigid bodies.

Tsunemi Takahashi

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Ueki Heihachi

Toshiba CAE Systems Incorporated
Atsushi Kunimatsu
Hiroko Fujii
Toshiba Corporation

Modal Analysis for Real-Time Viscoelastic Deformation

Using modal decompositions from finite-element models to model viscoelastic deformation in real time in an unconditionally stable fashion.

James F. O'Brien

University of California, Berkeley
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Chen Shen

Kris K. Hauser
Christine M. Gatchalian
University of California, Berkeley

Firefighter-Training Virtual Environment

A virtual environment in which the user, a commanding officer trainee, instructs teams of virtual firefighters to perform different actions to put out virtual fires.

Tazama St. Julien

Georgia Institute of Technology
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Chris D. Shaw

Georgia Institute of Technology

Thursday, 25 July

1:30 – 3:15 pm

Room 103

Manifesting Art

Session Chair: Cheryl Stockton, Studio Firefly and Pratt Institute

Painting With Light

Fractal images created by ray-tracing specular highlights of light sources on the inside surface of a hollow sphere that has a random bump map applied to scatter the rays.

Kevin G. Suffern

University of Technology, Sydney
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Folded: Negotiating the Space Between Real and Virtual Worlds

By manipulating visualization technology, this project relocates a painting as the site of an immersive environment where the painting's fundamental components generate the parameters of a multi-modal, multi-sensory experience.

Samantha Krukowski

University of Texas at Austin
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John Slatin

Jeremy Beaudry

Ken Dykes

Kaz Raad

Niten Kapadia

Tray Duncan

Doug Denny

Kristin Peterson

Eleanor Eichenbaum

University of Texas at Austin

Embodied Interaction

Embodied Interaction examines the need to address the physical body and how the actions of users need to be interconnected with the interface and content of an interactive piece.

Bill Hill

Jacksonville University
whill@ju.edu

"Still I Rise" Painterly Animation Off the Shelf

Painterly animation of Elephant Man Joseph Merrick's last dream created entirely with off-the-shelf software.

Umesh Shukla

Atreo Films
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Anna Shukla

Hans Bacher

Chris Cowen

Thursday, 25 July

1:30 – 3:15 pm

Ballroom A

Making of Reign of Fire

Session Chair: Mark Elendt, Side Effects Software

Inverse Texture Warping

A technique used on "Reign of Fire" to minimize the texture stretching that occurs when a deforming surface gets the same texture image applied over successive frames of deformation.

Robert Falco

Walt Disney Feature Animation,
The Secret Lab
robert.falco@disney.com

Hank Driskill

Walt Disney Feature Animation,
The Secret Lab

Dragon Scales: The Evolution of ScaleTool for "Reign of Fire"

Techniques used to grow scales on dragons for the movie "Reign of Fire" and some of the more significant issues encountered during the development of ScaleTool.

Ernest J. Petti

Walt Disney Feature Animation,
The Secret Lab
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Thomas V. Thompson II

Adolph Lusinsky

Hank Driskill

Walt Disney Feature Animation,
The Secret Lab

Dynamic Simulation of Wing Motion on "Reign of Fire"

How specific methods were developed to give technical directors control over dynamic simulation for the production "Reign of Fire."

Carlos Gonzalez-Ochoa

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David Eberle

Rob Dressel

Walt Disney Feature Animation,
The Secret Lab

Digital Pyro for "Reign of Fire"

Producing digital pyrotechnic effects for "Reign of Fire" using computational fluid dynamics and volumetric rendering in a pipeline that facilitates art direction.

Patrick Dalton

Walt Disney Feature Animation,
The Secret Lab
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Shyh-Chyuan Huang

Rob Rosenblum

Lawrence Lee

Hank Driskill

Walt Disney Feature Animation,
The Secret Lab

Thursday, 25 July

1:30 – 3:15 pm

Room 207

Lighting

Session Chair: David "Grue" DeBry, Thrown Clear Productions

The Free-Form Light Stage

A system for capturing the reflectance field of an object by freely moving a hand-held light source over the object.

Vincent Masselus

Katholieke Universiteit Leuven
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Philip Dutré Frederik Anrys

Katholieke Universiteit Leuven

Accurate Image-Based Re-Lighting Through Optimization

A re-lighting technique that, for a single viewpoint, accurately captures the reflectance field of objects, without restrictions on their geometrical complexity or material properties.

Pieter Peers

Katholieke Universiteit Leuven
pieterp@cs.kuleuven.ac.be

Philip Dutré

Katholieke Universiteit Leuven

Image-Based Illumination for Electronic Display of Artistic Paintings

Visual impressions from two-dimensional artistic paintings vary greatly under different illumination conditions. This sketch presents an efficient method of representing this variability utilizing both simple reflectance models and image-based lighting.

Da young Ju

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Jin-Ho Yoo

Sogang University

Sang Wook Lee

Sogang University

Gregory Sharp

University of Michigan

Maximum-Entropy Light Source Placement

A fully automated method to place light sources in the context of scientific visualization. The information added by the illumination is globally maximized.

Stefan Gumhold

Universität Tübingen
stefan@gumhold.com

Thursday, 25 July

1:30 – 3:15 pm

Room 217BCD

Animation Techniques

Session Chair: Rick Parent, The Ohio State University

Body Building Through Weight Training: Using Fitting Techniques for Skin Animation

A process called multi-weight enveloping for deforming the skin geometry of a digital creature around its skeleton using a statistical fit to an input training exercise.

Corina Xiaohuan Wang

Industrial Light + Magic
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Cary Phillips

Industrial Light + Magic

Music-Driven Motion Editing

A general framework for synchronizing motion curves to music in computer animation. Motions are locally modified using perceptual cues extracted from the music.

Marc Cardle

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Steven Brooks

Loic Barthe

Mo Hassan

Peter Robinson

University of Cambridge

A Dynamic Motion-Control Middleware for Computer Games

Novel middleware for computer games that produces dynamically changing motions in response to physical interactions such as collision impulses and external forces.

Masaki Oshita

Kyushu University
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Akifumi Makinouchi

Kyushu University

Computer-Generated Clay Animation

Capturing and retargeting the creative process to generate clay-like animation.

Daisuke Goto

University of Tsukuba
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Junichi Hoshino

University of Tsukuba/PRESTO, JST

Thursday, 25 July

1:30 – 3:15 pm

River Room 001

3D Scanning

Session Chair: Holly Rushmeier, IBM T.J. Watson Research Center

ICARUS: Interactive Reconstruction From Uncalibrated Image Sequences

A rapid and robust semi-automatic system that allows models of real scenes to be quickly and easily built from video sequences captured with standard, uncalibrated digital cameras.

Simon Gibson

University of Manchester
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Jon Cook

Toby Howard

Roger Hubbard

University of Manchester

Shape From Distortion: 3D Range Scanning of Mirroring Objects

Objects with mirroring surfaces are left out of the scope of most recent 3D scanning methods. This new acquisition approach, shape from distortion, focuses on that category of objects.

Marco Tarini

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Hendrik Lensch

Michael Goesele

Hans-Peter Seidel

Max-Planck-Institut für Informatik

Pop-Eye: A Pop-Out Video Camera System for Personal Use

A system that can obtain real-time 3D video based on color and reflection images. It uses a new 3D capturing technology to achieve low-cost, real-time image capture.

Isao Mihara

Toshiba Corporation
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Miwako Doi

Takahiro Harashima

Shunichi Numazaki

Toshiba Corporation

An Inexpensive 3D Camera

Implementation of a portable 3D camera using a consumer-grade digital camera and an inexpensive laser raster generator.

Manuel M. Oliveira

Stony Brook University
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Askold Strat

Symbol Technologies, Inc.

Thursday, 25 July

3:30 – 5:30 pm

Ballroom A

Pre-Production & Pipeline: Doing it Right From the Start

Session Chair: Steve Derrick, Vicarious Visions, Inc.

Diorama Engine: A 3D Video Storyboard Editor for 3D Computer Animation

Real-time 3D software with limited functionality and a simple interface for creating video storyboards.

Koji Mikami

Tokyo University of Technology
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Toru Tokuhara

Keio University

Mitsuru Kaneko

Tokyo University of Technology

Probability Paint: Controlling Group Characteristics with PDFs

Shapeable probability distribution functions, together with a “probability paint” interface, provide a powerful, intuitive tool for controlling group characteristics and variation. Applications include character animation, modeling, shading, and effects.

Kathleen Gretchen Greene

ggreene_1999@yahoo.com

Performance-Driven Computer Graphics Making Odyssey

A case study of how computer graphics work was designed to support director Jonathan Glazer's live-action shooting style on Levi's “Odyssey.”

Markus Manninen

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Thursday, 25 July

3:30 – 5:30 pm

Room 207

Geometric Modeling

Session Chair: **Brian Barsky**, University of California, Berkeley

Detail Calibration for Out-of-Core Model Simplification Through Interlaced Sampling

A single-pass algorithm that introduces an interlaced sampling pattern to realize detail calibration for out-of-core simplification.

Guangzheng Fei

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Nadia Magnenat Thalmann

Université de Genève, MIRALab

Kangying Cai

Institute of Software, Chinese Academy of Sciences

Enhua Wu

Universidade de Macau

Generating Feather Coats Using Bézier Curves

A method for modeling feathers and feather coats that allows for automatic generation of feathers while maintaining control over creation of adverse sets of feather types.

Lisa Streit

The University of British Columbia
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Wolfgang Heidrich

The University of British Columbia

DIVIPRO: Distributed Interactive Virtual PROotyping

A prototype system for multi-user, distributed, interactive computer-aided design (with constraints, flexible body simulation, and haptics) and a description of the distribution strategies used.

Mashhuda Glencross

University of Manchester
khotem@cs.man.ac.uk

James Marsh

Jon Cook

Sylvain Daubrenet

Steve Pettifer

Roger Hubbard

University of Manchester

Implementing the Continuous Staircase Illusion in OpenGL

Creative mathematical modeling and OpenGL provide animation and interactive viewpoint control to enhance the Penrose Continuous Staircase Illusion, best known from Escher's Ascending And Descending.

Mark W. Scott

mwscott@usit.net

Thursday, 25 July

3:30 – 5:30 pm

Room 217BCD

Devices & Interaction

Session Chair: **Chuck Hansen**, University of Utah

3D Haptic Shape Perception Using a 2D Device

To investigate whether a 2D force-feedback device can produce 3D shape perception, experiments were conducted to obtain 3D perceptual thresholds using 2D and 3D devices.

Huirong Han

Ochanomizu University
han@imv.is.ocha.ac.jp

Juli Yamashita

National Institute of Advanced Industrial Science and Technology

Issei Fujishiro

Ochanomizu University

The Nail-Mounted Tactile Display for the Behavior Modeling

A new type of tactile display for augmented reality: a nail-chip. It allows users to feel various textures as they trace their fingers along smooth objects.

Hideyuki Ando

Japan Science and Technology Corporation
hide@star.t.u-tokyo.ac.jp

Takeshi Miki

Masahiko Inami

Taro Maeda

University of Tokyo

Drawing With Feeling: Designing Tactile Display for Pen

An interface that enhances a pen with tactile display to allow artists and designers to “feel” drawings.

Ivan Poupyrev

Sony Computer Science Laboratories, Inc.
poup@csl.sony.co.jp

Shigenki Maruyama

Sony Computer Science Laboratories, Inc.

Techniques for Interactive Audience Participation

A new set of techniques that enable members of an audience to participate, either cooperatively or competitively, in shared entertainment experiences.

Dan Maynes-Aminzade

Massachusetts Institute of Technology, Media Laboratory
monzy@media.mit.edu

Randy Pausch

Carnegie Mellon University

Steven M. Seitz

University of Washington

Thursday, 25 July

3:30 – 5:30 pm

River Room 001

Rendering

Session Chair: **Darin Grant**, Digital Domain

Interruptible Rendering

A novel rendering approach that improves interactivity and fidelity by explicitly comparing spatial error (coarse images caused by LOD techniques) to temporal error (late images caused by finite rendering times).

David Luebke

University of Virginia
luebke@cs.virginia.edu

J. Cliff Woolley

University of Virginia

Benjamin Watson

Northwestern University

Improving Frameless Rendering by Focusing on Change

Frameless rendering samples pixels randomly in time, resulting in blurring in regions where images are changing. This technique makes sampling sensitive to the change, resulting in sharper imagery.

Abhinav Dayal

Northwestern University
abhinav@cs.nwu.edu

Benjamin Watson

Northwestern University

David Luebke

University of Virginia

Real-Time Image-Space Outlining for Non-Photorealistic Rendering

An image-space algorithm that uses pixel shaders to render silhouette, crease, shadow, and texture outlines of 3D scenes in real time on consumer-level graphics hardware.

Jason L. Mitchell

ATI Research, Inc.
JasonM@ati.com

Chris Brennan

Drew Card

ATI Research, Inc.

Probabilistically Placing Primitives

A fast probabilistic method for placing drawing primitives from a reference image.

Adrian Secord

The University of British Columbia
ajsecord@cs.ubc.ca

Wolfgang Heidrich

The University of British Columbia

Friday, 26 July

8:10 – 10:15 am

Room 207

Applications

Session Chair: **Doug Roble**, Digital Domain

Using the Virtual Terrain Project to Plan Real Cities: Alternative Futures for Hangzhou, China

The open-source Virtual Terrain Project was used to create real-time visualizations of alternative plans for a large city. Continuous level-of-detail terrain modeling proved critical.

Michael Flaxman

The Harvard Graduate School of Design
mflaxman@gsd.harvard.edu

The Time Geography Project: Using Computer Graphics to Visualize Problems in Social Science

How various scientific/information visualization techniques are used in political science, especially in time geography, the study of where and what people are doing.

Mark Ollila

Linköpings Universitet
marol@itn.liu.se

Kajsa Ellegard

Johan Torne

Henric Joanson

Anders Ynnerman

Matthew Cooper

Linköpings Universitet

Interactive Visualization of Large-Scale Time-Varying Data Sets

Visualization of the phase-space distributions of plasma particles interacting with strong electrostatic waves. The visualized data are provided by large-scale particles in cell simulations.

Mark Eric Dieckmann

Linköpings Universitet
mardi@itn.liu.se

Patric Ljung

Anders Ynnerman

Linköpings Universitet

3D Browser for Interactive Television

A functional prototype of a new kind of 3D graphical user interface for interactive television. It integrates different media and communication forms under an easy-to-use interface.

Olli Mannerkoski

Valkeus Interactive Ltd.
olli.mannerkoski@valkeus.com

Petri Kotro

Hannu Lesonen

Risto Lustila

Valkeus Interactive Ltd.

Friday, 26 July

8:10 – 10:15 am

Room 217BCD

Virtual Reality Techniques

Session Chair: Charles Lazin, WebMark Studios

Real-Time 3D Interaction for Augmented and Virtual Reality

A new view-generation system that permits real-time 3D augmented-reality video conferencing, realistic avatar generation in virtual reality, and novel tangible interaction among collaborators in virtual spaces.

Simon Prince

National University of Singapore
elesp@nus.edu.sg

Farzam Farbiz

Adrian David Cheok

National University of Singapore

Todd Williamson

Nik Johnson

Zaxel Systems, Inc.

Mark Billingham

University of Washington

Hirokazu Kato

Hiroshima City University

Diminishing Head-Mounted Display for Shared Augmented Reality

A novel technique to restore eye contact in a shared augmented-reality environment. The idea is to synthesize and overlay the facial video to diminish the user's head-mounted display.

Masayuki Takemura

University of Tsukuba
takemura@image.esys.tsukuba.ac.jp

Yuichi Ohta

University of Tsukuba

Regeneration of Real Objects in the Real World

Regeneration of real objects that existed in the past and/or at some remote location in an installation that features "Noh," a form of Japanese traditional drama.

Hiroto Matsuoka

Nippon Telegraph and Telephone Corporation
hmatsu@aecl.ntt.co.jp

Akira Onozawa

Hisao Nojima

Hidenori Sato

Nippon Telegraph and Telephone Corporation

Perceptual Gaze Extent and Level of Detail in VR: Looking Outside the Box

Eye-tracking evidence that shows limitations of perceptual gaze extent in the context of peripheral LOD management during a visual search task in virtual reality.

Andrew T. Duchowski

Clemson University
andrewd@cs.clemson.edu

Hunter Murphy

Clemson University

Friday, 26 July

10:30 am – 12:15 pm

Room 103

Calm Places

Session Chair: Linda Lauro-Lazin, Pratt Institute

"Loops" – A Digital Portrait

This digital portrait of dance legend Merce Cunningham uses as a point of departure a motion-captured recording of "Loops," his solo dance for hands and fingers.

Marc Downie

Massachusetts Institute of Technology, Media Laboratory
marcd@media.mit.edu

Shelley Eshkar

Paul Kaiser

Massachusetts Institute of Technology, Media Laboratory

The Meditation Chamber: A Debriefing

At SIGGRAPH 2001 Emerging Technologies, 400+ attendees experienced The Meditation Chamber. This sketch discusses design and implementation of this installation, and the data it generated.

A. Fleming Seay

Carnegie Mellon University
afseay@cs.cmu.edu

Diane Gromala

Larry Hodges

Chris Shaw

Georgia Institute of Technology

Calm Visual Spaces: Learning From Kyoto Zen Gardens

Zen gardens achieve sophisticated visual designs with minimal compositions. This sketch describes visual perception models to analyze garden aesthetics and suggest techniques to support creation of calm environments, virtual or real.

Michael J. Lyons

Advanced Telecommunications Research Institute International
mlyons@atr.co.jp

Gert J. Van Tonder

Kyoto University
Nobuji Tetsutani
Advanced Telecommunications Research Institute International
Ian Shortreed
Mercury Software

MasterMotion: Full-Body Wireless Virtual Reality for Tai Chi

A full-body motion-capture and wireless virtual reality system applied to Tai Chi training and online feedback mechanisms that aid learning.

Russell Schaaf

Carnegie Mellon University
rsbe@andrew.cmu.edu

Philo Tan Chua

Rebecca Crivella

Bo Daly

Ning Hu

David Ventura

Todd Camill

Jessica Hodgins

Randy Pausch

Carnegie Mellon University

Friday, 26 July

10:30 am – 12:15 pm

Ballroom A

Effects Omelette

Session Chair: Juan Buhler, PDI/DreamWorks

Uber Destruction in “The Time Machine”

An overview of the Digital Domain character-animation team's work on the time-based decay and death of the Uber Morlock in “The Time Machine.”

Brad Parker

Digital Domain
bparker@d2.com

Challenges of the Homeland Pan in “Spirit”

The opening scene of DreamWorks' newest animated film, “Spirit,” runs a full three minutes and is an elaborate flythrough of the historic and breathtaking scenery of the Wild West.

Doug Cooper

DreamWorks Feature Animation
coop@anim.dreamworks.com

Pushing the Limits of L-Systems for Time-Lapse Vine Growth in “The Time Machine”

The vine-growth animation for DreamWorks' “The Time Machine” required generation of a unique and manageable growth system, and a system of rendering that complimented this movement.

Jonah Hall

Digital Domain
jonah@d2.com

Foamy Creatures: Digital Domain Wrangles Whitewater for “Lord of the Rings”

The technical and artistic techniques used by Digital Domain to produce the Ford of Bruinen sequence in “Lord of the Rings.”

Markus Kurtz

Digital Domain
markusk@d2.com

Greg Duda

Digital Domain

“Lord of the Rings” - Animation That Was Not There

The animation techniques in general use at Digital Domain and on the work completed in the Ford of Bruinen sequence from “Lord of the Rings.”

Piotr Karwas

Digital Domain
pkarwas@d2.com

Friday, 26 July

10:30 am – 12:15 pm

Room 207

Augmented Reality

Session Chair: Fred Pighin, USC Institute for Creative Technologies

RAPTOR: Towards Augmented Paleontology

A new multi-user augmented-reality display that helps paleontologists and museum visitors explore and understand fossils in an exciting and effective way.

Oliver Bimber

Fraunhofer Center for Research in Computer Graphics
obimber@crcg.edu

L. Miguel Encarnação

Fraunhofer Center for Research in Computer Graphics

The AR-ENIGMA: A PDA-Based Interactive Illustration

The AR-Enigma combines a personal digital assistant with a camera, a high-speed wireless network, and AR technology to enable museum visitors to interact with an Enigma encryption machine.

Volker Paelke

Universität Paderborn
vox@c-lab.de

Joerg Stoecklein

Lennart Groetzbach

Christian Geiger

Christian Reimann

Waldemar Rosenbach

Universität Paderborn

MARE: Multiuser Augmented-Reality Environment on Table Setup

A collaborative environment based on augmented reality for applications involving 3D data: urban planning, visualization, games, etc. The environment includes new interactive techniques for moving and adding virtual and real objects.

Raphael Grasset

iMAGIS/GRAVIR
raphael.grasset@imag.fr

Jean Dominique Gascuel

iMAGIS/GRAVIR

Tracking 3D Puzzle Pieces for Collaborative Learning Environments

Wireless 3D puzzle pieces become parts of a tangible interface for a system designed to enhance collaborative learning by acting as a guide on the side.

Lori Scarlatos

Brooklyn College, The City University of New York
lori@sci.brooklyn.cuny.edu

Shalva Landy

Saira Qureshi

Brooklyn College, The City University of New York

Friday, 26 July

1:30 – 3:15 pm

Room 207

Image Technology

Session Chair: Doug Roble, Digital Domain

Real-Time View Synthesis Using Commodity Graphics Hardware

A novel use of commodity graphics hardware that is based on the plane-sweeping technique for real-time, on-line 3D view synthesis.

Ruigang Yang

University of North Carolina at Chapel Hill
ryang@cs.unc.edu

Greg Welch**Gary Bishop****Herman Towles**

University of North Carolina at Chapel Hill

Depth-Complexity-Based Occluder Selection

Depth-complexity-based occluder selection delivers high-quality occluder sets by evaluating low-resolution images of the final output, which are rendered using a simple IBR technique.

Gerhard Kurka

Johannes Kepler Universität Linz
kurka@gup.uni-linz.ac.at

High-Speed Conversion of Floating-Point Images to 8-bit

A technique to quickly convert floating-point data to a screen image while preserving the correct brightness levels and original detail.

Bill Spitzak

Digital Domain
spitzak@d2.com

Interactive Level-Set Tools for Photo Editing

A suite of interactive image-editing tools based on properties of and manipulation of image-level sets. The suite includes level-set smoothing, level-set constrained sharpening, and level-set “nudging” (image distortion).

Bryan Morse

Brigham Young University
morse@byu.edu

Thomas C. Howard

Brigham Young University

Friday, 26 July

1:30 – 3:15 pm

Room 217BCD

Virtual Reality Devices

Session Chair: Amy Ashurst Gooch, University of Utah

A New Interface for the Virtual World Foot-Motion-Sensing Input Device

Most virtual-reality systems use upper body-parts in the virtual environment. This new interface detects ankle motions relative to the knee.

Barrera Salvador

Tokyo Institute of Technology
aldanasal@hotmail.com

Masayuki Nakajima**Hiroki Takahashi**

Tokyo Institute of Technology

The AcceleGlove, a Whole-Hand Input Device for Virtual Reality

An input device that employs accelerometers mounted on the fingers and palm and a posture classification system to provide user interaction in virtual reality.

Jose L. Hernandez-Rebollar

The George Washington University
jreboll@seas.gwu.edu

Nicholas Kyriakopoulos**Robert W. Lindeman**

The George Washington University

TWISTER: Technical Challenges

TWISTER (Telexistence Wide-Angle Immersive STEReoscope) is an immersive full-color autostereoscopic display, designed for face-to-face telecommunication, where people in distant locations can communicate as if they were in the same virtual 3D space.

Kenji Tanaka

The University of Tokyo
tanaken@star.t.u-tokyo.ac.jp

Junya Hayashi**Yutaka Kunita****Masahiko Inami****Taro Maeda****Susumu Tachi**

The University of Tokyo

A Handheld Virtual Mirror

A handheld virtual mirror device composed of a flat LCD screen manipulated by the user, a camera fixed on the screen, and a tracking device.

Alexandre François

University of Southern California
alefranc@usc.edu

Elaine Kang**Umberto Malesci**

University of Southern California

Friday, 26 July

1:30 – 3:15 pm

River Room 001

Portable VR

Session Chair: Rick Parent, The Ohio State University

Quikwriting on the Responsive Workbench

This new text-input paradigm for the Responsive Workbench uses the stylus, a tracked pen with a button, and is based on Quikwrite (for Palm Pilot).

Jerome Grosjean

*INRIA Rocquencourt
Jerome.Grosjean@inria.fr*

Sabine Coquillart

INRIA Rocquencourt

Using Cellular Phones to Interact With Virtual Environments

In this collaborative VR system, users interact through a workstation client or a cellular phone to interactively build 3D Lego brick models.

Bent Dalgaard Larsen

*Danmarks Tekniske Universitet
bdl@imm.dtu.dk*

Jakob Andreas Bærentzen

Niels Jorgen Christensen
Danmarks Tekniske Universitet

Virtual Reality Interfaces Using Tweak

Tweak is a toolkit that allows interaction with C++ virtual reality applications using a dynamically extensible Java GUI. It offers new possibilities for input within virtual worlds.

Patrick Hartling

*Iowa State University
patrick@vrac.iastate.edu*

Allen Bierbaum

Carolina Cruz-Neira
Iowa State University

Backseat Gaming: Augmented-Reality With Speed

A prototype that explores how to make use of mobile properties for developing compelling and fun game experiences.

Mark Ollila

*Linköpings Universitet
marol@itn.liu.se*

Liselott Brunberg

The Interactive Institute, Sweden

Friday, 26 July

3:30 – 5:30 pm

Room 217BCD

Color & Focus

Session Chair: Brian Barsky, University of California, Berkeley

Color Transformation Based on the Basic Color Categories of a Painting

Using basic color category concepts to generate large but natural color transformations of an image.

Youngha Chang

*Tokyo Institute of Technology
chang@img.cs.titech.ac.jp*

Suguru Saito

Masayuki Nakajima
Tokyo Institute of Technology

Perceptual Tone-Mapping Operators for High-Dynamic-Range Scenes

A method for creating a perceptual tone-mapping operator based on psychophysical experiments. It exploits the fact that human eyes process detailed information almost exclusively in the fovea.

Patrick Ledda

*University of Bristol
ledda@cs.bris.ac.uk*

Alan Chalmers

University of Bristol

Greg Ward

Exponent

A Phenomenological Approach to Bokeh Rendering

“Bokeh” is a term that describes the quality of out-of-focus areas as rendered by a photographic lens. This sketch presents a phenomenological, controllable approach to simulate it.

Juan Buhler

*PDI/DreamWorks
jbuhler@pdi.com*

Daniel Wexler

PDI/DreamWorks

Virtual View Generation by Linear Processing of Two Differently Focused Images

A novel approach to IBR techniques for generating a virtual view image with arbitrary focus from two differently focused images captured at a fixed position.

Akira Kubota

*University of Tokyo
kubota@hal.t.u-tokyo.ac.jp*

Kiyoharu Aizawa

University of Tokyo

Web Graphics

The first Web Graphics program is designed to show animators, artists, educators, and engineers how their talent can give them an edge in creation of rich, interactive experiences.

Ground-breaking and inventive submissions from around the world from a program unlike any other: brand new in scope, and yet uniquely SIGGRAPH. Content ranges from the highly experimental to the highly practical; from animation and gaming to developing tools for collaboration across languages and borders, to new ways of navigating through information space.

The Web Graphics program has 34 sessions presented by speakers from 13 countries. They are divided into 12 categories: Images, Art & Design, Applications Content Creation, Animation, Collaboration, Frontiers, Compression, Standards, Audio, Experimental Browsing Spaces, and Games & Communities.

Chair

Simon Allardice
clingfish.com

Committee

Colleen Case
Schoolcraft College

Brock DeChristopher
guitaryoga.net

Alan Norton
SIGGRAPH 2003 Web Graphics Chair
Colorado School of Mines

Robert Reinhardt
[theMAKERS]

Sandy Ressler
National Institute of Standards and Technology
About.com

Dena Slothower
Stanford University

Vicki Caulfield
Program Coordinator
Capstone Solutions, Inc.

Location:
Room 006AB,
Room 007AB,
Room 206

Days & Hours

Wednesday, 24 July 10:30 am – 5:30 pm
Thursday, 25 July 8:30 am – 5:30 pm
Friday, 26 July 9 am – 3:15 pm



Wednesday, 24 July

10:30 am – 12:15 pm

Room 007AB

Images

Session Chair: Simon Allardice, clingfish.com

Architecting a Distributed Dynamic Image Server for the Web

Introduction to dynamic image serving. How to design a service that supports dynamic delivery of image content and grows with demand.

Alain Chesnais

TrueSpectra, Inc.
chesnais@siggraph.org

Tim Beck

Rudy Ziegler

TrueSpectra, Inc.

Pseudo-3D Photo Collage

A new method for using photographs to create virtual walk-throughs on the Web.

Hiroya Tanaka

University of Tokyo
tanaka@csis.u-tokyo.ac.jp

Masatoshi Arikawa

Ryosuke Shibasaki
University of Tokyo

Scalable Visualization of Super-High-Resolution 3D Images for Museum Archiving

New technology for creating, transmitting, and visualizing super-high-resolution and 3D digital content for museum archiving and heritage conservation.

Anup Basu

University of Alberta & TelePhotogenics Inc.
anup@cs.ualberta.ca

Irene Cheng

TelePhotogenics Inc.

Afshad Mistri

David Wolford

SGI

Wednesday, 24 July

1:30 – 3:15 pm

Room 007AB

Art & Design

Session Chair: Colleen Case, Schoolcraft College

Integrating Multiple Narratives: The Mirror That Changes

The sound, symbolism, and ecology of water are explored in a Flash-based project that integrates simultaneous multiple narratives in animated text, ambient sound, moving images, and voiceover.

Annette Weintraub

City College of New York
weintraub@ccny.cuny.edu

Todd Holoubek

New York University

Jacob Burckhardt

The Cooper Union

Color Aesthetics for Web Graphics Creation

An in-depth overview of technical and creative color issues on the Web, from the Web-safe palette, gamma, and Web color models to creating harmonious and hierarchical color schemes.

Lynda Weinman

lynda.com, inc.
lynda@lynda.com

Wednesday, 24 July

3:30 – 5:30 pm

Room 007AB

Applications

Session Chair: Colleen Case, Schoolcraft College

EventScope: Discovering Mars With Internet-Based Virtual Environments

A telepresence interface through which students explore Mars. EventScope's 3D virtual environments are seamlessly integrated with a standards-based curriculum downloaded to classroom computers.

Peter Coppin

Carnegie Mellon University
coppin@cmu.edu

Karl Fischer

Natalie Koch

Dana Martinelli

W. Ronald McCloskey

Michael Wagner

Carnegie Mellon University

Raisio Archaeology Archive: Using Design to Build Collaboration

The Raisio Archaeology Archive features a culture-heritage classification system and allows creation of customized exhibitions that are displayed through a dynamic 3D model.

Lily Diaz-Kommonen

University of Art and Design Helsinki
diaz@uiah.fi

Janne Pietarila

University of Art and Design Helsinki

The Bridge: An Environment for Design Learning

Bridge is an image-based collaborative design environment that supports global online interactions where language is a barrier and contributing and exchanging ideas cannot be achieved with conventional groupware.

Catherine Hu

The Hong Kong Polytechnic University

sdcathhu@polyu.edu.hk

Yasuhiro Santo

Mamata Rao

The Hong Kong Polytechnic University

VisSheet Redux: Redesigning a Visualization Exploration Spreadsheet for the Web

Exploration of complex visualization datasets requires interfaces that can present and navigate through the data. This presentation describes efforts to bring such an interface to the Web.

T.J. Jankun-Kelly

University of California, Davis
kelly@cs.ucdavis.edu

Kwan-Liu Ma

University of California, Davis

Thursday, 25 July

8:30 – 10:15 am

Room 206

Content Creation

Session Chair: Robert Reinhardt, [theMakers]

Creating and Implementing Photographic 3D on the Web

How to photographically create Web 3D objects from real objects using Viewpoint 3D PhotoStudio software and other tools. How to put these objects on the Web and integrate them with other rich media. The presentation includes currently live Web examples from the sites of Ford Motor Company, MZTV, and the Hockey Hall of Fame.

Paul Nykamp

Diginiche, Inc.
paul@diginiche.com

Content Creation With Anark Studio

Anark set out to create a new media authoring tool, Anark Studio, that ultimately distilled common design paradigms and evolving multimedia technologies.

Eric Morin

Anark Corporation
eric.morin@anark.com

Creating Interactive 3D Web Content Using AXEL

How Web designers can create interactive 3D content for the Web, without scripting or programming, using MindAvenue's new technology: AXEL.

Teresa Lang

MindAvenue Creative
MindAvenue Research & Development
number1@mindavenue.com



Thursday, 25 July

10:30 am – 12:15 pm

Room 006AB

Animation

Session Chair: Brock DeChristopher, guitaryoga.net

The Evolution of Animation: BedRock Revisited

A comparison of television animation from the 1950s to the Web animation in the 1990s, including how the future economy of television animation will rely heavily on its storied past.

Sandro M. Corsaro

Sandro Corsaro Animation
sandro.corsaro@verizon.net

A Case Study in Web 3D Filmmaking: Horses for Courses

Presentation and analysis of the production and delivery process used for the multi-lingual interactive, animated short film "Horses for Courses," which won the Web3D RoundUp art prize at SIGGRAPH 2001.

Michela Ledwidge

thequality.com Ltd.
michela@thequality.com

Geartation: The Web3D Content for Children

Fun, easy-to-understand Web 3D technology for children.

Fusako Nishikubo

Tomy Company, Ltd.
nishikubo@t-web.tomy.co.jp

Manabu Tanaka

Shinta Ookino

Hiroshi Ogihara

Kazuhito Ezawa

Tomy Company, Ltd.

Thursday, 25 July

10:30 am – 12:15 pm

Room 206

Collaboration

Session Chair: Sandy Ressler, National Institute of Standards and Technology, About.com

The Reality Cluster - Realtime Multimedia Communication With Persistence

A multi-user system that provides users with both focus and context in navigating relationships between multiple nodes of information: real-time audio-video conferencing, video recording, audio recording, text recording, and real-time interaction among multiple clients.

Branden Hall

Fig Leaf Software
bhall@figleaf.com

Samuel Wan

University of Michigan

Flash MX Live: Real-Time Video and Audio Delivery in Multi-User Environments

The new real-time video and audio capabilities of Macromedia's Flash Player 6 plug-in for Web browsers. Deconstruction of a chat application that enables several listeners to hear and see a discussion between a host and any given listener in the group. The new technology is presented with an analysis of two main aspects of Internet communication:

- The differences between one-on-one messaging and group discussion environments.
- The dynamics of audio and video "space" compared to a text-based landscape.

Robert Reinhardt

[theMAKERS]
robert@themakers.com

Thursday, 25 July

1:30 – 3:15 pm

Room 006AB

Frontiers*Session Chair:* Simon Allardice, clingfish.com**Interactive 3D Characters for Web-Based Learning and Accessibility**

A character-animation authoring system developed for educators who have no previous animation experience. Applications created by educators using the authoring system, including sign-language interpretation of stories for young deaf readers, job interview skills training, and counseling skills training.

Ed Sims

Vcom3D, Inc.
eds@vcom3d.com

Dan Silvergate

Vcom3D, Inc.

Multilingual Flash Applications

How to use FlashMX to create multilingual content. Flash has simplified content deployment on multiple platforms and browsers. Now, with the ability to handle Unicode, it takes Web applications to the next level.

Viswanath Parameswaran

FastCurve Pte. Ltd.
vish@fastcurve.com

Architectural Studios Online: The Internet Studio Network

Through the Internet Studio Consortium, up to 300 architecture students in Miami, Argentina, Chile, Ecuador, and Venezuela collaborate in semester-long design studios. The initiative uses Internet and video conferencing, and high-end telecommunication and digital technology, to enrich the pan-American educational experience. It is also part of AMPATH, which obtained a \$25 million grant in 2001 to connect national university networks in Latin America and the Caribbean to the Internet2 server at Florida International University.

Alfredo Andia

Florida International University
andia@post.harvard.edu

Thursday, 25 July

3:30 – 5:30 pm

Room 006AB

3:30 – 5:30 pm

Room 206

Compression*Session Chair:* Alan Norton, Colorado School of Mines**Geometry Compression for ASCII Scenes**

Geometry compression for VRML has been an issue since 1996. Conventional wisdom understood that a binary format was required. This compression technique delivers excellent bit rates without a binary format.

Martin Isenburg

University of North Carolina at Chapel Hill
isenburg@cs.unc.edu

Adaptive Solid Texturing for Web Graphics

A proposed method for rendering objects with solid texturing for Web graphics. Although the implementation uses only Java, users can also achieve an almost-real-time interactive response.

Bing-Yu Chen

The University of Tokyo
robin@is.s.u-tokyo.ac.jp

Tomoyuki Nishita

The University of Tokyo

Combining Procedural, Polygonal, and Bitmap Representations Using XML

Work in progress: combining procedural synthesis techniques with image-based techniques to produce a semantic description of an image or scene.

Mark Ollila

Linköpings Universitet
marol@itn.liu.se

Anders Henrysson

Linköpings Universitet

Standards*Session Chair:* Dena Slothower, Stanford University**Scalable Vector Graphics (SVG): The World Wide Web Consortium's Recommendation for High Quality Web Graphics**

Scalable Vector Graphics, a language for describing two-dimensional graphics and animation in XML, is the Web standard developed by the World Wide Web Consortium.

Dean Jackson

World Wide Web Consortium
dean@w3.org

Max Froumentin

World Wide Web Consortium

Vincent Hardy

Sun Microsystems, Inc.

The Xj3D Browser: Community-Based 3D Software Development

Technical and organizational issues surrounding the community development process of the Xj3D browser, an open-source API for developing X3D and VRML 97 applications.

Alan D. Hudson

Yumetech, Inc.
giles@yumetech.com

Justin Couch

Stephen N. Matsuba
Yumetech, Inc.

SMIL: An Introduction

The SMIL language enables interactive audio-visual multimedia for the Web. This summary of its key features explains some of the key insights into the Web-language design that influenced SMIL's development.

Philipp Hoschka

World Wide Web Consortium/INRIA
ph@w3.org

Friday, 26 July

9 – 10:15 am

Room 206

10:30 am – 12:15 pm

Room 206

Audio

Session Chair: Brock DeChristopher, guitaryoga.net

A Distributed Interactive Composition Tool

With simple sketches on the screen, users can drive streams of MIDI data in real time. They can also create and perform virtual pieces using the client-server architecture.

Dan Sharoni

Unicamp
dsharoni@nics.unicamp.br

Márcio O. Costa

Jônatas Manzolli
Unicamp

Rhythm Engine

A Web-based spatial communication tool that enables simultaneous interaction with sound and visual effects, and rich emotional involvement beyond space and time.

Hidenori Watanave

Photon, inc
derin@photon01.co.jp

Experimental Browsing Spaces

Session Chair: Alan Norton, Colorado School of Mines

Wegzeit: The Geometry of Relative Distance

Six models for visualizing non-isotropic space in VR space, that uses relative units like seconds instead of absolute units. The work explores the time-space structure of Los Angeles.

Dietmar Offenhuber

Ars Electronica Center Linz
didi@fl.aec.at

CT (City Tomography)

In this 3D information city on the Web, visitors can interact with “building wall browsers” to get information about the city and communicate with others.

Fumio Matsumoto

Plannet Architectures
matsumoto@plannet-arch.com

Akira Wakita

Keio University

_knowscape, a 3D Multi-User Experimental Web Browser

_knowscape is an experimental 3D browser that let users browse online content, create shared 3D information environments. It builds virtual spaces and avatars from users' browsing choices.

Patrick Keller

fabric | ch
patrick@fabric.ch

Christian Babski

Stéphane Carion
Christophe Guignard
fabric | ch

Friday, 26 July

1:30 – 3:15 pm

Room 206

Games & Communities

Session Chair: Simon Allardice, clingfish.com

Banja Flash Programming System & Game Design

In Banja, players navigate through an interactive 3D Flash cartoon adventure. It's an evolving, real-time, arcade game, community tool, and media server.

Guillaume Clary

Team cHmAn
team@teamchman.com

TTT: A Web Community Tool Mediated by Friends

This Web-community tool promotes new encounters through friendships. It replicates “trust building” and “encountering” based on everyday experience.

Yuichiro Haraguchi

Keio University
hrgci@imgl.sfc.keio.ac.jp

Masaru Murata

Sakura Toyabe
Keio University

Spoiral: An Online Ad-Lib Mystery

In this multi-user online game running on Web 3D technology, detectives and suspects ad-lib a suspense drama.

Kazuyuki Okada

Keio University
ikki@imgl.sfc.keio.ac.jp

Masa Inakage

Keio University

Educators Program

The SIGGRAPH 2002 Educators Program highlights the processes, techniques, and technologies that are critical for educating future pioneers, practitioners, and visionaries in computer graphics and interactive techniques. Contributions include a wide range of diverse content from post-secondary and K-12 institutions, focusing on those who use computer graphics as a teaching tool as well as those who teach computer graphics as a branch of learning.

This year, the Educators Program continues the highly successful forum presentation format, where moderators and attendees create a collaborative environment to discuss important issues and problems facing educators. Unlike traditional SIGGRAPH conference programs, the forum allows all participants to draw upon the combined knowledge, experience, and viewpoints of everyone in an open arena for communication. In addition to the forums scheduled throughout the week, the Educators Program also provides traditional workshops, papers, and panels that are designed to round out the program and provide a full week of activities for the computer graphics educator.

Chair

James L. Mohler
Purdue University

Jury

Mark Bannatyne
Purdue University

Dennis Bouvier
Saint Louis University

Colleen Case
SchoolCraft College

John Finnegan
SIGGRAPH 2003 Educators Program Chair
Purdue University South Bend

Lew Hitchner
California Polytechnic State University

Scott Meador
Purdue University

Carlos Morales
Purdue University

Jacquelyn Ford Morie
USC Institute for Creative Technologies

Location: Room 201 and 205

Days & Hours

Sunday, 21 July	5:45 – 7 pm
Monday, 22 July	8:30 am – 5:15 pm
Tuesday, 23 July	8:30 am – 5:15 pm
Wednesday, 24 July	10:30 am – 5:15 pm
Thursday, 25 July	8:30 am – 5:15 pm
Friday, 26 July	8:30 am – 5:15 pm



Sunday, 21 July

5:45 – 7 pm

Room 201 **Forum**

Educators Program Ramp-in

An overview of highlights and recommended sessions for educators attending SIGGRAPH 2002, as well as opportunities for educators within the ACM SIGGRAPH organization.

James L. Mohler

*SIGGRAPH 2002 Educators Program Chair
Purdue University
1419 Knoy Hall, Room 363
West Lafayette, Indiana 47907-1419 USA
james_mohler@siggraph.org*

Monday, 22 July

8:30 – 10:30 am

Room 201 **Forum**

A Knowledge Base for the Computer Graphics Discipline

A continuation of the forum conducted at SIGGRAPH 2001, The Emerging Computer Graphics Discipline. This year, the forum discusses content of the knowledge base for a CG curriculum.

Gary R. Bertoline

*Purdue University
1419 Knoy Hall
West Lafayette, Indiana 47907-1419 USA
grbertol@tech.purdue.edu*

Cary Laxer

Rose-Hulman Institute of Technology

Monday, 22 July

10:30 – 11 am

Room 205 **Paper**

Problems With Using Components in Educational Software

The concept of re-usable software components seems perfect for graphics-intensive educational software, but many barriers stand in the way of establishing educational component repositories.

Anne Morgan Spalter

*Brown University
115 Waterman Street
Department of Computer Science, Box 1910
Providence, Rhode Island 02912 USA
ams@cs.brown.edu*

11:10 – 11:40 am

Room 205 **Paper**

What Do Computers Eat? Teaching Beginners to Think Critically About Technology and Art

New curriculum for an introductory course in art and technology in which students compare the software industry with fast food to investigate patterns of consumption in US culture.

Tiffany Holmes

*School of the Art Institute of Chicago
1455 West Rascher Avenue, #2W
Chicago, Illinois 60640 USA
tholme@artic.edu*

Monday, 22 July

1:30 – 3:30 pm

Room 201 **Forum**

Game Development, Design, and Analysis Curriculum

The International Game Developers Association's Education Committee Curriculum Subcommittee presents its guidelines and framework for game-oriented curricula. Discussion solicits input and criticism on the framework.

Jason Della Rocca

*International Game Developers Association
4977 Orleans
Montréal, Québec H8Y 1Y6 CANADA
jason@igda.org*

Warren Spector

ION Storm Austin

Eric Zimmerman

gameLab

Robin Hunicke

Northwestern University

3:15 – 5:15 pm

Room 205 **Workshop**

Building an Affordable Projective, Immersive Display

How to construct a projection-based virtual reality display using commodity components, for use in university class or museum settings.

Dave Pape

*Res Umbrae
642 Elmwood Avenue
Buffalo, New York 14222 USA
pape@evl.uic.edu*

Josephine Anstey

University at Buffalo

Tuesday, 23 July

8:30 – 10:30 am

Room 201 **Forum**

Inspiring the Renaissance Person

Often art and science are viewed as opposing ends of computer graphics. This forum discusses how educators from both can inspire, encourage, and stimulate the "Renaissance Person."

Donna Cox

National Center for Supercomputing Applications
University of Illinois at Urbana-Champaign
605 East Springfield
Champaign, Illinois 61820 USA
cox@ncsa.uiuc.edu

10:30 – 11 am

Room 205 **Paper**

SIGGRAPH as Textbook: Learning Skills for Undergraduates

Advanced undergraduates use the latest SIGGRAPH proceedings to identify gaps in their background knowledge, then use individual research and peer tutoring to fill those gaps.

Kevin L. Novins

University of Auckland
Department of Computer Science
Private Bag 92019
Auckland 1020 NEW ZEALAND
novins@cs.auckland.ac.nz

11:10 – 11:40 am

Room 205 **Paper**

Mathematics and Geometry Education With Collaborative Augmented Reality

The augmented reality application Construct3D is a three-dimensional geometric construction tool specifically designed for mathematics and geometry education. This paper describes efforts to develop a system for improving spatial abilities.

Hannes Kaufmann

Technische Universität Wien
Favoritenstrasse 9-11/188/2
Vienna A-1040 AUSTRIA
kaufmann@ims.tuwien.ac.at

Dieter Schmalstieg

Vienna University of Technology, Austria

Tuesday, 23 July

1:30 – 3:30 pm

Room 201 **Forum**

Studio Views of Demo Tapes

How hopeful artists can get their demo tapes to stand out from the rest. Demo reel content, structure, length, packaging, and audio are addressed by a distinguished panel of industry professionals.

Art Durinski

The Durinski Design Group
or Otis College of Art and Design
durinski@otisart.edu

3:15 – 5:15 pm

Room 205 **Workshop**

Life Drawing and 3D Figure Modeling With Maya I: Overview & Startup

This two-part workshop introduces the process of transferring life drawings into 3D models using Maya. After an overview and introductory lecture and demonstration, attendees start a life drawing session.

Gregory P. Garvey

Quinnipiac University
72 Ralston Avenue
Hamden, Connecticut 06517 USA
greg.garvey@quinnipiac.edu

Wednesday, 24 July

10:30 – 11 am

Room 205 **Paper**

Assignment: Scene Graphs in Computer Graphics Courses

A how-to guide for including scene graphs in introductory computer graphics courses, this paper summarizes possible scene-graph-specific student exercises and teaching tips.

Dennis J. Bouvier

Saint Louis University
3450 Lindell Boulevard
St. Louis, Missouri 77059 USA
dbouvier@cs.slu.edu

11:10 – 11:40 am

Room 205 **Paper**

Building Computer Graphics Education in Developing Countries

The challenges encountered in building a computer graphics program in a developing country and how they are being addressed in the southern African context.

Sampson D. Asare

University of Botswana
Private Bag 0022
Gaborone, Botswana 00220

Petros M. Mashwama

University of Swaziland
Steve Cunningham
California State University, Stanislaus

2:10 – 2:40 pm

Room 205 **Paper**

Macromedia Flash in Physics Education: ASPIRE's Interactive Online Labs and Lessons

Flash helps middle school science teachers and students visualize and experience a hands-on virtual lab, where young scientists can explore our universe.

Julie Callahan

University of Utah
115 South 1400 East Room 201
Salt Lake City, Utah 84105 USA
julie@cosmic.utah.edu

Charles C. H. Jui

University of Utah



Wednesday, 24 July

2:45 – 3:15 pm

Room 205 **Paper**

The VERTEX Project: Exploring the Creative Use of Shared 3D Virtual Worlds in the Primary (K-12) Classroom

Based in three UK schools, VERTEX involves young children in design and construction of their own virtual world and considers the role this technology can play as a creative, cross-curricula learning tool.

Fiona Bailey

Middlesex University
Trent Park
Bramley Road
London N14 4YZ UNITED KINGDOM
f.j.bailey@mdx.ac.uk

Magnus Moar

Middlesex University

3:30 – 5:15 pm

Room 201

General Meeting

Educators Open Meeting

This open meeting introduces opportunities for educators to interact, collaborate, and get involved with the non-conference activities of the ACM SIGGRAPH Education Committee.

Mike McGrath

Past ACM SIGGRAPH Education
Committee Director
Colorado School of Mines
2000 Little Raven Street, #403
Denver, Colorado 80202 USA
mmcgrath@mines.edu

2002-2004 Director for Education

Werner Hansmann

University of Hamburg

Thursday, 25 July

8:30 – 10:30 am

CAL/Room 214CD **Workshop**

Life Drawing and 3D Figure Modeling With Maya II: Working in Maya

In this continuation of the earlier workshop, attendees learn to use their digitized life drawings within Maya in 3D.

Gregory P. Garvey

Quinnipiac University
72 Ralston Avenue
Hamden, Connecticut 06517 USA
greg.garvey@quinnipiac.edu

8:30 – 10:30 am

Room 201 **Forum**

Teaching Gems for Art and Design

Pedagogical solutions for teaching art students to use digital media in rich and expressive ways. This session involves the participants to uncover various approaches.

Dena Elisabeth Eber

Bowling Green State University
478 South Church Street
Bowling Green, Ohio 43402 USA
dena_eber@siggraph.org

Bonnie Mitchell

Heather Elliott

Bowling Green State University

10:30 – 11:30 am

Room 205 **Panel**

K-12 and Industry Partnering

Professional animators and digital effects artists join high school teachers in exploring the relationships that exist and can be developed between high schools and industry.

Darlene Wolfe

Dr. Phillips High School
5144 Barnegat Point Road
Orlando, Florida 32808 USA
dwolfe2@cfl.rr.com
Timothy Comolli
South Burlington High School

Jeff Scheetz

Roger Cotton

The DAVE School

Chris Stapleton

UCF Institute for Simulation and Training

Thursday, 25 July

1:30 – 3:30 pm

CAL/Room 214CD **Workshop**

Integrating Web 3D into 3D Animation Curricula

Teaching Web 3D involves trade-offs in tools, learning curves, and end-user experiences. This workshop demonstrates software that teaches artists to instantly create Web 3D without programming.

Mitch Williams

3D-Online
820 Manhattan Avenue
Suite 104
Manhattan Beach, California 90266 USA
mwilliams@3D-online.com

2:10 – 4:10 pm

Room 201 **Forum**

The Role of Creativity in Computer Graphics Education

How creativity affects the education of students seeking careers in computer graphics and how educators can provide the best possible environment for their students.

Bruce Wands

School of VISUAL ARTS
MFA Computer Art
209 East 23rd Street
New York, New York 10010 USA
brucewands@aol.com

2:10 – 4 pm

Room 205 **Workshop**

Hi Tech-Lo Tech: K-12 Science Visualization

This workshop introduces visualization free-ware to K-12 science programs using low-tech, hands-on models. High-level science concepts are approached through several low-cost methods.

Susana Maria Halpine

Candle Light Productions
8640 Gulana Avenue, J-1016
Playa del Rey, California 90293 USA
shalpine@earthlink.net

Thursday, 25 July

4:10 – 5:10 pm

Room 205 **Panel**

Animating Art History for Teaching

Animating Art History is a creative learning methodology that incorporates new perspectives for introductory art history courses through digital technology created by computer animation and art history professors and their students.

Roberta K. Tarbell

*Rutgers University
314 Linden Street
Camden, New Jersey 08102 USA
itan@crab.rutgers.edu*

LiQin Tan

Rutgers University

Friday, 26 July

8:30 – 10:30 am

Room 201 **Forum**

Teaching Gems for Computer Science and Engineering

Best practices for teaching computer graphics in undergraduate computer science and engineering. Moderators and audience members discuss “nifty assignments,” effective lecture techniques, and online resources.

Lew Hitchner

*California Polytechnic State University
San Luis Obispo, California 93407 USA*

Steve Cunningham

California State University, Stanislaus

Mike Bailey

*University of California at San Diego
San Diego Supercomputer Center*

Friday, 26 July

1:30 – 3:15 pm

Room 201 **Forum**

Driving Forces: Technology vs. Education

Does technology drive education, or does education simply implement the available technology? This forum discusses how we view technology and its impact on the way we approach our profession.

Mark Bannatyne

*Purdue University
1419 Knoy Hall, Room 355
West Lafayette, Indiana 47907-1419 USA
mwbannatyne@tech.purdue.edu*

1:30 – 3:30 pm

Room 205 **Workshop**

Teaching Human Facial Modeling Through Plaster Face Casting

Learn how to create 3D plaster casts of subjects' faces. Plaster molds help modelers define topology, understand form, effectively create accurate facial models.

Adam Watkins

*University of the Incarnate Word
4301 Broadway
Box 389
San Antonio, Texas 78209 USA
adamwatkins@mac.com*

4 – 5:15 pm

Room 201 **Forum**

Educators Program Ramp-out to SIGGRAPH 2003

An opportunity for attendees to help shape the SIGGRAPH Education Committee's year-round offerings and the SIGGRAPH 2003 Educators Program

John Finnegan

*SIGGRAPH 2003 Educators Program Chair
Purdue University
1733 Northside Boulevard
P.O. Box 7111
South Bend, Indiana 46634-7111 USA
john_finnegan@siggraph.org*

Art Gallery

The SIGGRAPH 2002 Art Gallery celebrates the creative spirit by taking a look "behind the scenes" at the process of creating digital and electronic fine art. This year, the gallery highlights the process that generates the work, demonstrating how the digital artist creates.

Attendees experience the innovative examples of two-dimensional, three-dimensional, interactive, and installation work submitted by the international computer graphics community. Some works represent traditional forms such as print or sculpture while others push the boundaries of Web communication and interactive spaces.

Through sketches, diagrams, video documentation, Web documentation, and discussions, more than 70 artists reveal the magic behind their work. The artworks show excellence in innovation and artistic talent, document creative thought, illustrate the working process, and explain the use of the computer or electronics in the piece. The six papers place process in a theoretical and cultural context.

In a new collaboration, the Art Gallery and the Studio feature seven artists in working studio, where they create art using Studio facilities. The goal is to make the creative process visible. Attendees watch the work develop, talk with the artists, and (perhaps) make art themselves.

Art Gallery Location: Hall A

Days & Hours

Sunday, 21 July	1 – 7 pm
Monday, 22 July	9 am – 6 pm
Tuesday, 23 July	9 am – 6 pm
Wednesday, 24 July	9 am – 6 pm
Thursday, 25 July	9 am – 6 pm
Friday, 26 July	9 am – 1 pm

Chair

Karen Sullivan

Ringling School of Art and Design

Committee

Adam Chapman

ADM's Design Machine

Dena Eber

Bowling Green State University

Sue Gollifer

University of Brighton

Richard May

Ana Serrano

Canadian Film Centre

Lily Shirvanee

Massachusetts Institute of Technology

April Ramey

Katie Rylander

*Program Coordinators
Capstone Solutions, Inc.*

Jury

Dan Collins

Arizona State University

Larry Cuba

The iotaCenter

Patricia Galvis-Assmus

University of Massachusetts at Amherst

Michael Wright

*SIGGRAPH 2003 Art Gallery Chair
M Ragsdale Wright Studios*

Jackals

Location:

**River Level Patio, Outside
River Room 001**

Journey to the Oceans of the World

Location:

Room 002B

Working Artists

Matthew Biederman
mbiederman@att.net

Bart Woodstrup

DelRay Laboratory

The DelRay Laboratory is a site-specific, and time-specific, artistic installation. This laboratory facilitates experimentation with different procedures for exploring the fusion of sound and image.

Brit Bunkley

Quay School of the Arts, Wanganui
Universal College of Learning
brit@ihug.co.nz

Hand Machine 2

Large scale rapid prototype sculptures.

Ben Chang

School of the Art Institute of Chicago
bchang@artic.edu

Mary Lucking**Rodger Ruzanka****Silvia Ruzanka****Andrew Sempere****Chris Sorg****Dmitry Strakovsky**

Jackals

The Jackals live on the outskirts of the metropolis, watching, collecting, repurposing what they can to construct a new reality of techno-art. They will arrive with only enough supplies to survive. The nature of the work depends on what can be scavenged.

Kenneth A. Huff

ken@itgoesboing.com

Natural Forms and Patterns

High resolution 3D rendering for the 2D image.

Patrick Keller

fabric | ch

Christian Babski**Christophe Guignard****Stephane Carion****Manuel Abendroth****Jerome Decock****Alexandre Plennevaux****Gregoire Verhaegen**

Electroscape

Electroscape is a multi-user 3D environment built with VRML and the forthcoming X3D language.

W. Bradford Paley

Digital Image Design Incorporated
brad@didi.com

Digital Image Design

Explorations into the relationship between the reader to text in an interactive TextArc display. The TextArc is a visual index/concordance/summary, a way to spatially reveal any text by letting its key concepts float to the surface. TextArc represents an entire text as two concentric ellipses.

Teri Rueb

University of Maryland, Baltimore County
teri@echonyc.com

The Choreography of Everyday Movement

The Choreography of Everyday Movement envisions as a topographical mapping the culturally inscribed nature of our everyday travels. Using global positioning satellite (GPS) receivers, the project seeks to render visible our movement through the built environment of the city, sociopolitical and poetic patterns of traffic flow through the urban body.

2D/3D**Dan Bailey**

University of Maryland, Baltimore County
info@irc.umbc.edu

Alan Price

• *A Virtual Tour of the Cone Sisters Apartments*

Kurt Bakken

Z-Axis Corporation
kb@zaxis.com

• *Flight*

Chiara Boeri

Studio Boeri
chiaraboeri@tiscali.it

• *The Goodnight*

Stan Bowman

sjb4@cornell.edu

• *Running Wild*

Jeff Brice

jb@jeffbrice.com

• *Turing Wave*

• *Urban Growth*

Hans Dehlinger

Universität Kassel
dehling@uni-kassel.de

• *Strokes - mi 31*

• *Baum_V.14*

• *Tree II*

Marc Downie

Massachusetts Institute of Technology,
Media Laboratory
marcd@media.mit.edu

• *Experiments on Intelligent Form*

Bathsheba Grossman

sheba@bathsheba.com

• *Flow Bronze*

Eric Heller

73 USA
slheller@earthlink.net

• *Caustic I*

Tahir Hemphill

Staple Crops
tahir@hotmail.com

• *Living Audio*

Masa Inakage

Keio University
inakage@efc.keio.ac.jp

- *Conscious*

Atshushi Kasao

Tokyo Institute of Polytechnics
kasao@dsn.t-kougel.ac.jp

- *Sapporo*

Viktor Koen

viktor@viktorkoen.com

- *Deathwatch,*
- *Pseudosphinx*
- *Skelephron*

Dan Lu

The Ohio State University
lu.160@osu.edu

- *Formation I*
- *Formation II*
- *Formation III*
- *Formation IV*

Jessica Maloney

Bowling Green State University
mjessica3@hotmail.com

- *Somewhere, Someone, Sometime*

Ned Meneses

Digital Artscape
nedscape7@yahoo.com

- *Unbound: The Uncertainty Principle*
- *Schemas*

Marte Newcombe

martenew@aol.com

Greg Shirah**Antje Kharchi****Nancy Palmer**

- *Acension*
- *Scorpion*

Yoshiki Nishimura

Tohoku University of Art and Design
eggman@cg.tuad.ac.jp

- *Transposition III*

Kent Oberheu

Semafore
k_oberheu@semafore.com

- *Frozen Etude*

Cynthia Beth Rubin

Rhode Island School of Design
cbrubin@risd.edu

- *The Wilder Building*
- *Safed Hiding Places*

Mark Stock

University of Michigan
mstock@umich.edu

- *Mesh #3 Iso*
- *Refinery #53*

E. Tulchin

etulchin@juno.com

- *Leger Reconstructed*

Anna Ursyn

University of Northern Colorado
azursyn@bentley.unco.edu

- *Timetable*

James Faure Walker

Kingston University
jamesfaurewalker@compuserve.com

- *Blue Bowls*

Jen Zen (a.k.a. Jen Grey)

CSULB
jenzen@aol.com

- *Badwater*
- *Hotlicks*

Installations**Ralph Borland**

Millefiore_Effect
millefiore_effect@hotmail.com

Jessica Findley**Margot Jacobs**

- *FRONT*

Mark Downie

Massachusetts Institute of Technology,
Media Laboratory
marcd@media.mit.edu

Paul Kaiser**Shelley Eshkar**

- *Loops*

Petra Gemeinboeck

University of Illinois at Chicago
Frauhofer-Institut für Arbeitswirtschaft
und Organisation
beta@evl.uic.edu

Roland Blach**Nicolaj Kirisits**

- *UZUME*

Priam Givord

Atelier 3D couleur
priam@yahoo.fr

Martin Lenclos

- *NEWYORKEXITNEWYORK*

Karen Hillier**Carol LaFayette**

Texas A&M University
lurleen@viz.tamu.edu

Bill Jenks**Mary Saslow****Amy Tucker**

- *After the Hunt*

Fernando Orellana

fernando@artn.com

- *The Drawing Machine 3.141.15926 v.2*

William Pensyl

William Paterson University
pensyl@pensyl.com

- *Journey to the Oceans of the World*

Zachary Booth Simpson

Mine-Control
zsimpson@sprynet.com

- *Shadow Garden*

Jan Torpus

Apodal
Jan.torpus@balcab.ch

Michel Durieux

- *affectiveCinema*

Ioannis Yessios

Cleveland Institute of Art
iyessios@gate.cia.edu

- *Homo Indicium*

Eric Zimmerman

gameLab
eric@gmib.com

Ranjit Bhatnagar**Frank Lantz****Peter Lee****Michael Sweet**

- *FLUID*

For complete information, see: www.siggraph.org/s2002/conference/art

Art Papers/Panel

Location:
Art Gallery/Studio Interactive Classroom
Hall A

Tuesday, 23 July, 11 am - noon

Tiffany Holmes

School of the Art Institute of Chicago

Mary Flanagan

University of Oregon

- *The Process of Play and Creation: Women in Games and Biotech Art*

Wednesday, 24 July, 10:55 - 11:55 am

Gonzalo Frasca**Andruid Kerne**

Creating Media

- *The Process of Interpretation and Encounter: New Processes and Systems for Interpretation*

Thursday, 25 July, 9 - 10 am

Toby Crockett

University of California at Irvine

Rodney Berry

ATR-Media Information Science Laboratories

- *The Process of Representation and Reception: Reinterpreting Representations of Self*

Web/DVD**Mark Amerika**

amerika@netscape.org

John Vega**Chad Mossholder****Jeff Williams**

- *filmText*

Reynald Drouhinlie

Incident.net

reynald@incident.net

- *Des Frags*

Ruth Fleishman

ruthlara22@yahoo.com.au

- *IOINK*

Lien Fan Shen

School of VISUAL ARTS

lienfan@yahoo.com

Ching-Fang Chiang**Caroline Quinlan****Edward Schocker**

- *Reconstruction*

Brooke Singer

brooksinger@hotmail.com

Paul Cunningham

- *Self-Portrait version 2.0*

Stanza

stanza@submline.net

- *The Central City*

Geoffrey Thomas

gthomas@artic.edu

- *Storybeat*

Nanette Wylde

California State University, Chico

nwylde@csuchico.edu

- *Storyland*

Art Gallery Screening Room

Location:

Art Gallery/Studio Interactive Classroom

Hall A

Yuriko Amemiya

rainfall@sun.email.ne.jp

- *Man Garden*

Sergey Aniskov

onerussian@hotmail.com

- *CCCP vs. St. Valentina*

Jérôme Boulbès

Lardux Films

lardux@club-internet.fr

- *La Mort de Tau (The Death of Tau)*

Ye Won Cho

School of VISUAL ARTS

choyewon@yahoo.com

- *Trilemma*

Alain Escalle

Mistral Films

uklyomonogatari@wanadoo.fr

- *Le Conte du monde flottant (The Tale of the Floating World)*

This piece contains adult content.

Hyun-hee Jang

h2two@hanmail.net

- *Sumisan*

Yoichiro Kawaguchi

The University of Tokyo

yoichiro@iii.u-tokyo.ac.jp

- *Cytolon*

Daniel Keefe

Brown University

dfk@cs.brown.edu

- *La Guitarrista Gitana*

Lise-Hélène Larin

Concordia University

lh12@videotron.ca

- *Painting By Numbers III*

Kazuma Morino

Stripe Factory

Kazuma@stripe.co.jp

- *Line*

Dennis Miller

Northeastern University

dhmiller@mediaone.net

- *Residue*

Ty Primosch

tprimosch@hotmail.com

- *Traffic Jam*

Umesh Shukla

Atreo Films

shukla@umeshshukla.com

- *Still I Rise*

Computer Animation Festival

For over 25 years, SIGGRAPH has celebrated the achievements of artists, scientists, programmers, and interactive designers. The Computer Animation Festival is the most prestigious event of its kind. It is an internationally recognized and highly anticipated showcase documenting the significant advances in technology, interactive techniques, and the seemingly infinite creative potential of computer graphics. Each year, the featured animations, visualizations and visual effects are fascinating, delightful, and sometimes frightening.

Nothing meaningful was ever created with a computer by the notorious “push of a button.” The achievements we celebrate are created through hours, days, weeks, months, and even years of dedication and hard work. The Computer Animation Festival presents the work we accept in two venues: the Electronic Theater and the Animation Theater. Both theaters play a vital role in our community. The Electronic Theater is an elite showcase. It is big and flashy, and the featured work is, without qualification, exceptional. While a single piece in the Electronic Theater may represent an entire segment of the computer graphics community, the work presented in the Animation Theater reveals the breadth of the talent, richness of the ideas, and the dramatic technical achievements that alter our very perception of what we might still realize.

Chair

John McIntosh
School of VISUAL ARTS

Committee

Harry Marks
*Electronic Theater Producer
Broadcast Designer*

Linda A. Walsh
*Animation Theater Director
University of North Carolina
at Chapel Hill JoMC*

Marie Poe
*Animation Theater Producer
Freelance Animation Producer*

Dale Herigstad
*Electronic Theater Production
Designer
H Design Inc.*

Ladd McPartland
*Film Editor
Industrial Light + Magic*

Sarah Hirzel
*Festival Coordinator
Fordham University*

Kathryn Griswold
*Database Manager
Rudin Management Co., Inc.*

April Ramey
*Program Coordinator
Capstone Solutions, Inc.*

Marc Leidy
*Technical Director
Cinematographer, VFX artist*

Darin Grant
*SIGGRAPH 2003 Computer
Animation Festival Chair
Digital Domain*

Outreach

Pam Hogarth
Gnomon School of Visual Effects

Robert Hoffman
Technicolor

Daniel Durning
New York Institute of Technology

Jury

Richard Chuang
PDI/DreamWorks

Valerie Delahaye
BUF Compagnie

George Joblove
Sony Pictures Imageworks

Bonnie Mitchell
Bowling Green State University

Sande Scoredos
Sony Pictures Imageworks

Joel Sevilla
Computer Animator

Alternates

Darin Grant
*SIGGRAPH 2003 Computer
Animation Festival Chair
Digital Domain*

Marc Leidy
Cinematographer, VFX Artist

Harry Marks
Broadcast Designer

Linda A. Walsh
*University of North Carolina
at Chapel Hill JoMC*

Days & Hours

Animation Theaters

Room 202 and 203

Sunday, 21 July	3 - 7 pm
Monday, 22 July	9 am - 6 pm
Tuesday, 23 July	9 am - 6 pm
Wednesday, 24 July	9 am - 6 pm
Thursday, 25 July	9 am - 6 pm
Friday, 26 July	9 am - 3 pm

Electronic Theater

Lila Cockrell Theater

Monday, 22 July	7 - 9 pm
Tuesday, 23 July	2 - 4 pm 7 - 9 pm
Wednesday, 24 July	2 - 4 pm
	7 - 9 pm
Thursday, 25 July	7 - 9 pm

Animation Theater Programs

A Commercials, Promos & Shorts-1

Total time approximately 1 hour

1	Gorillaz "Rock Da House"	3:40
2	Capital FM	0:40
3	Thermasilk "Dagger"	1:40
4	Perk	2:30
5	Vizzavi "Chicken Smiles"	0:30
6	Les Crabes	4:50
7	Within an Endless Sky	5:10
8	AT&T "Building Blocks"	0:30
9	Nike "Freedom 1 & 2"	1:00
10	La mort de Tau	10:14
11	Thermasilk "Sorceress"	0:40
12	Swabb	4:27
13	Dodge "Sky's the Limit"	0:30
14	Wunderwerk	9:20
15	Save the Manatee	0:42
16	My VH1 Music Awards '01	1:54
17	Toyota Corolla "Imagination"	0:30
18	PDFA "Brain" PSA	0:30
19	Gatorade "Action Figures"	0:30
20	Levi's "Odyssey"	1:00
21	Pocari "Better Than Oxygen/Tennis"	0:30
22	Mini "Martians"	1:00
23	Vizzavi "Tennis"	0:30
24	Flora "Jack Spratt"	0:30

B Film Clips, VFX, & Shorts-2

Total time approximately 1 hour

1	Dinotopia	3:30
2	The Sum of All Fears	2:42
3	Digital Kung-Fu Fighters and Face Replacement for "The One"	1:45
4	Le Boulet	2:57
5	Monkey Pit	1:12
6	Sally Burton	12:00
7	Nuts & Bolts	0:32
8	Ratten - sie werden Dich kriegen!	2:30
9	Kaya's Screen Test	0:24
10	The Monkey King	2:13
11	Le Conte du monde flottant	24:00

C Visualizations, Video Games & Shorts-3

Total time approximately 1 hour

1	Picture Diary	5:30
2	The Bummer	2:45
3	Alma	1:50
4	Biohazard Game Footage	2:10
5	Wolfman	1:51
6	Tekken 4 "Opening Movie"	2:13
7	World of Warcraft Teaser	1:37
8	Sony Playstation 2 "The Wolfman"	1:00
9	Chinese Buffet	1:43
10	The Stinker	1:45
11	Condensed Tannins: Their Role in UTI Prevention	0:48
12	Fast Rendering for Photo-Realistic Trees in Daylight	0:37
13	Portals	4:50
14	Fusorario	6:30
15	Go-Riki	0:50
16	Fifty Percent Grey	2:55
17	Top Gum	2:20
18	Regard sans tain	6:16
19	Mouse	7:30

D Strictly Shorts

Total time approximately 50 minutes

1	Insight	8:10
2	Hiccup 101	1:52
3	Nothing Special	4:32
4	Auto	5:00
5	SOS	1:25
6	In and Out	5:47
7	Fishman: the Scales of Justice	2:08
8	The Coin	3:30
9	Framed	2:15
10	Blinks of Exile	3:14
11	Angel	6:17

Preshow

Shows morning and afternoon each day.

The Road to San Antone	1:35
Washed Up	1:54

Some programs contain adult content.

Computer Animation Festival Schedule

Sunday, 21 July

Animation Theater 1: Room 202

- 3:00-7:00** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

Animation Theater 2: Room 203

- 3:00 - 7:00** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

Monday, 22 July

Animation Theater 1: Room 202

- 9:00-12:35** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

- 12:35-4:10** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

- 4:10-6:00** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2

Animation Theater 2: Room 203

- 9:20-10:20** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3

- 10:30-12:25** **D** Strictly Shorts

- 12:40-1:30** **D** Strictly Shorts
- 1:40-3:35** **A** Commercials, Promos & Shorts-1
 C Visualizations, Video Games, & Shorts-3

- 3:50-4:50** **B** Film Clips, VFX, & Shorts-2

- 5:00-6:00** *Meet the Artist*

Electronic Theater: Lila Cockrell Theater

- 7:00-9:00** Evening Show

Tuesday, 23 July

Animation Theater 1: Room 202

- 9:00-12:35** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

- 12:35-4:10** **A** Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

- 4:10-6:00** **B** Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3

Animation Theater 2: Room 203

- 9:20-10:20** **B** Film Clips, VFX, & Shorts-2

- 10:30-12:15** **A** Commercials, Promos & Shorts-1
 D Strictly Shorts

- 12:30-1:30** **C** Visualizations, Video Games, & Shorts-3

- 1:40-3:25** **B** Film Clips, VFX, & Shorts-2
 D Strictly Shorts

- 3:40-4:40** **A** Commercials, Promos & Shorts-1

- 5:00-6:00** *Meet the Artist*

Electronic Theater: Lila Cockrell Theater

- 2:00-4:00** Matinée Show

- 7:00-9:00** Evening Show

Computer Animation Festival Schedule

Wednesday, 24 July

Animation Theater 1: Room 202

9:00-12:35 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

12:35-4:10 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

4:10-6:00 C Visualizations, Video Games, & Shorts-3
 B Film Clips, VFX, & Shorts-2

Animation Theater 2: Room 203

9:20-10:20 C Visualizations, Video Games, & Shorts-3

10:30-12:15 B Film Clips, VFX, & Shorts-2
 D Strictly Shorts

12:30-1:30 A Commercials, Promos & Shorts-1

1:40-3:35 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3

3:50-4:40 D Strictly Shorts

5:00-6:00 *Meet the Artist*

Electronic Theater: Lila Cockrell Theater

2:00-4:00 Matinée Show

7:00-9:00 Evening Show

Thursday, 25 July

Animation Theater 1: Room 202

9:00-12:35 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

12:35-4:10 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

4:10-6:00 D Strictly Shorts
 C Visualizations, Video Games, & Shorts-3

Animation Theater 2: Room 203

9:20-10:20 D Strictly Shorts

10:30-12:25 A Commercials, Promos & Shorts-1
 C Visualizations, Video Games, & Shorts-3

12:40-1:40 B Film Clips, VFX, & Shorts-2

1:40-3:25 A Commercials, Promos & Shorts-1
 D Strictly Shorts

3:40-4:40 C Visualizations, Video Games, & Shorts-3

5:00-6:00 *Meet the Artist*

Electronic Theater: Lila Cockrell Theater

7:00-9:00 Evening Show

Friday, 26 July

Animation Theater 1: Room 202

9:00-10:45 A Commercials, Promos & Shorts-1
 D Strictly Shorts

10:45-2:20 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

Animation Theater 2: Room 203

9:15-12:50 A Commercials, Promos & Shorts-1
 B Film Clips, VFX, & Shorts-2
 C Visualizations, Video Games, & Shorts-3
 D Strictly Shorts

1:00-2:45 A Commercials, Promos & Shorts-1
 D Strictly Shorts

Electronic Theater

A Flatpack Project

John Haddon
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Advanced Rule-Based Simulation for "Check-in to Disaster"

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Bin Can Can

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"Carl & Ray": Tippett Studio 3D Character Animation Work for Blockbuster Entertainment

Jim Bloom
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Coffee Love

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EDF La Vallée

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Egg-Cola

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Gjenta

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Gorillaz at the Brit Awards

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Graphical Modeling and Animation of Ductile Fracture

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Human Face Project

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Le Déserteur

Olivier Coulon, Aude Danset,
Paolo De Lucia, Ludovic
Savonniere
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Like a Swarm of Angry Bees...

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Lord of The Rings:

The Fellowship of The Ring
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Lord of the Rings:

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Matt Aitken
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Mars Exploration Rover Launch

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Mosquito

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Nintendo "Symphony"

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Panic Room

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Passing Moments

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Playgroup "Number One"

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Polygon Family: Episode 2

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Puppet

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Recycle Bein'

Dominique Boidin,
Fabrice Garulli, Fabrice Rabhi,
Yann Tambellini
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Sarah

Justine Bonnard, Anthony
Malagutti, Raniere Ludovic,
Thomas Renault
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Spider-Man

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Sprout

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Star Wars: Episode II "Attack of the Clones"

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Super Furry Animals "It's Not The End of the World"

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Tanabata

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Animation Theater

The Cathedral

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The Levis HVC

Samantha Steyns
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The Snowman

Mark Medernach
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The Time Machine

Kris Rich
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Tippett Studio Digital Human and Make Up Effects for "Blade 2"

Jim Bloom
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Vermeer, Master of Light

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Walking With Beasts

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Alma

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Angel

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AT&T "Building Blocks"

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Auto

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Biohazard Game Footage

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Blinks of Exile

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Capital FM

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Chinese Buffet

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Condensed Tannins: Their Role in UTI Prevention

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Digital Kung-Fu Fighters and Face Replacement for "The One"

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Dinotopia

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Dodge "Sky's The Limit"

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Fast Rendering for Photo-Realistic Trees in Daylight

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Fifty Percent Grey

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Fishman: The Scales of Justice

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Flora "Jack Spratt"

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Framed

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Fusorario

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Gatorade "Action Figures"

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Go-Riki

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Gorillaz "Rock Da House"

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Hiccup 101

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In and Out

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Insight

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Kaya's Screen Test

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La mort de Tau

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Le Boulet

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Le Conte du monde flottant

Alain Escalle
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Les Crabes

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Levi's "Odyssey"

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Mini "Martians"

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Monkey Pit

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Mouse

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My VH1 Music Awards '01

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Nike "Freedom 1 & Freedom 2"

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Nothing Special

Jean Fabien Barrois, Benoit Janke, Olivier Petit
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 c/o Stephanie Roux
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Nuts & Bolts

Andreas Krein
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PDFA "Brain" PSA

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Perk

Dušan Kastelic
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Picture Diary

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Pocari "Better Than Oxygen/Tennis"

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Portals

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Ratten - sie werden Dich kriegen!

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Regard sans tain

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Sally Burton

Anna Kubik
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Save The Manatee

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Sony Playstation 2

"The Wolfman"
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SOS

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Swabb

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Tekken 4 "Opening Movie"

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Emerging Technologies

Emerging Technologies presents research from points around the world as well as points around the interactive techniques map. From robots in the physical world to humans in a virtual world and augmented worlds in between, from new display technologies to new input devices, including audio and haptics, Emerging Technologies empowers your own expedition through uncharted digital territory.

Chair Scott Senften <i>SGI</i>	Jury Allen Bierbaum <i>Iowa State University</i>	Advisory Board Alan Commike <i>QED Labs</i>
Committee John M. Fujii <i>Hewlett-Packard Company</i>	Mk Haley <i>Walt Disney Imagineering</i>	Clark Dodsworth <i>Osage Associates</i>
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Ralph Loos <i>University of Massachusetts, Amherst</i>	Pete Tinker <i>HRL Laboratories, LLC RL-96</i>	
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Preston Smith <i>EDS</i>		
Joshua Strickon <i>SIGGRAPH 2002 Emerging Technologies Chair Massachusetts Institute of Technology, Media Laboratory</i>		
Katie Rylander <i>Program Coordinator Capstone Solutions, Inc.</i>		

Location: Hall D	Days & Hours
	Monday, 22 July 9 am – 6 pm
	Tuesday, 23 July 9 am – 6 pm
	Wednesday, 24 July 9 am – 6 pm
	Thursday, 25 July 9 am – 6 pm
	Friday, 26 July 9 am – 3 pm

ARS BOX with Palmist - Advanced VR System Based on Commodity Hardware

A CAVE-like, PC-based VR system that significantly reduces the time and money required to develop and present immersive virtual environments.

Innovation: VR system with PDA interface.

Vision: As interactive virtual environments (IVEs) become available as "commodity hardware," smaller business enterprises and research facilities will participate in system development. ARS Electronica Futurelab is currently evaluating different display variants and enhancement of the FATE software framework to improve user interaction in IVEs. The goal of user-interface research for IVEs should be an interface that can be characterized as ubiquitous, transparent, collaborative, "intelligent," and networked. These attributes not only address the known problems related to interfaces for IVEs, but also open up new ways to interact with IVEs. Applications (some of which have already been completed) aim to provide rapid prototyping, design on the fly, advanced navigation mechanisms for vast IVEs, control of the IVE, and new interaction possibilities for simulation, CAD applications, and collaborative virtual environments (CVEs).

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ASR - Augmented Sound Reality

The sound component is still missing in current AR applications, which combine live video and computer graphics to produce real-time visual effects. AR could be a solution for many problems in sound delivery. Augmented Sound Reality allows the user to place and move different sound sources in the real world. With AR technology, the user is equipped with see-through displays and a simple pen input device to place 3D sound sources in the real world. The different sound sources are represented by 3D objects on the head-mounted display. Three-dimensional sound can be directly integrated and tested in this AR environment. The user can directly manipulate the 3D sound sources and observe the results immediately. Another advantage of ASR is low cost. The system requires only a PC, a Web cam, and i-glasses.

Innovation: 3D virtual sound sources for virtual and augmented realities.

Vision: Current AR applications do not allow direct manipulation of sound sources. ASR is the first prototype that combines sound and graphics in an AR environment and offers a wide spectrum for further applications. Especially in the authoring process for AR applications, it becomes difficult to place the sound sources using traditional 2D/3D authoring tools. Now, authors can place 3D sound sources in real 3D space, and they have a more intuitive experience of how the audio really sounds. In another application of this technology, the user can place virtual furniture in a room. This application will be combined with ASR, so that the user doesn't see the newly established room, but can hear how the radio or DVD player sounds.

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Related work is also presented in the Sketches & Applications program, see page 56.

Audio Haptics

Sound and reaction forces generated from a physical model of a virtual object.

Innovation: Co-located acoustic and haptic feedback.

Vision: Potential applications of audio haptics include: Virtual instruments. With audio haptics, users can change the attributes of percussion instruments and create new sounds. Inspection simulator. Users can acquire information about the physical characteristics of an object (density distribution, for example) by hitting it and analyzing the sound. With audio haptics technology, engineers could build simulators for this type of inspection.

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Block Jam

In this musical interface, collaborators use 24 tangible blocks to control phrases and sequences.

Innovation: Tangible interface and re-configurable input device for musical applications.

Vision: As our notions of media evolve, music will no longer be confined to a linear stream, but expanded to a dynamic interactive construct, blurring traditional distinctions such as composer, performer, and audience. We aim to move music media away from the personal and push it towards the social.

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Cyberarium Knowledge Fountain

Knowledge Fountain is an opportunity:

- To demonstrate socially responsible applications of communication technology.
- To provide a social exchange in which multiple communities can explore unconventional applications of advanced technological concepts.
- To identify key areas where information technologies can be effectively applied to improve quality of life.
- To encourage young minds to explore science and think about how to make the world a better place.

Innovation: The design is the innovation. The lightweight table, veiled wires, and collapsible frame eliminate the costs that usually accompany nomadic computing. The interface is the innovation. Hit it, twist it, tie it, roll it, click it. You decide. It listens.

Vision: As modular, swappable, interchangeable, wearable interfaces, knowledge-fusion tools make collection and dissemination of critical data and information multi-sensory, creative, and accurate. Whether on the battlefield, in a refugee camp, in the classroom, in a science museum, a rehabilitation lab, or a natural disaster site, knowledge fusion tools will enable its users to interact with critical information.

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Distributed Systems of Self-Reconfiguring Robots

Using self-reconfiguration to create more versatile robots: hundreds of small modules autonomously reorganize as geometric structures to best fit the terrain on which the robot has to move, the shape of the object the robot has to manipulate, or the sensing needs for the given task. For example, a robot could synthesize a snake shape to travel through a narrow tunnel, and then morph into a six-legged insect to navigate rough terrain when it exits.

Innovation: Robots that reconfigure themselves based on environment or task.

Vision: Robots of the future will consist of hundreds of small modules that will autonomously reorganize as geometric structures to best fit their given tasks. These modules will be embedded in all construction materials and will be able to assemble into objects from lampposts and couches to space structures. In medicine, a patient will swallow the units, which will assemble into surgical instruments once in place. Architects and designers will use these modules to synthesize "physical CAD" models that can be touched.

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Focus-Plus-Context Screens: Visual Context and Immersion on the Desktop

Wall-size low-resolution displays with an embedded high-resolution display region.

Innovation: Low-cost multi-resolution integration into a single surface.

Vision: These displays will become an important alternative to multi-monitor solutions in various visual-application areas, such as geographic information systems or remote medicine. To achieve that goal, future research must include experimentation with different form factors (for example, a Liveboard-like form factor) and further exploration of dynamic content-application areas (for example, virtual reality).

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Immersive and Interactive Rear-Projected Stereo DLP BR Center

A rear-projected, curved-screen, three-channel BR Center employs Galaxy Stereo DLP projectors equipped with unique non-linear image-mapping technology. Demonstrations presented by experts from the medical, scientific, oil-and-gas, and fine-arts fields use tracking to exploit the profound immersive and real-time interactive qualities of this display.

Innovation: Bicubic image warping algorithms executed by processors internal to stereo DLP projectors enable rear-projection of data onto a multi-channel curved screen without sacrificing image quality or real-time interaction.

Vision: When high-quality, rear-projection, curved-screen Stereo DLP display systems become commercially available, they will dominate the high-end immersive projection industry. The proliferation of such displays will help foster development of new software applications that will take specific advantage of the improved immersive and interactive qualities of this type of display.

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For complete information, see: www.siggraph.org/s2002/conference/etech

The Interactive Window

Simple passive acoustic pickups turn a large sheet of glass into an interactive surface, locating and characterizing knocks and taps.

Innovation: Passive acoustic tracking of knocks and taps on glass coupled with non-contact microwave sensing.

Vision: Although glass is a very common construction material, it is generally passive, unless outfitted with a potentially expensive and fragile touch-screen technology. Our technique is a very simple retrofit, where four contact pickups adhered to the inside surface of the glass are able to track and characterize knocks on the outside surface. Applications abound in areas ranging from retail (for example, a new era of window browsing, where users can explore content related to a store's merchandise or services by appropriately knocking) to interactive museum cases (for example, museum visitors could knock near a particular object to hear its story).

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Lewis the Robotic Photographer

A human-sized robot wedding photographer collects images and displays them in a "photo album" that celebrants can print or store in digital format.

Innovation: Robotic technology that engages human interaction.

Vision: Future research will develop more complicated, task-driven interactions with the robot and explore questions such as: How can we encourage people to pose for the robot without blocking or harassing it? Another goal is to develop a more sophisticated image-composition evaluator based on images chosen by humans.

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Related work is also presented in the Sketches & Applications program, see page 63.

A New Step-in-Place Locomotion Interface for Virtual Environment With Large Display System

A new locomotion interface for virtual environments with large screen. Users can direct and control their movements in any direction by in-place stepping and turning actions.

Innovation: Design of a new kind of turntable system with embedded sensors as a walking platform interface. Users' turning actions are cancelled by the turntable to keep them facing the screen and provided with continuous visual feedback despite the use of limited large screen.

Vision: The smart-turntable walking platform provides users with the ability to perform life-like walking experiences in a seamless manner and free from any body attachments. The interface can be easily integrated in most large-screen virtual environments. Even if the screen size is limited, the system delivers a continuous and surround-like display.

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NONA-Vision

A high-resolution, wide-angle, distortion-free video capture and projection system composed of nine rear-projection screens.

Innovation: Large moving optics display.

Vision: Potential NONA-Vision applications include:

- Tele-operation. A wide-angle image is useful for tele-operation of a remote robot. Scenes of unknown environments are difficult to recognize with the narrow field of view available in a conventional camera-head. NONA-Vision provides a good sense of presence in the remote site.
- Virtual travel. NONA-Vision enables virtual travel with a sense of presence in remote locations. This remote presence can be very valuable for handicapped or aged people who have trouble traveling in real spaces.

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Occlusive Optical See-Through Displays in a Collaborative Setup

A collaborative 3D environment in which opaque virtual objects fly around in see-through head-mounted displays.

Innovation: Augmented-reality wearable display with full occlusion; pattern filter; display case with a light surface.

Vision: In some augmented-reality applications, a clear and undelayed view of the real scene is extremely important (for example, face-to-face meetings, medical applications, and outdoor experiences). Future research will explore how this head-mounted display can perform in those practical applications.

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Physiological Reaction and Presence in Stressful Virtual Environments

A common measure of the quality or effectiveness of a virtual environment (VE) is the amount of presence (the sense of being there) it evokes in users. Experience the dramatic VE reported in the SIGGRAPH 2002 Paper, Physiological Measures of Presence in Virtual Environments, that demonstrates that heart rate is a reliable, valid, sensitive, and objective measure of presence in stressful virtual environments.

Innovation: Measurement of effectiveness ("presence") of virtual environments.

Vision: For any VE that elicits a physiological reaction (stressful, relaxing, or otherwise), it is possible to construct a physiological measure of presence. These physiological measures of presence can be used to understand which aspects of the VE are important for improving presence. With this knowledge, VE practitioners could design more effective VEs.

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Related work is also presented in the Course program, see page 36 and the Papers program, see page 50.

Ticket is required.

Public Anemone: An Organic Robot Creature

Inspired by primitive life, Public Anemone is a robotic creature with an organic appearance and quality of movement. Situated in an interactive terrarium that transitions from day to night, the cyber flora and fauna of this robotic garden can be manipulated by touch and proximity at night, and by gesture and movement during the day.

Innovation: Natural and full-body expressive behavior of an autonomous interactive robot. Integrated show control tools for interactive experiences.

Vision: This research looks beyond the minimally expressive, mechanical nature of today's interactive robots to develop compelling, organic robot creatures. Taking primitive life as a metaphor, this project explores the aesthetic, expressive, and interactive qualities that help humans perceive robots as living creatures.

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Regeneration of Real Objects in the Real World

This system can make objects presented in different places and different times appear to be "real" in real space. It features "Noh," a form of Japanese traditional drama, as its motif.

Innovation: The system consists of a capturing device, sensor devices, and a viewer. The capturing device captures 3D data from real objects, including glossy or translucent objects. The sensor devices sense the real environment with the "sensor cube." The viewer regenerates real objects in the real world by rendering them with ARToolKit in the cube.

Vision: The goal of this work is to regenerate real objects that existed at some moment in the past and/or at some remote location as if they have been transferred across space and time to the present.

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SmartFinger: Nail Mounted Tactile Display

A new type of tactile, wearable augmented-reality display: a nail chip that allows users to feel various textures as they trace their fingers along smooth objects.

Innovation: Novel tactile display.

Vision: Future applications of this technology will place a miniaturized control circuit and a battery on the back of the hand to enable a hands-free pointing device. The purpose of our research is to analyze the structure of human behavior. We also want to apply this technology to extend the capability of visually impaired people.

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For complete information, see: www.siggraph.org/s2002/conference/etech

Tomorrow's Yesterday: Mapping the E-Tech Continuum

In computer graphics, history frames the possible, imagination paints the impossible, and passion fills in the rest. This history-mapping project recognizes the visionaries, explorers, artists, and pioneers who have shaped the Emerging Technologies programs since 1991. It is today's departure point to "what is next" and "who might take us there."

Innovation: Navigable visual history of SIGGRAPH Emerging Technology programs.

Vision: This work provides a context for the Emerging Technology community to study and appreciate its heritage. On a future scale, however, we see the same community refining, growing, and returning its insights from these data back into new maps and ideas that will expand our exploration forward.

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TWISTER: A Media Booth

Telexistence Wide-Angle Immersive STEReoscope (TWISTER) is an immersive, full-color auto-stereoscopic display that allows people in distant locations to communicate as if they were in the same virtual 3D space.

Innovation: 360-degree autostereoscopic display.

Vision: The basic idea of mutual telexistence is projection of human beings into a virtual environment in real time. Each user stands inside a booth that displays live, full-color panoramic and autostereoscopic images and, at the same time, captures images of the user from every angle. In this context, autostereoscopic means there are no obstacles to hide the user's face, so it can be clearly seen. From multiple booths, people at remote locations can meet as if they were close at hand.

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Related work is also presented in the Sketches & Applications program, see page 73.

Ultrasound Visualization With the Sonic Flashlight

The Sonic Flashlight uses a half-silvered mirror to merge direct views of an object with an ultrasound scan of the object's interior. It provides an independent illusion of a 2D cross-section through a 3D object, without relying on head tracking or virtual-reality glasses.

Innovation: Multi-person augmented-reality device in a handheld display.

Vision: Current clinical use of ultrasound requires the physician to look away from the work area (patient) in order to view the ultrasound image. This is particularly undesirable when using ultrasound to guide invasive procedures, such as needle biopsy or catheter placement. The Sonic Flashlight allows in situ visualization of real-time ultrasound images without expensive or cumbersome hardware, and thus has the potential to greatly improve the accuracy and ergonomics of ultrasound-guided medical procedures. Future research will address calibration routines, further miniaturization of device components, clinical trials, and exploration of additional medical applications.

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Virtual Chanbara

This Samurai sword battle features a new force-feedback device that uses a controlled flywheel to return impacts.

Innovation: Novel force-feedback device.

Vision: Virtual Chanbara is suitable for networked play. In future versions, a Chanbara master will be able to instruct children throughout the world, and an international match might be held on the Internet.

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The Virtual Showcase: A Projection-Based Multi-User Augmented Reality Display

A projection-based multi-user augmented reality display that offers a new way of accessing, presenting, and interacting with scientific and cultural content.

Innovation: Seamless, projected imagery on real objects; hidden surface occlusion for real and virtual surfaces; museum application.

Vision: Future development of the Virtual Showcase investigates enabling optics and new designs, advanced rendering and interaction techniques, and standards and tools for authoring and managing mixed-reality content that can be shared and reused by multiple applications. In addition to these technical aspects, different application areas, such as paleontology, are addressed.

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Related work is also presented in the Sketches & Applications program, see page 72.

The Studio: an integrated network of machines for realizing ideas in 2D, 3D, 4D, and n-dimensional media. It is an opportunity to think across disciplinary boundaries and expand your skill sets using the latest data-capture devices, computer applications, and output devices. The Studio provides a hands-on creative environment for transformation of all kinds. It is a place to act, a space for investigating process, and an evolving environment for transforming materials and ideas, and for being transformed yourself.

Important Note:

Because the Studio's equipment depends on donations from developers and commercial vendors, this summary is based on previous Studio configurations and current projections.

Collaboration Station

The Collaboration Station supports a variety of traditional and digital media for art creation and output possibilities that span the Studio's activities. Participants are encouraged to create original works in this 2D/3D/4D station. A range of software packages and capture and input devices for still image and video editing is available. The Collaboration Station offers training and assistance by professionals and allows participants to experiment with their ideas using lighting, projection, sound, and performance. Several processes are featured:

Surface textures, digital transfers, fabric design and printing, and alternative digital printing techniques.

2D and 3D imaging with traditional materials for digital output and/or installation.

Image capture and manipulation: video and still-image production/post production and composite techniques

2D

The 2D area of the Studio is designed to introduce participants to the world of 2D input and output using the latest technology. When used in conjunction with the Collaboration Station, the 2D area supports the creation of original and unique works of art. It includes an array of computers that are color-calibrated and color-matched to inkjet printers

3D

In the 3D area of the Studio, attendees work with state-of-the-art 3D data-capture systems, modeling packages, and rapid-prototyping equipment. You can generate 3D digital objects either by modeling in the latest version of various full-featured software packages or by using 3D data capture devices to scan actual objects. Bring an object, or yourself, or sculpt an object out of clay. The Studio even provides the clay. After they are generated, the computer models can be built three dimensionally (translated into physical reality) with a bank of rapid-prototyping machines, printed two dimensionally using various large- and small-format printing processes, or animated.

Chair

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Location: Hall A

Days & Hours

Sunday, 21 July	1 - 7 pm
Monday, 22 July	9 am - 6 pm
Tuesday, 23 July	9 am - 6 pm
Wednesday, 24 July	9 am - 6 pm
Thursday, 25 July	9 am - 6 pm
Friday, 26 July	9 am - 1 pm

3D Data Capture

The 3D area of the Studio features an array of 3D scanning devices. You can bring in an object to be scanned, scan yourself, or sculpt an object out of clay and scan that. Objects are, in effect, measured or imaged three dimensionally and then those measurements or images are translated into points that are placed in a virtual 3D space. On the computer, the points become vertices that can be connected by segments to create a "skin" or "surface" of triangles and squares that are the digital equivalent of the surface of the object that was scanned. Some scanning processes result in a very detailed digital model, while others capture only the primary features of objects. Once an object has been scanned and converted into a digital model (usually an .stl file), that file can be imported into 3D modeling applications to enable further cleanup or manipulation (cut, scaled, twisted, bent, combined with other models, etc.). Then the model can be output to a rapid prototyping machine (going full circle to again become a physical 3D object), animated with 3D animation software, or shaded, textured, rendered, and printed as a 2D image.

Rapid Prototyping

Rapid prototyping (RP), or 3D printing, is an elegant and simple manufacturing process. Any CAD model that has wall thickness or that is "solid" can be prototyped. The computer model is first digitally "sliced" into very thin layers (usually a few thousands of an inch). The RP machine then uses those slices to physically build the object layer by layer. Some machines build by sintering (melting) granules of plastic or hardening layers of epoxy, while others extrude thin layers of thermal plastic or laminate layers of paper. Each process and material has its own interesting advantages and disadvantages, and most allow hands-on "bench work" for final finishing of pieces. RP was primarily developed and used in aerospace, automotive, toy, and medical applications, but it has gained wide acceptance in the arts, architecture, jewelry, and other areas. The distinct advantage of rapid prototyping or layered manufacture over all of the other automated processes is that it fabricates additively. This is a simple yet profound difference. Undercuts, convolutions of form, intricate geometry – all are easily accomplished in an additive process.

Animation

Attendees are introduced to various off-the shelf commercial animation software packages, general interface, workflow, and creation tools via hands-on sessions and interactive tutorial presentations.

Topics include modeling, texturing, lighting, and application of the basic principles of animation. Go through the steps of generating key-frame and procedural animation, and full body and facial motion capture to bring creatures, characters, props, and other scene elements to life. Participants are encouraged to take advantage of combining all these tools in profound and creative ways to make their visions come to fruition.

VR

New for SIGGRAPH 2002, this area features a system for immersive display configured for 3D solid modeling. Bill Brody of the University of Alaska at Fairbanks demonstrates his "BLUsculpt" system, in which fully 3D objects can be created and output as .stl files for rapid prototyping.

3D Modeling

Almost any form, real or imagined, can be generated using 3D modeling applications. The excitement is in the realization that you are actually drawing in three dimensions where objects (or whole environments) can be viewed from any point of view and quickly moved, scaled, or more dramatically altered for more dynamic and intuitive creative exploration. A completed model can be output to a rapid-prototyping machine, animated with 3D animation software, or shaded, textured, rendered, and printed as a 2D image.

CNC Routing

Computer Numerically Controlled Routing weds the precision control possible with computers with large scale subtractive "carving" using a high-speed router. A CNC router will be available to realize projects outside of the build envelope of typical rapid prototyping machines. Examples of projects that could be explored include foam landscapes or high reliefs in relatively low-density materials.

Studio Working Artists

BLUsculpt

BLUsculpt is an interactive virtual reality application that permits a user to freely sketch voxels inside a 10-foot cube for output as physical objects. The most recent iteration of the program allows a user to save a file as a solid 3D model in stereo-lithographic format (.stl) thereby allowing for the rapid prototyping of models developed in virtual reality.

Bill Brody

Glenn G. Chappell
Chris Hartman

University of Alaska Fairbanks
brody@arisc.edu

Tech Report - Cinema 4D XL: Advanced 3D Software for Educators and Studio Professionals

Using original examples generated with the software, Hall focuses on the unique capabilities of the application for character animation, rigging techniques, realistic environmental design, and texturing techniques. Hall also builds a bridge between its use as a professional film and animation production tool and its use by educators and students.

DaShawn L. Hall

Delaware College of Art and Design
University of the Arts
mstudios@bellatlantic.net

Drawing Circle

This project borrows the traditional structure and activities of a life drawing class to explore that structure's potential for digital media within the Studio. Using a well-lit model or still life surrounded by easels, the authors' intent is to explore a merger of this time-tested convention with 3D modeling. They hope to provide a setting development of participants' skills, and to promote the Studio as a place for active learning and group investigation.

O. Makai Smith

Venturi Scott Brown Associates
smith@vsba.com

James Stewart

Arizona State University

Collaborative Frameworks: A Proposal for an Archive in the Studio

Display and archiving of work done during SIGGRAPH 2002 so that it can be retrieved and replayed at a later date. Additionally, in order to reflect the diversity of content presented, Diaz is working with other Studio participants to create the archive in a collaborative manner.

Lily Diaz-Kommonen

University of Art and Design Helsinki
diaz@uia.fi

This year, as it did in New Orleans for SIGGRAPH 2000, sigKIDS is focusing on involvement with the local community and reaching out to audiences that are not usually associated with computer graphics and interactive techniques.

SIGGRAPH 2002 sigKIDS is offering two types of activities at the San Antonio Children's Museum, a unique learning center designed to provide interactive and stimulating educational experiences that can be shared by both parents and children.

Camp sigKIDS

A series of "day camps": throughout the week, for children 4-8 years old. The educational camps will give younger children their first opportunity to interact with technology-based learning materials. Advance registration for the camp is required. Registration is free to badged conference attendees.

Interactive Educational Projects

A variety of interactive educational projects, similar to those displayed in SIGGRAPH 2002 Emerging Technologies. These projects, submitted by specialists from the US, Canada, and Japan, celebrate learning in the sciences, cultures, and the visual and performing arts.

sigKIDS Projects at San Antonio Children's Museum

An Application of Tangible Interfaces in Collaborative Learning Environments

Lori Scarlatos
Brooklyn College
lori@sci.brooklyn.cuny.edu

Anansi's World of Folklore

Jacqueline Nuwame
jnuwame@cdfilmcentre.com

Floating Words for Kids

Satoko Moroi
Tokyo Denki University
moroi@ia.dendai.ac.jp
Shinji Sasada
Japan Electronics College
Ryoji Shibata
Tokyo Denki University

FORM

Hilary J. Wright
form_software@hotmail.com
Nancy Hyland

Gaming as an Educational Tool: Internet Scavenger Hunt

Karen Monahan
Parsons School of Design
monahank@newschool.edu

GollyGee Blocks: A 3D Modeler for Children

Jonathan T. Blocksom
GollyGee Software, Inc.

Interactive Animation as an Educational Tool in "Winter Dreams"

Daria Tsoupikova
Syracuse University
datsoupi@hotmail.com

Jollee-Mail Playground

Yuichiro Kamata
Cyber Network Co., Ltd.
you@cyber-net.co.jp

Toys to Teach: Mathematics as a Collaborative Climbing Exercise

James Dai
Michael Wu
Jonathan Cohen
Troy Wu
Maria Klawe
University of British Columbia

The ToyScout's Immersive Jukebox

Christopher Stapleton
University of Central Florida

The Virtual Dig

Robert Dunn
Arc Vertuel, Inc.
rd1s+@andrew.cmu.edu

Virtual Studio: Virtual Reality in Art

DaShawn L. Hall
Kenneth Sakatani
University of the Arts
mstudios@bellatlantic.net

Chair

Marc J. Barr

Middle Tennessee State University

Committee

Deborah Chew

Birney Elementary School

Christine Sinick

San Antonio Children's Museum

Alethea Hopkins

San Antonio Children's Museum

Brent Walters

DigitalRenderings.com

Guanping Zheng

Middle Tennessee State University

Location: San Antonio Children's Museum

Days & Hours

sigKIDS

Monday, 22 July	9 am - 4 pm
Tuesday, 23 July	9 am - 4 pm
Wednesday, 24 July	9 am - 4 pm
Thursday, 25 July	9 am - 4 pm

Camp sigKIDS

Monday, 22 July	9 am - 4 pm
Tuesday, 23 July	9 am - 4 pm
Wednesday, 24 July	9 am - 4 pm
Thursday, 25 July	9 am - 4 pm

Creative Applications Lab

The SIGGRAPH 2002 Creative Applications Lab (CAL) is an interactive learning facility that showcases and expands the conference programs. Presenters use the CAL to:

- Engage and facilitate the learning experience of SIGGRAPH 2002 attendees.
- Enhance knowledge and skills through training and development courses, specialized workshops, and organized focus-group sessions

The CAL provides computers, related hardware, software, and presentation technology in classroom, interactive workshops, or lab environments. A highly skilled team of volunteers with a broad range of professional experience supports contributors' activities and installs and maintains the software and hardware infrastructure of the CAL. This team partners with contributors to provide a first-class interactive working environment for SIGGRAPH 2002 attendees.

Chair

Tony Baylis

*National Center for
Supercomputing Applications
University of Illinois at Urbana-Champaign*

Committee

Stuart Anderson

netsweng, L.L.C.

Robin Cutshaw

Intercore, Inc.

Patrick Dorn

*National Center for
Supercomputing Applications*

Kevin Glueck

Texas A&M University

Jackie Kern

*National Center for
Supercomputing Applications*

Yasmin Khan

Pixar Animation Studios

Michael Millor

*National Center for
Supercomputing Applications*

Jeff Sass

Adobe Systems Incorporated

Dave Shreiner

Vicki Shreiner

SGI

Student Volunteers

Student Volunteers provide essential services to the annual SIGGRAPH conference and they gain valuable tangible and intangible benefits: attendance at the world's premier conference on computer graphics and interactive techniques; the opportunity to meet and work with field pioneers, professionals, and peers in their chosen field; contacts and friendship with many other people with similar interests; and a strong sense of accomplishment.

Chair

Shannon Tucker

University of Maryland Baltimore

Committee

Jim Kilmer

*The OPAL Group
SIGGRAPH 2003 Student Volunteer Chair*

Brian Mashburn

MS/EdD

Dj Merrill

University of Maryland College Park

Diego Rojas

CG Channel

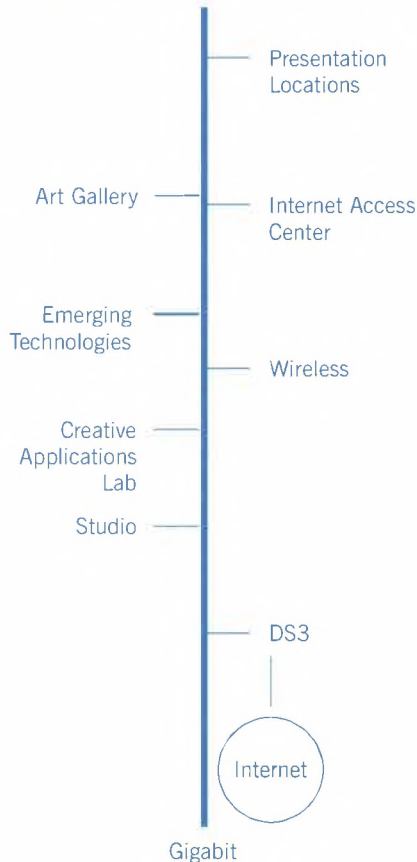
GraphicsNet

GraphicsNet is the SIGGRAPH 2002 conference intranet. It serves as the connection among the many programs and events offered at the conference, and as the gateway to the global graphics community.

GraphicsNet is built on gigabit fiber and FastEthernet (100Mbs) links connecting the Internet Access Center; select wireless locations; and the presentation rooms for Papers, Panels, Courses, Sketches & Applications, Web Graphics, Educators Program, Creative Applications Lab, Art Gallery, Emerging Technologies, and the Studio. The production backbone is built with products from Cisco Systems, 3COM, Fluke, and others. A DS3 circuit connects the conference to the Internet.

SIGGRAPH 2002 provides wireless Ethernet links in selected areas of the Convention Center. Attendees who wish to use the wireless links should have their own wireless PC (802.11b) cards.

Graphics Ethernet Backbone



Chair	SIGGRAPH 2002 Team
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Committee Jodi Giroux <i>Scarsdale Public Schools</i>	Joe Frasca Ed Konowal <i>Lee County Florida School District</i>
Larry Kauffman <i>Sallie Mae Servicing Corporation</i>	CJ Murzyn <i>Exodus, A Cable and Wireless Service</i>
David Spoelstra	Swaroop R. Shivarajapura <i>Purdue University, CADLAB</i>
Steve Van Frank <i>SIGGRAPH 2003 GraphicsNet Chair</i> <i>Van Frank Consulting</i>	Alan Verlo <i>University of Illinois at Chicago</i>
	Robyn Wilson <i>Microsoft Corporation</i>

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The SIGGRAPH 2002 International Committee delivers assistance, information, and answers to your questions in multiple languages at the International Center. Throughout the Henry B. Gonzalez San Antonio Convention Center, multi-lingual student volunteers are available to answer questions and provide assistance.

El Comité Internacional de SIGGRAPH 2002 proporciona asistencia, información y respuestas a sus preguntas en varios idiomas, en el Centro Internacional. Por todo el Centro de Convenciones de San Antonio habrá estudiantes multilingües voluntarios para asistirle y contestar sus preguntas.

Au Centre international, le Comité international du SIGGRAPH 2002 offrira une assistance, des informations et des réponses à vos questions dans diverses langues. Dans tout le palais des congrès de San Antonio, des étudiants bénévoles multi-lingues seront également à votre disposition pour prêter assistance et répondre à vos questions.

SIGGRAPH 2002 국제 위원회는 국제 센터에서 귀하에게 필요한 도움과 정보, 그리고 질문에 대한 답변을 제공합니다. Henry B. Gonzalez San Antonio 컨벤션 센터 전역에서 다중 언어를 구사하는 학생 봉사자들이 귀하의 질문에 답변하고 필요한 도움을 제공합니다.

世界的コンピュータグラフィックスコミュニティの情報と理解の場所です。インターナショナルセンターでは、質問に答え、つながりを作り、各国からの参加者達が必要とするSIGGRAPH 2002に関する情報を、マルチリンガルの学生ボランティア達がサポートします。

English is the official language of SIGGRAPH 2002.

L'anglais est la langue officielle du SIGGRAPH 2002.

Englisch is die offizielle Sprache der SIGGRAPH 2002.

L'inglese è la lingua ufficiale di SIGGRAPH 2002.

O inglês é língua oficial da SIGGRAPH 2002.

Angleyskey jzik jvljōtsj ofeatealwnim jzikom obçđnej SIGGRAPH 2002.

El inglés es el idioma oficial de SIGGRAPH 2002.

SIGGRAPH 2002 の公用語は英語です。SIGGRAPH 2002 의 정식 언어는 영어입니다.

英文是 SIGGRAPH 2002 的法定語言。

International Center Calendar of Events

Monday, 22 July**2 - 4 pm**

DCAj (Digital Content Association of Japan) Meeting

4 - 5 pm

International Birds of a Feather: ANZGRAPH & SEAGRAPH (Australia, New Zealand & Southeast Asia, Singapore) Meeting

5 - 6 pm

Networking: Asia/Oceania

Tuesday, 23 July**11 am - noon**

EUROPRIX Contest Presentation Meeting

2 - 3 pm

International Arts Activities in Web3D Field Meeting

3 - 4 pm

International Birds of a Feather: German Speaking Countries Meeting

4 - 5 pm

International Birds of a Feather: Nordic Interactive Meeting

5 - 6 pm

Networking: Europe

Wednesday, 24 July**10 am - noon**

Japanese Animation and Digital Movie-Media Arts Festival Selected Works Showing by CG-ARTS

4 - 5 pm

International Birds of a Feather: Afrigraph (African Countries) Meeting

5 - 6 pm

Networking: Africa/Middle East

Thursday, 25 July**9:30 - 11 am**

ACM SIGGRAPH Addresses Cultural Differences Meeting

11 am - noon

Japanese Animation and Digital Movie-Media Arts Festival Selected Works Showing by CG-ARTS

3 - 4 pm

International Birds of a Feather: Brazil & Portuguese Speaking Countries Meeting

4 - 5 pm

International Birds of a Feather: Latinos/Venezuelan Meeting

5 - 6 pm

Networking: Americas

Birds of a Feather

Sessions for attendees who think and work in similar technologies and environments. These sessions are open to all attendees.

At SIGGRAPH 2002, impromptu gatherings can be organized through the Birds of a Feather schedule board. Simply use the sign-up board in the Bridge Lobby (near the Information Booth), where late additions and revisions to the Birds of a Feather schedule are posted.

For more information on these Birds of a Feather sessions, contact:

1st Annual DirectX Real-time Shading Language BOF Dave Aronson +1.425.705.4042	Demoscene Get Together Vincent Scheib +1.919.962.1905	Massively Parallel Graphics and Visualization Patricia Crossno +1.505.845.7506	SGI Channel / ISV Matchmaking Event Chelsea Pavlina +1.949.224.4566
3D Printing for Scientific Visualization Michael Pique +1.858.784.9775	DIVERSE: Open-source VR and Simulation API John Kelso +1.540.231.2054	Molecular Graphics Michael Pique +1.858.784.9775	Ringling School of Art and Design Alumni Reception Terri Arnell +1.941.359.7592
ACM SIGGRAPH Carto BOF Meeting Theresa-Marie Rhyne +1.919.513.4623	Friends of Collaboration Chelsea Pavlina +1.949.224.4566	Non Photorealistic Rendering BOF Amy Gooch +1.801.587.7645	SIGGRAPH Public Policy BOF Bob Ellis ellis@siggraph.org
ACM SIGGRAPH Symposium on Computer Animation Michiel van de Panne van@cs.ubc.ca	Friends of Performer Chelsea Pavlina +1.949.224.4566	Open GL (10th Anniversary) BOF Chelsea Pavlina +1.949.224.4566	SPEC/GPC Press Conference Bob Cramblitt +1.919.481.4599
Animation: Master User Meeting and Film Festival Ken Baer +1.360.750.0042	The Future of the SIGGRAPH Conference Scott Owen +1.404.651.0675	Open Inventor 3.1 Bill Henderson +1.281.633.9990 x12	Student Chapter Start up Meeting Theirry Frey +33 1 55 95 52 39
Art Interface Device Michelle Kasprzak aid-info@interaccess.org	Graphics and Perception Holly Rushmeier +1.914.784.7252	OpenML BOF Elizabeth Riegel +1.707.994.7755	The 15th Media Performances and Sake Barrel Reception Toshihiro Yatsumonji +81 48 966 8127
Character Studio User Group Meeting Michele Bousquet +1.603.895.3571	ISEA Cynthia Beth Rubin cbrubin@risd.edu	OZONE: Art, Architecture, Archaeology Kevin Cain +1.510.268.1627	Tokyo ACM SIGGRAPH Toshihiro Komma +813 492 46 5251
Component-Based Visualization and Interaction Environments Arthur Olson +1.858.784.9702	IEEE CS TC on Visualization and Graphics R. Bowen Loftin +1.757.686.6200	Professional Chapters Business Meeting Theirry Frey +33 1 55 95 52 39	University of Utah Alumni BOF Amy Gooch +1.801.587.7645
Computer Graphics Pioneers Reception Sherry Keowen +1.818.347.2210	International Digital Reception Noriko Namikoshi +81 3 3512 3903	Professional Chapter Start Up Meeting Theirry Frey +33 1 55 95 52 39	VR Juggler Birds of a Feather Christopher Just +1.515.294.3092
	Java 3D BOF Michael Schulman +1.650.786.0529	Purdue University Roundup Jim Sprinkles +1.765.494.8206	Web3D Member Meeting Anders Jepsen +1.925.254.3079

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Menger Hotel

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Red Roof Inn San Antonio Downtown

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Residence Inn by Marriott Alamo Plaza

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Residence Inn by Marriott Downtown Market Square

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Riverwalk Plaza Hotel

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Sheraton Gunter Hotel

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St. Anthony Hotel, A Wyndham Grand Heritage Hotel

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Westin Riverwalk

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Woodfield Suites

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Accommodations

Downtown San Antonio

Shuttle Service

SIGGRAPH 2002 provides complimentary shuttle bus service between most conference hotels and the Henry B. Gonzalez Convention Center, and to and from SIGGRAPH 2002 receptions. Check the shuttle flyer distributed in the registration area, and the information booth for exact details. If you require special transportation assistance, please call Conference Management at:

+1.312.321.6830



Hotels

- | | |
|---|--|
| 1 Adam's Mark San Antonio Riverwalk | 17 La Mansion del Rio Hotel |
| 2 AmeriSuites Riverwalk | 18 Marriott Rivercenter (Headquarters) |
| 3 Crockett Hotel | 19 Marriott Riverwalk |
| 4 Drury Inn & Suites Riverwalk | 20 Menger Hotel |
| 5 Emily Morgan | 21 Plaza San Antonio |
| 6 Fairfield Inn Downtown | 22 Radisson San Antonio Downtown
Market Square |
| 7 Fairmount, A Wyndham Historic Hotel | 23 Red Roof Inn San Antonio Downtown |
| 8 Four Points by Sheraton Riverwalk North | 24 Residence Inn by Marriott Alamo Plaza |
| 9 Hampton Inn | 25 Residence Inn by Marriott Downtown
Market Square |
| 10 Hawthorne Suites Riverwalk Hotel | 26 Riverwalk Plaza Hotel |
| 11 Hilton Palacio del Rio | 27 Sheraton Gunter |
| 12 Holiday Inn Downtown Market Square | 28 St. Anthony Hotel, A Wyndham
Historic Hotel |
| 13 Holiday Inn Express Hotel & Suites | 29 Westin Riverwalk |
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★ Full Conference ● Conference Select ◆ Exhibits Plus

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Presentations

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★	Papers
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★ ●	Educators Program
★ ●	Web Graphics
★ ● ◆	Keynote Address/Awards
★ ●	Special Sessions
★ ● ◆	Special Events
★ ● ◆	Exhibitor Tech Talks
★ ● ◆	Fundamentals Seminar

Experiences

★ ● ◆	Art Gallery
	Computer Animation Festival:
★	Electronic Theater Ticket - Any Show
●	Electronic Theater Matinée Ticket
★ ● ◆	Animation Theaters
★ ● ◆	Emerging Technologies
★ ●	Studio
★	Opening Reception/Monday
★	Technical Reception/Thursday

Services

★ ● ◆	ACM SIGGRAPH Forum
★ ● ◆	Birds of a Feather
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Documentation

★ ●	Conference Abstracts & Applications (Print & CD-ROM)
★ ●	Electronic Art & Animation Catalog (Print & CD-ROM)
★	Conference Proceedings (Print, DVD & CD-ROM)
★	Course Notes (CD-ROM)

Registration and Media Information

Member Rate

If you are currently an ACM or ACM SIGGRAPH member, you are eligible for member discounts. You must provide your current ACM or ACM SIGGRAPH membership number in order to receive the discount, otherwise you will be charged the non-member rate. Local or regional ACM SIGGRAPH memberships are not eligible for registration discounts.

Student Rate

You must be a full-time student in order to qualify. You must attach copies of the following to your registration form to qualify for student rates (this applies for those registering in advance as well as at the conference):

- Your 2002 ACM student membership card OR your valid 2002 student identification card AND a letter on school letterhead verifying 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 2002, you must present your ID card (not a copy) in order to pick up your credentials.

If you fail to attach one of the above to your registration form, you will be charged the non-member rate.

Note: Your badge will include your name, organization, city, state, and country as indicated on your registration form.

Registration: *Hall A*

Days & Hours

Saturday, 20 July	6 – 8 pm
Sunday, 21 July	8 am – 5 pm
Monday, 22 July	8 am – 4 pm
Tuesday, 23 July	8 am – 4 pm
Wednesday, 24 July	8 am – 4 pm
Thursday, 25 July	8 am – 3 pm
Friday, 26 July	8 – 10 am

Media Headquarters: *Room 212*

Days & Hours

Sunday, 21 July	10 am – 6 pm
Monday, 22 July	8 am – 6 pm
Tuesday, 23 July	8 am – 6 pm
Wednesday, 24 July	8 am – 6 pm
Thursday, 25 July	8 am – 5 pm
Friday, 26 July	8:30am – 1 pm

Media Registration

Media representatives must register in the Media Headquarters Office, Room 212. You must submit full and proper media credentials for a media pass. No exceptions will be made.

Early Exhibition Floor Access

Tuesday, 23 July
9 – 10 am

Exhibit Floor

Gain early access to the exhibit floor before it opens to the attendees for a "sneak preview" of the latest products and applications.

Exhibitor Media Events

A schedule of various exhibitor media events will be available in the Media Headquarters Office in Room 212 of the Henry B. Gonzalez Convention Center.

Attendee Services

SIGGRAPH 2002 and the Henry B. Gonzalez Convention Center offer several services during the conference to make your week more enjoyable.

Accessibility

The Henry B. Gonzalez Convention Center is wheelchair accessible with plenty of ramp and elevator access. If you have special needs or requirements, please call Conference Management at: +1.210.582.7018.

Airport Shuttle Service

Discounted airport shuttle service for SIGGRAPH 2002 attendees is available through SATRANS. Arrangements can be made directly with SATRANS 24 hours a day using this toll free number: 800.868.7707. When you call, make sure to indicate that you are attending the SIGGRAPH 2002 conference. Airport shuttle coupons are available at the SIGGRAPH 2002 Information Booth in the Bridge Lobby but are not required to receive the discount.

Audio/Visual Services +1.210.582.7008

Direct all questions about audio/visual needs to this office. For more information on audio/visual services for speakers, see Speaker Prep Room, Room 214A.

Sunday, 21 July	7 am - 7 pm
Monday, 22 July	7 am - 7 pm
Tuesday, 23 July	7 am - 7 pm
Wednesday, 24 July	7 am - 7 pm
Thursday, 25 July	7 am - 7 pm
Friday, 26 July	7 am - 2 pm

Automated Teller Machines (ATMs)

There are several ATM machines located throughout the lobbies of the Henry B. Gonzalez Convention Center.

Baggage Check

Sunday, 21 July	8:30 am - 7:30 pm (West Lobby)
Monday, 22 July	7:30 am - 6:30 pm (West Lobby)
Tuesday, 23 July	7:30 am - 6:30 pm (West Lobby)
Wednesday, 24 July	7:30 am - 6:30 pm (West Lobby)
Thursday, 25 July	7:30 am - 6:30 pm (West Lobby & Hall A)
Friday, 26 July	7:30 am - 6:30 pm (Hall A)

Banks/Currency Exchange

The following banks provide Foreign Currency Exchange:

Frost Bank
100 West Houston
San Antonio, Texas 78205
+1.210.220.5651

Monday, 22 July	9am - 4pm
Tuesday, 23 July	9am - 4pm
Wednesday, 24 July	9am - 4pm
Thursday, 25 July	9am - 4pm
Friday, 26 July	9am - 5pm

Bank of America
300 Convent
San Antonio, Texas 78205
+1.800.299.2265

Monday, 22 July	9am - 4pm
Tuesday, 23 July	9am - 4pm
Wednesday, 24 July	9am - 4pm
Thursday, 25 July	9am - 4pm
Friday, 26 July	9am - 5pm

Beaming Stations

SIGGRAPH 2002 beaming stations deliver conference and exhibition information to Palm OS and Pocket PC devices throughout the Henry B. Gonzalez Convention Center.

Look for stations in the following areas:

- Hall A near Registration
- West Lobby near SIGGRAPH Village
- East Lobby near the International Center
- Bridge Lobby near SIGGRAPH 2003 Booth and Pathfinders
- Ballroom C escalator near Paper/Panel sessions

Bookstore

Park View Foyer

BreakPoint Books (BPB) offers CD-ROMs, software, and computer-related books. Book prices are discounted 10 percent during and up to 30 days after the conference (www.breakpoint-books.com).

Esther Dyson at the Bookstore

SIGGRAPH 2002's keynote speaker signs copies of her books:
Wednesday, 24 July, 10 - 10:45 am

See the schedule in the bookstore for other book signings throughout the week.

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	9 am - 7 pm
Monday, 22 July	8 am - 5 pm
Tuesday, 23 July	8 am - 5 pm
Wednesday, 24 July	8 am - 5 pm
Thursday, 25 July	8 am - 5 pm
Friday, 26 July	8 am - 6 pm

Note: All bookstore policies are those of BreakPoint Books and not SIGGRAPH 2002.

Business Center

East Lobby

A variety of services are offered by Mailboxes, Etc. including: computer time rental, faxing services, and photocopying. The Business Center also sells office supplies, phone cards, and U.S. stamps.

Child Care

Room 002A

Child care services are provided for SIGGRAPH 2002 attendees. A minimum of 3 consecutive hours per child, per day is required. Onsite accommodations are based on availability.

Sunday, 21 July	8 am – 5:30 pm
Monday, 22 July	7:45 am – 6:15 pm
Tuesday, 23 July	7:45 am – 6:15 pm
Wednesday, 24 July	7:45 am – 6:15 pm
Thursday, 25 July	7:45 am – 6:15 pm
Friday, 26 July	7:45 am – 2 pm

Conference

Management Office

Room 210

+1.210.582.7018

If you have questions regarding SIGGRAPH 2002, call or stop by this office at anytime.

Exhibition

Management Office

Room 101A

+1.210.582.7030

If you have any questions regarding the SIGGRAPH 2002 Exhibition, call or stop by this office at anytime.

Exhibitor Registration

Hall A

Exhibitors should pick up their badges at the exhibitor registration counter, which is open during registration hours. See Registration.

First Aid Office

Back of Hall C

A nurse or paramedic is on duty at the first aid area.

Food Services

Restaurants: Hall B, Hall D* & River Court Plaza (outside Room 004)

Concession stands and food carts offering snacks and beverages are also available throughout the convention center.

Sunday, 21 July	11 am - 4 pm
Monday, 22 July	11 am - 4 pm
Tuesday, 23 July	11 am - 4 pm
Wednesday, 24 July	11 am - 4 pm
Thursday, 25 July	11 am - 4 pm
Friday, 26 July	11 am - 4 pm

*Hall D restaurant is open Tuesday - Thursday.

Housing Desk

East Lobby

If you have questions about hotel accommodations, stop by or call the Housing desk.

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	9 am - 7 pm
Monday, 22 July	8 am - 5 pm
Tuesday, 23 July	8 am - 5 pm
Wednesday, 24 July	8 am - 5 pm
Thursday, 25 July	8 am - 5 pm
Friday, 26 July	8 am - 3 pm

Information Desk

Bridge Lobby

For answers to your questions about SIGGRAPH 2002, stop by the information desk. The staff can provide information on conference programs, events, and San Antonio-related questions.

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	8 am - 5 pm
Monday, 22 July	8 am - 4 pm
Tuesday, 23 July	8 am - 4 pm
Wednesday, 24 July	8 am - 4 pm
Thursday, 25 July	8 am - 3 pm
Friday, 26 July	8 - 10 am

International Resources

East Lobby

+1.210.582.7036

In the International Center, members of the SIGGRAPH 2002 International Committee and a multi-lingual staff of student volunteers are available to help international attendees take full advantage of all conference programs, events, and Exhibition.

Saturday, 20 July	5 - 8 pm
Sunday, 21 July	8 am - 7 pm
Monday, 22 July	8 am - 6 pm
Tuesday, 23 July	8 am - 6 pm
Wednesday, 24 July	8 am - 6 pm
Thursday, 25 July	8 am - 6 pm
Friday, 26 July	8 am - 5 pm

Internet Access Center

Room 216

This networked area in the Henry B. Gonzalez Convention Center provides email and Web access for all attendees.

Sunday, 21 July	8 am - 7 pm
Monday, 22 July	8 am - 6 pm
Tuesday, 23 July	8 am - 6 pm
Wednesday, 24 July	8 am - 6 pm
Thursday, 25 July	8 am - 6 pm
Friday, 26 July	8 am – 5:30 pm

Tables are available for laptop connection to the Internet via 10/100 Ethernet.

Wireless Internet Access

Wireless Internet access (802.11b) is available in select areas of the Henry B. Gonzalez Convention Center. Select presentations offer audience participation via wireless.

Please refer to your laptop operating system and client adapter documentation to perform the following tasks:

1. Document all existing TCP/IP and wireless configuration information before you make any changes.
2. Configure your laptop to use DHCP.
3. Configure your wireless adapter Network Name (SSID) to be either *blank* or 's2002'.
4. Disable encryption on your wireless adapter.

The SIGGRAPH 2002 wireless network provides open, unencrypted communications for conference attendees. Please be aware that these communications are not secure and can be monitored by others.

Job Fair

Tower View Foyer

Participants as of 20 June 2002. See Web site for complete details.

- Angel Studios*
- Dynamic Animation Systems, Inc.*
- High Voltage Software, Inc.*
- hp*
- LucasArts Entertainment Company LLC*
- Majesco Sales Inc.*
- Nintendo of America*
- Oddworld inhabitants*
- Paradigm Entertainment, Inc. an Infogrames Co.*
- Sammy Studios*
- Savannah College of Art and Design*

Tuesday, 23 July	noon - 4 pm
Wednesday, 24 July	noon - 4 pm

Lost and Found/Security

**Office H7 (near entrance of Hall A)
+1.210.207.8500**

All items found during the conference should be turned in to the SIGGRAPH security office located in Office H7. After the conference, all items will be turned over to the Henry B. Gonzalez Convention Center Administrative Office. Lost registration badges will be held at the SIGGRAPH Special Assistance desk in Hall A.

Merchandise Pickup Center

Hall A

Full Conference and Conference Select registrants must pick up conference technical materials that are included with registration at SIGGRAPH 2002. Shipping services are available at SIGGRAPH 2002. Technical materials will not be shipped after the conference.

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	8 am - 5 pm
Monday, 22 July	8 am - 4 pm
Tuesday, 23 July	8 am - 4 pm
Wednesday, 24 July	8 am - 5 pm
Thursday, 25 July	8 am - 6 pm
Friday, 26 July	8 - 11 am

Technical Material Sold After the Conference

SIGGRAPH 2002 Conference Proceedings (printed & CD-ROM); Electronic Art & Animation Catalog (printed & CD-ROM); Conference Abstracts & Applications (printed & CD-ROM); Course Notes CD-ROM, and Video Reviews are available for sale after the conference.

To order, contact:

ACM Order Department
800.342.6626 (Continental US and Canada)
+1.212.626.0500 (international)
+1.212.944.1318 fax
orders@acm.org

Message Center

Bridge Lobby

+1.210.582.7000

A message center is available in the Henry B. Gonzalez Convention Center for attendees to receive and leave messages.

Saturday, 20 July	noon - 8:30 pm
Sunday, 21 July	8 am - 5 pm
Monday, 22 July	8 am - 6:30 pm
Tuesday, 23 July	8 am - 6:30 pm
Wednesday, 24 July	8 am - 6:30 pm
Thursday, 25 July	8 am - 6 pm
Friday, 26 July	8 am - 5 pm

Parking

The following parking lots are located near the Henry B. Gonzalez Convention Center:

Hemisfair Garage

600 East Market

Marina Garage

850 East Commerce

Riverband Garage

210 North Presa

For rates and hours of operation:

+1.210.207.8266

Registration

(Advance & Onsite)

Hall A

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	8 am - 5 pm
Monday, 22 July	8 am - 4 pm
Tuesday, 23 July	8 am - 4 pm
Wednesday, 24 July	8 am - 4 pm
Thursday, 25 July	8 am - 3 pm
Friday, 26 July	8 - 10 am

Special Assistance Desk

+1.210.582.7055

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

- Credit card problems (validations, errors)
- Lost badges
- Registration corrections and upgrades
- Substitute registration (only if authorized on company letterhead)

Restaurant and Entertainment Information Desk

East Lobby

The desk is staffed with individuals to assist you in making reservations at local San Antonio restaurants and attractions and open during the following hours:

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	noon - 6:30 pm
Monday, 22 July	9:30 am - 6:30 pm
Tuesday, 23 July	9:30 am - 6:30 pm
Wednesday, 24 July	9:30 am - 6:30 pm
Thursday, 25 July	9:30 am - 6:30 pm

Shipping Desk

Hall A

A shipping desk, operated by Mailboxes, Etc., offers next-day air, second-day air, and regular ground shipping to destination around the world.

Saturday, 20 July	6 - 8 pm
Sunday, 21 July	9 am - 7 pm
Monday, 22 July	8 am - 5 pm
Tuesday, 23 July	8 am - 5 pm
Wednesday, 24 July	8 am - 5 pm
Thursday, 25 July	8 am - 5 pm
Friday, 26 July	8 am - 5 pm

Shuttle Service

888.483.6707

Shuttles to Henry B. Gonzalez Convention Center

Saturday, 20 July	3:30 - 8:30 pm
Sunday, 21 July	7:30 am - 8:30 pm
Monday, 22 July	7:30 am - 9:30 pm
Tuesday, 23 July	7:30 am - 9:30 pm
Wednesday, 24 July	7:30 am - 9:30 pm
Thursday, 25 July	7:30 am - 9:30 pm
Friday, 26 July	7:30 am - 6 pm

SIGGRAPH 2002 provides complimentary shuttle service between most conference hotels and official conference events at the Henry B. Gonzalez Convention Center. Complimentary shuttle service is also provided to the Opening and Technical Receptions. Shuttle signs and flyers are available in your hotel and the SIGGRAPH 2002 Information Desk with specific shuttle details for all conference events.

If you have any questions regarding the shuttle service, contact the Shuttle Vendor directly during official shuttle hours noted above. For assistance with handicapped shuttle service, call 888.483.6707.

Shuttles to Children's Museum (sigKIDS)

305 East Houston

Attendees looking for transfers to the Children's Museum for the SIGGRAPH 2002 sigKIDS program should take Route 3 to the Sheraton Gunter and walk one block to the Children's Museum. Attendees should return to the Sheraton Gunter for shuttles back to the Convention Center. No shuttles will pick up or drop off at the Children's Museum. This route will run continuously based on the hours provided above.

SIGGRAPH Store

Hall A

+1.210.582.7050

The store is for casual browsers and serious shoppers. Stop by to purchase additional technical materials plus gifts for family, friends, and co-workers. Technical materials and conference documentation are available for purchase at the store. SIGGRAPH 2002 merchandise is available on a first-come, first-served basis.

Merchandise vouchers are only valid in the Merchandise Pickup Center located next to the SIGGRAPH Store.

Merchandise Boutique

Park View Foyer

Monday, 22 July	8 am - 4 pm
Tuesday, 23 July	8 am - 4 pm
Wednesday, 24 July	8 am - 5 pm
Thursday, 25 July	8 am - 6 pm
Friday, 26 July	8 - 11 am

Speaker Prep Room

Room 214A

+1.210.582.7065

Saturday, 20 July	Noon - 7 pm
Sunday, 21 July	7 am - 7 pm
Monday, 22 July	7 am - 7 pm
Tuesday, 23 July	7 am - 7 pm
Wednesday, 24 July	7 am - 7 pm
Thursday, 25 July	7 am - 7 pm
Friday, 26 July	7 am - 2 pm

All speakers must check in at the Speaker Prep Room at least 24 hours before their presentation.

Speakers and contributors should use the contributor registration desk to pick up registration credentials and obtain conference information. Speaker ribbons and badge holders are available only in the Speaker Prep Room. Speakers may use the Speaker Prep Room to prepare for their presentations, and to preview slides. Changes in audio/visual equipment needs in presentation rooms should be directed to the Speaker Prep Room.

Special Policies

- Registered attendees under the age of 16 must be accompanied by an adult at all times.
- Children under 16 are not permitted in the Exhibition. Age verification is required.
- No cameras or recording devices are permitted at SIGGRAPH 2002. Abuse of this policy will result in the loss of registration credentials.
- Food and beverages cannot be brought into Electronic Theater performances.

Technical Session Lounge

After each technical session, join presenters and authors for continued discussion in a comfortable, informal lounge setting. A technical session lounge is located outside of some technical session rooms.

Ticket Purchase and Exchange Counter

Electronic Theater Tickets

One ticket per person is included with Full Conference and Conference Select registrations. Every attempt is made to accommodate your requested Electronic Theater show. If you would like to exchange your ticket, you may do so at this counter based on availability. All performances include the same material.

Badged attendees may purchase up to four Electronic Theater tickets (subject to availability) at On-site Registration beginning at 6 pm Saturday, 27 July. Last-minute tickets are generally available. They will be sold at the door to the Electronic Theater one hour prior to show time. All sales are final.

Reception Tickets

Reception tickets are also available at this counter. The cost is \$50 per person, per reception. All sales are final.

Telephone Numbers

- Art Gallery Office**
+1.210.582.7006
- Audio/Visual Services**
+1.210.582.7008
- Computer Animation Festival Office**
+1.210.582.7013
- Conference Management Office**
+1.210.582.7018
- Creative Applications Lab Office**
+1.210.582.7014
- Educators Program Office**
+1.210.582.7026
- Emerging Technologies Office**
+1.210.582.7027
- Exhibition Management Office**
+1.210.582.7030
- Housing Desk**
+1.210.582.7067
- International Resources Office**
+1.210.582.7036
- Media Headquarters**
+1.210.582.7040
- Message Center**
+1.210.582.7000
- Security**
+1.210.207.7773
- Shuttle Service**
+1.800.868.7707
- SIGGRAPH Store**
+1.210.582.7050
- Speaker Prep Room**
+1.210.582.7065
- Special Assistance Desk**
+1.210.582.7055
- Studio Office**
+1.210.582.7006

Exhibition

Discover, understand, and select the new-generation tools that empower your interaction and digital images. In the SIGGRAPH 2002 Exhibition, over 225 exhibitors offer their hardware, software, and services to the worldwide computer graphics industry. Startup Park presents the companies that will define the state of interactive graphics in 2007.

Exhibits Plus Registration

With Exhibits Plus, you receive admission to the Exhibition, Startup Park, Art Gallery, Animation Theaters, Emerging Technologies, Special Events, ACM SIGGRAPH Forum, Birds of a Feather, Career Center, Exhibitor Tech Talks, Fundamentals Seminar, International Resources, Internet Access Center, Job Fair, Keynote Address/Awards, and Pathfinders.

Exhibits Plus registration is non-refundable.

Space Reservation

To purchase exhibition space for SIGGRAPH 2003, call or write:
SIGGRAPH 2003
Exhibition Management
Hall-Erickson, Inc.
98 East Naperville Road
Westmont, Illinois 60559 USA
+1.630.434.7779
+1.630.434.1216 fax
halleric@siggraph.org

**Location:
Hall C-D & Bridge Hall**

Days & Hours

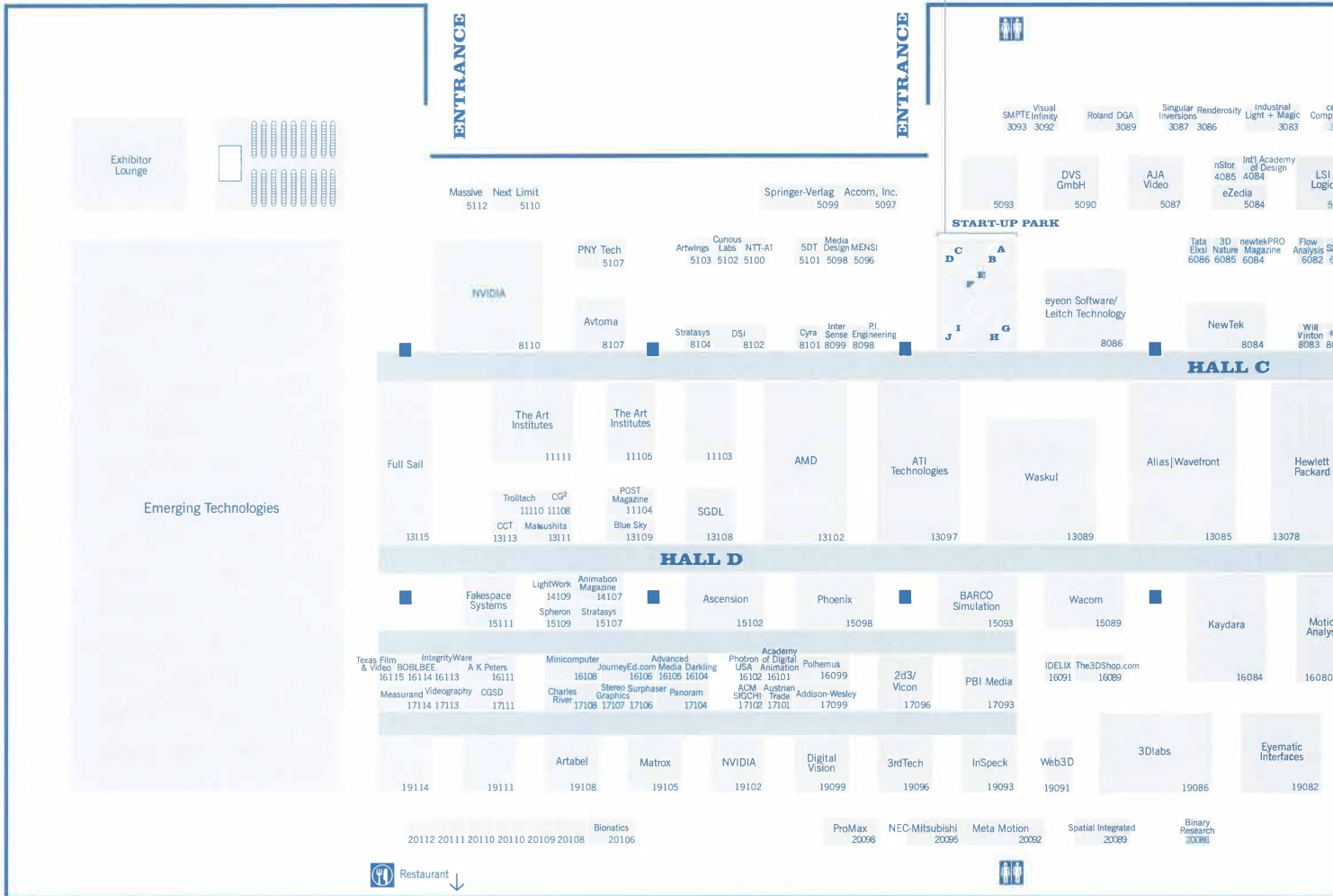
Tuesday, 23 July	10 am - 6 pm
Wednesday, 24 July	10 am - 6 pm
Thursday, 25 July	10 am - 5 pm

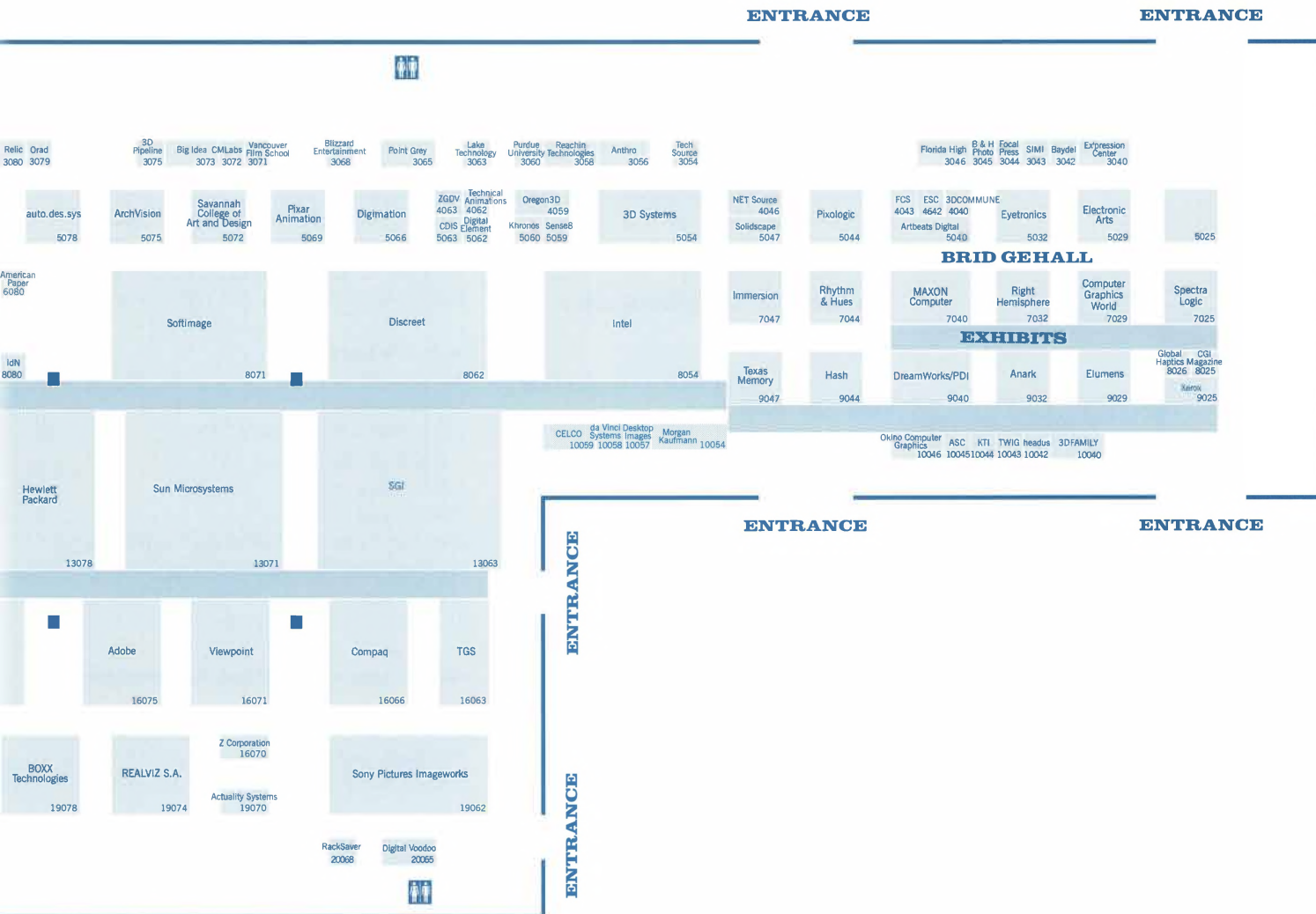
Products and Services on Display

2D Graphics	High Performance Graphics Processors
3D Graphics	High Resolution Technologies
3D Modeling	Image Based Modeling
3D Rapid Prototyping	Image Management
Aerospace and Automotive Applications	Industrial Design
Animation	Information Visualization
Architecture Applications	Input Devices
Artificial Intelligence	Interface Tools
Authoring Software	Mapping and Cartography
Broadcast Design Software	Medical Imaging Software
Business and Financial Graphics	Mobile Computing
CAD/CAM/CAE/CIM	Monitors and Displays
Commercial Game Engines/Equipment	Motion Capture
Computer-Video Interfacing	Multimedia Tools and Applications
Conferences and Exhibitions	Networking
Consulting	OEM Components
Contract Graphics/Programming	Paint Systems
Data Analysis	Printers and Plotters
Desktop Publishing	Projectors
Desktop Video Production Software	Publications
Digital Cameras	RAID Systems and Storage
Digital Imaging	Rendering and Modeling
Digital Video Hardware	Robotics
Digitizing Cameras	Scan Converters
DVD Authoring Tools	Scanners
Education/Training	Scientific Application
Electronic Publishing	Scientific Visualization
Encoders/Decoders	Simulation
Engineering Applications	Storage Devices; Tape/Disk
Furniture	Streaming Technology
Geographic Information Systems	Systems Integrators
Graphic Design Systems	Terminals, Monitors, and Displays
Graphics Accelerator Boards	Video Effects Equipment
Graphics Standards Software	Video Encoding and Compression
GroupWare	Video Servers
Haptic Input Devices	Visual Effects Software
HDTV	VR Software
Head Mounted Displays	Web 3D
	Web Graphics
	Workstations

Exhibition Floor Plan

- A 6089 National Institute of Advanced Science and Technology
- B 6090 Virtual Clones
- C 6091 QEDSoft, Inc.
- D 6092 RadTIME, Inc.
- E 6093 Tyrell
- F 6094 RoninWorks
- G 8089 NaturalMotion
- H 8090 Yannix Technologies
- I 8091 SiTex Graphics
- J 8092 n4 Dimensions





Exhibitors

2d3 Ltd.

Booth 17096

14 Minns Business Park, West Way
Oxford OX2 0JB UNITED KINGDOM
+44.1865.811061
2d3@2d3.com
www.2d3.com
2d3 Ltd. bridges the gap between filmed footage and CG with a unique product, Boujou, an automatic camera tracker.

3DCommune

Booth 4040

P.O. Box 207
26721 Hamilton Street
Edwardsburg, Michigan 49112-0207 USA
+1.616.663.0158
3d@3dcommune.com
www.3dcommune.com

3D Nature, LLC

Booth 6085

5740 Olde Wadsworth, Unit C
Arvada, Colorado 80002 USA
+1.303.659.4028
wcsinfo@3dnature.com
www.3dnature.com
Three-dimensional landscape modeling, rendering, and animation software. World Construction Set and Visual Nature Studio are used in movies, television, multimedia, games, GIS-visualization, and land planning.

3D Pipeline Corporation

Booth 3075

1224 Prospect Avenue, Suite 150
La Jolla, California 92037 USA
+1.858.551.5493
sales@3dpipeline.com
www.3dpipeline.com
Contract product development services, including software development and content creation for hardware manufacturers, game producers, and toy companies.

The3DShop.com

Booth 16089

5555 Oakbrook Parkway, Suite 540
Norcross, Georgia 30093 USA
+1.770.368.8988
cktan@the3dshop.com
www.the3dshop.com
The3DShop.com has been a leader in custom-built 3D/DV workstations since the first generation of OpenGL and DV.

3D Systems, Inc.

Booth 5054

26081 Avenue Hall
Valencia, California 91355 USA
+1.661.295.5600
moreinfo@3dsystems.com
www.3dsystems.com
3D Systems, Inc. manufactures solid imaging systems that create physical objects from digital input, which help reduce the time and cost of designing and manufacturing products.

3DFAMILY TECHNOLOGY CO., LTD.

Booth 10040

6F, No 108-3, MinChiuan Road, Shindian City
Taipei 0231 TAIWAN
+886.2.8218.7699
michelle@3dfamily.com
www.3dfamily.com
3DFAMILY TECHNOLOGY CO., LTD. is focused on providing the most advanced and innovative 3D digitization solutions.

3Dlabs Inc. Ltd.

Booth 19086

480 Potrero Avenue
Sunnyvale, California 94085 USA
+1.408.530.4700
sales@3dlabs.com
www.3dlabs.com
3Dlabs Inc. Ltd. is a pioneer in graphics technology and supplies graphics accelerator solutions to professionals in computer-aided design, digital content creation, and visual simulation markets.

3rdTech, Inc.

Booth 19096

119 East Franklin Street, 3rd Floor
Chapel Hill, North Carolina 27514 USA
+1.919.929.1903
info@3rdtech.com
www.3rdtech.com
3rdTech, Inc. demonstrates its high-performance, high-accuracy, HiBall Wide Area 6DOF Tracker, and DeltaSphere Laser 3D Color Scene Digitizer for rapid digitization of large scenes or models.

5DT (Fifth Dimension Technologies)

Booth 5101

2005 De La Cruz Boulevard, Suite 292
Santa Clara, California 95050 USA
+1.408.748.1316
info@5dt.com
www.5dt.com
5DT (Fifth Dimension Technologies) develops, produces, and distributes VR hardware, software, and systems. Hardware products include the 5DT Data Glove Series and the 5DT HMD Series.

A K Peters, Ltd.

Booth 16111

63 South Avenue
Natick, Massachusetts 01760 USA
+1.508.655.9933
service@akpeters.com
www.akpeters.com
Book and journal publisher serving the graphics community with titles for graphics researchers, game programmers, and animators. 15% discount. The source for your graphics library.

Academy of Digital Animation

Booth 16101

3000 College Heights Boulevard
Ridgecrest, California 93555 USA
+1.661.301.0652
recruit@cc.cc.ca.us
www.coyote3d.com
Students enrolled in this program develop professional skills in preproduction, story-telling, modeling, texturing, lighting, character animation, effects, animation programming/technical direction, Web animation, and game design.

Accom, Inc.**Booth 5097**

1490 O'Brien Drive
Menlo Park, California 94025 USA
+1.650.328.3818
info@accom.com
www.accom.com

Accom, Inc. designs, manufactures, sells, and supports digital video production, disk recording, and editing tools to the production, post-production, broadcasting, and computer video markets.

ACM SIGCHI**Booth 17102**

1515 Broadway, 17th Floor
New York, New York 10036 USA
+1.212.626.0607
www.acm.org/sigchi/

ACM SIGCHI: engineering interactive systems, designing/evaluating human-machine communication, characterizing use and contexts of use for interactive systems, design methodology, and new designs.

Actuality Systems, Inc.**Booth 19070**

164 Middlesex Turnpike
Burlington, Massachusetts 01803 USA
+1.781.229.7812
bsouthard@actuality-systems.com
www.actuality-systems.com

Perspecta Spatial 3D visualization platform for 360-degree display of pharmaceutical, military, medical, and MCAD imagery.

Addison-Wesley/New Riders Publishing**Booth 17099**

201 West 103rd Street
Indianapolis, Indiana 46290 USA
+1.317.581.3848
rachel.charlton@newriders.com
www.newriders.com

Books on 3ds max 4, LightWave, Softimage and Web design.

Adobe Systems Incorporated**Booth 16075**

345 Park Avenue
San Jose, California 95110 USA
+1.408.536.6000
info@adobe.com
www.adobe.com

Adobe Systems Incorporated builds award-winning software solutions for Web and print publishing. Adobe is the second-largest PC software company, with annual revenues of \$1 billion.

Advanced Media Production**Booth 16105**

1250 Ballflower Boulevard, UTC-113
Long Beach, California 90840-2802 USA
+1.562.985.4352
ampc@csulb.edu
www.amp.csulb.edu

Advanced Media Production at California State University, Long Beach offers continuing-education programs on 3D animation software.

AJA Video Systems Inc.**Booth 5087**

443 Crown Point Circle, P.O. Box 1033
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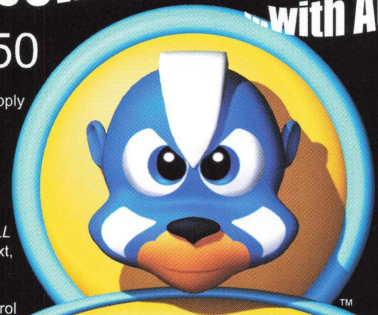
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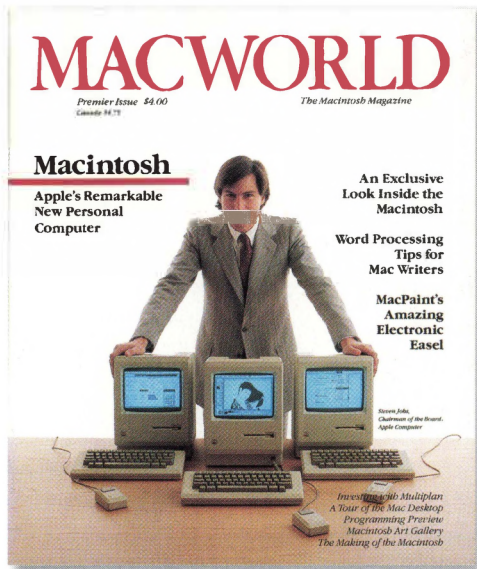
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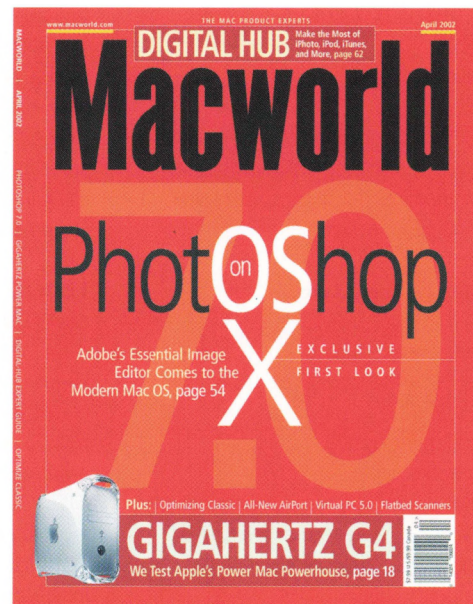


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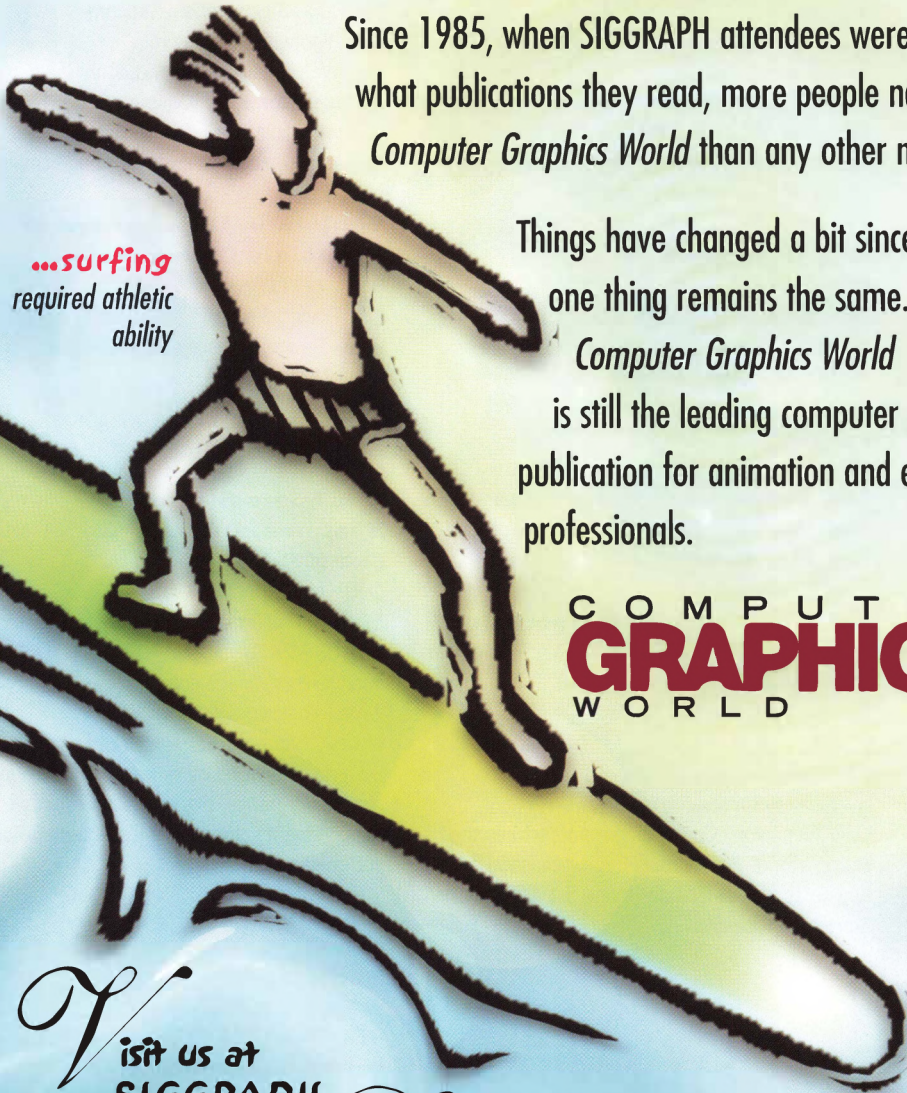
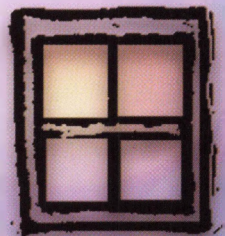
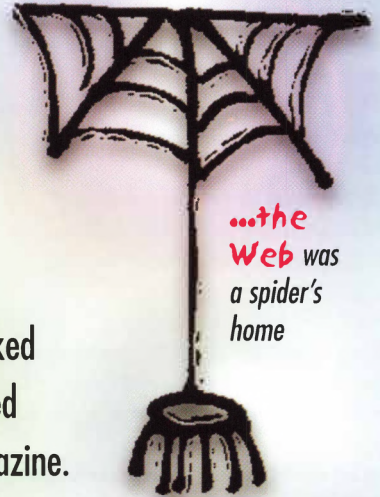
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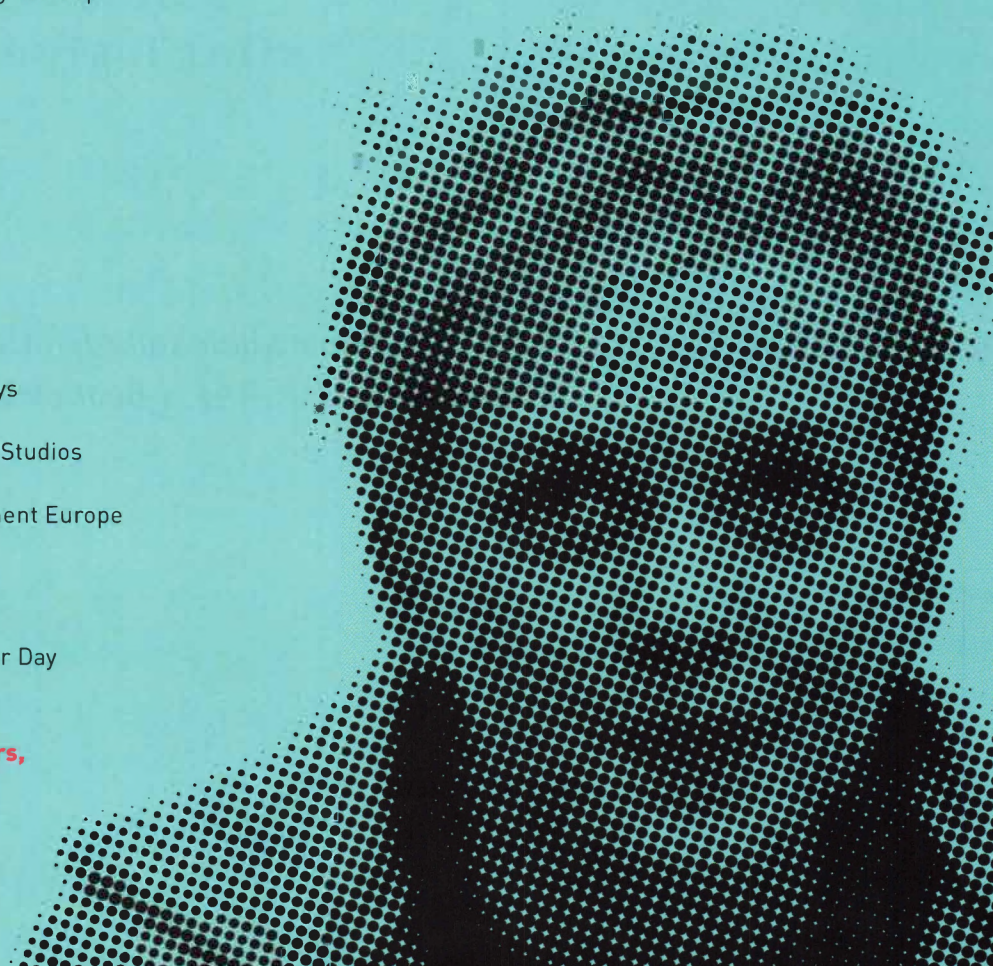
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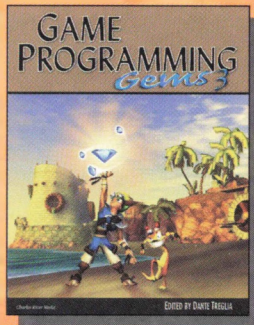
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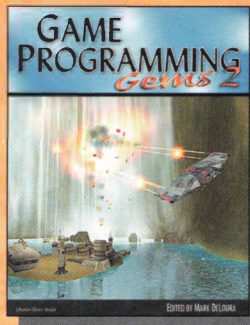
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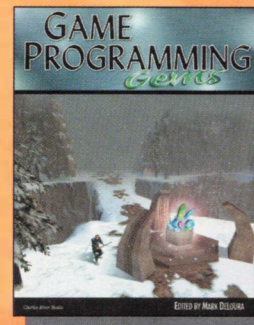
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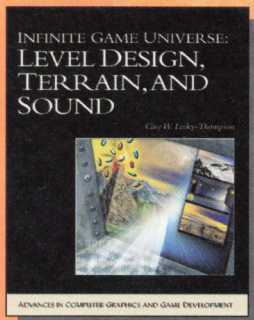
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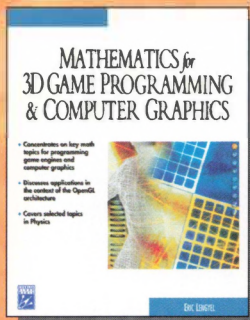
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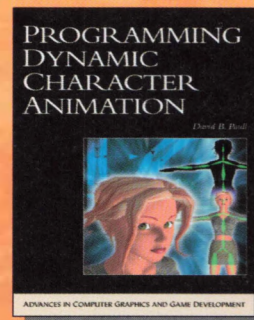
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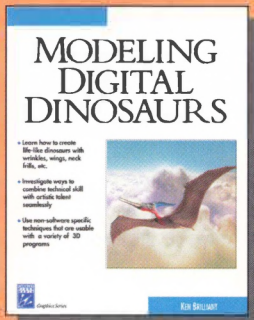
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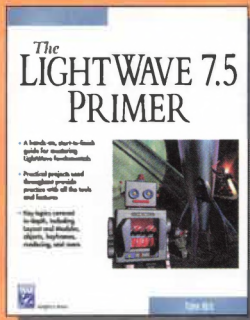
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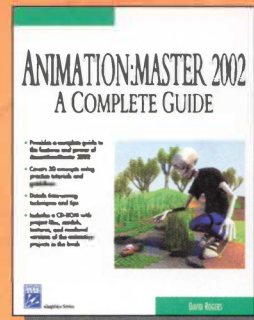
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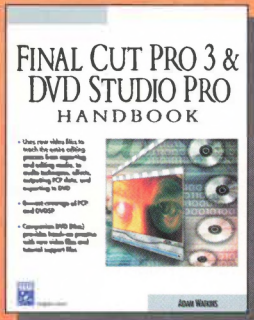
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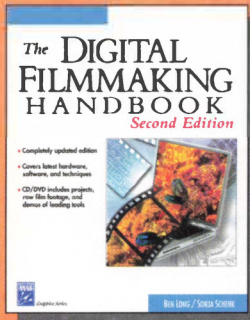
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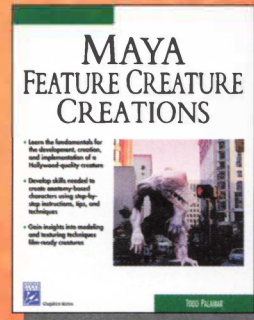
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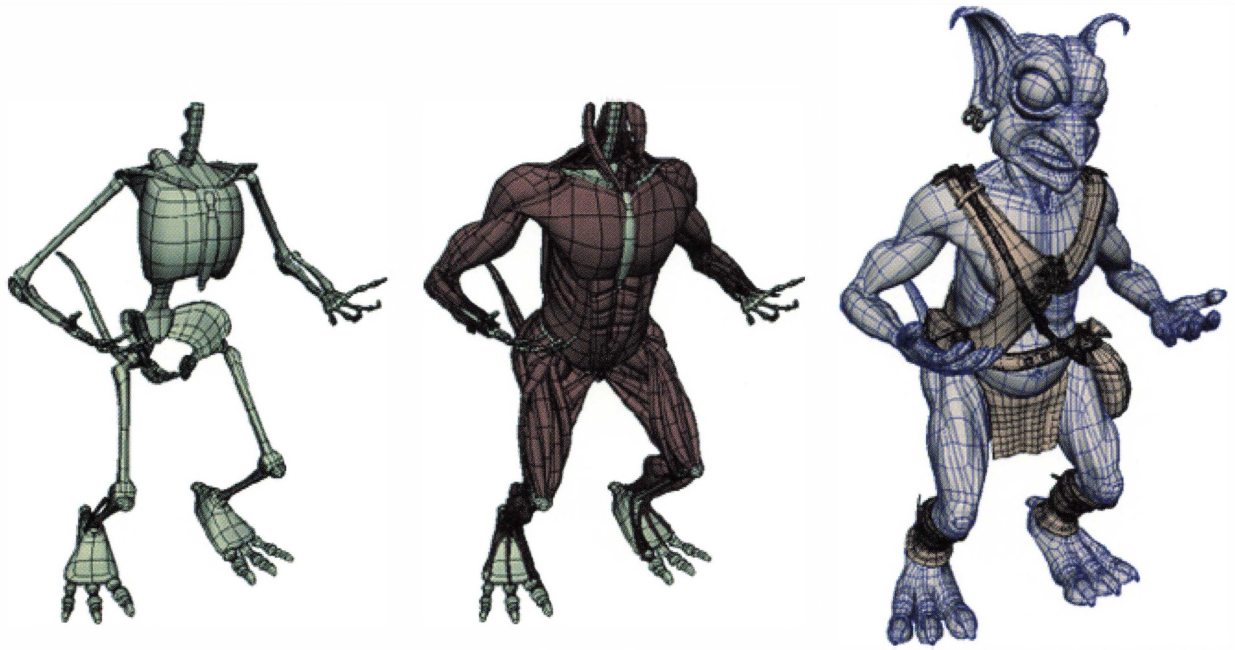
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3087	Singular Inversions Inc.
8071	Softimage Co.
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

Booth	Product
Broadcast Design Software	
8107	Avtoma
8062	Discreet
8086	eyeon Software Inc.
13078	Hewlett-Packard Company
16091	IDELIX Software Inc.
8099	InterSense, Incorporated
16106	JourneyEd.com
5060	Khronos Group
7040	MAXON Computer Inc.
8084	NewTek
6084	newtekPRO Magazine
7032	Right Hemisphere Ltd.
5072	Savannah College of Art and Design
13063	SGI
8071	Softimage Co.
13071	Sun Microsystems, Inc.
Business and Financial Graphics	
19070	Actuality Systems, Inc.
19099	Digital Vision Ltd.
8062	Discreet
16091	IDELIX Software Inc.
16106	JourneyEd.com
6084	newtekPRO Magazine
7032	Right Hemisphere Ltd.
13063	SGI
13071	Sun Microsystems, Inc.
CAD/CAM/CAE/CIM	
6085	3D Nature, LLC
19070	Actuality Systems, Inc.
13102	AMD
13097	ATI Technologies Inc.
5078	auto.des.sys, Inc.
13113	CCT International
7029	Computer Graphics World
5062	Digital Element, Inc.
9029	Elumens Corporation
5032	Eyetrionics
15111	Fakespace Systems Inc.
4043	FCS Control Systems BV
8026	Global Haptics, Inc.

Booth	Product
10042	headus (metamorphosis) Pty Ltd.
16091	IDELIX Software Inc.
7047	Immersion Corporation
19093	InSpeck Inc.
16113	IntegrityWare, Inc.
16106	JourneyEd.com
14109	LightWork Design
5096	MENSI, Inc.
6084	newtekPRO Magazine
10046	Okino Computer Graphics, Inc.
15098	PhoeniX Technologies Incorporated
3060	Purdue Univ., Computer Graphics Technologies
7032	Right Hemisphere Ltd.
3089	Roland DGA Corporation
5059	Sense8
13108	SGDL Systems, Inc.
13063	SGI
8091	SiTex Graphics
8071	Softimage Co.
5047	SolidScape, Inc.
20089	Spatial Integrated Systems, Inc.
17107	StereoGraphics Corporation
13071	Sun Microsystems, Inc.
16063	TGS, Inc.
16070	Z Corporation

Commercial Game Engines

3075	3D Pipeline Corporation
13102	AMD
8107	Avtoma
5063	CDIS Center for Digital Imaging & Sound
17108	Charles River Media
5029	Electronic Arts
8026	Global Haptics, Inc.
9044	Hash Inc.
13078	Hewlett-Packard Company
16091	IDELIX Software Inc.
8089	NaturalMotion
8084	NewTek
6084	newtekPRO Magazine

Booth	Product
5072	Savannah College of Art and Design
13071	Sun Microsystems, Inc.
16071	Viewpoint Corporation

Commercial Game Equipment

19070	Actuality Systems, Inc.
19078	BOXX Technologies, Inc.
8099	InterSense, Incorporated
17114	Measurand Inc.
13071	Sun Microsystems, Inc.

Computer-Video Interfacing

16075	Adobe Systems Incorporated
13097	ATI Technologies Inc.
8107	Avtoma
3045	B&H Photo-Video-Pro Audio Corp.
10059	CELCO
7029	Computer Graphics World
5090	DVS GmbH
9029	Elumens Corporation
13078	Hewlett-Packard Company
16091	IDELIX Software Inc.
7047	Immersion Corporation
8099	InterSense, Incorporated
16106	JourneyEd.com
16084	Kaydara, Inc.
5060	Khronos Group
3079	Orad Hi-Tec Systems Ltd.
4046	Point Grey Research Inc.
20098	ProMax Systems, Inc.
5072	Savannah College of Art and Design
13063	SGI
13071	Sun Microsystems, Inc.

Conferences and Exhibitions

17102	ACM SIGCHI
3068	Blizzard Entertainment
17093	PBI Media, LLC.

Booth	Product
3060	Purdue Univ., Computer Graphics Technolo
5072	Savannah College of Art and Design
3093	SMPTE

Consulting

3075	3D Pipeline Corporation
5101	5DT (Fifth Dimension Technologies)
8107	Avtoma
15093	BARCO Projection Systems America
20086	Binary Research International Inc.
3072	CMLabs Simulations, Inc.
17111	Computer Graphics Systems Development Corporation
8101	Cyra Technologies, Inc.
16104	Darkling Simulations
9029	Elumens Corporation
15111	Fakespace Systems Inc.
4043	FCS Control Systems BV
6082	Flow Analysis, Inc.
13078	Hewlett-Packard Company
7047	Immersion Corporation
20092	Meta Motion
17104	Panoram Technologies, Inc.
4046	Point Grey Research Inc.
3060	Purdue Univ., Computer Graphics Technologies
3058	Reachin Technologies AB
13108	SGDL Systems, Inc.
13063	SGI
8071	Softimage Co.
20089	Spatial Integrated Systems, Inc.
13071	Sun Microsystems, Inc.
6086	Tata Elxsi Limited
16063	TGS, Inc.
16071	Viewpoint Corporation
8090	Yannix Technologies

Contract Graphics/ Programming

3075	3D Pipeline Corporation
5101	5DT (Fifth Dimension Technologies)
6080	American Paper Optics, Inc.
8107	Avtoma
3081	cebas Computer GmbH/Trinity3D.com
7047	Immersion Corporation
5110	Next Limit SL
3060	Purdue Univ., Computer Graphics Technologies
7044	Rhythm & Hues, Inc.
5059	Sense8
13108	SGDL Systems, Inc.
20089	Spatial Integrated Systems, Inc.
4062	Technical Animations, Inc.
16063	TGS, Inc.
10043	TWIG One Stop
16071	Viewpoint Corporation

Data Analysis

6085	3D Nature, LLC
19070	Actuality Systems, Inc.
8107	Avtoma
13113	CCT International
15111	Fakespace Systems Inc.
6082	Flow Analysis, Inc.
8026	Global Haptics, Inc.
15098	PhoeniX Technologies Incorporated
3043	SIMI Reality Motion Systems GmbH
16063	TGS, Inc.

Desktop Publishing

16075	Adobe Systems Incorporated
13102	AMD
5075	ArchVision, Inc.
13097	ATI Technologies Inc.
3073	Big Idea Productions, Inc.
5063	CDIS Center for Digital Imaging & Sound
17108	Charles River Media

Booth	Product
5072	Savannah College of Art and Design
16071	Viewpoint Corporation

DVD Authoring Tools

5097	Accom, Inc.
13102	AMD
5063	CDIS Center for Digital Imaging & Sound
16066	Compaq Computer Corporation
8086	Leitch Technology Corporation
6084	newtekPRO Magazine
20098	ProMax Systems, Inc.
5072	Savannah College of Art and Design
16089	The3DShop.com
13089	Waskul Entertainment

Education/ Training

5101	5DT (Fifth Dimension Technologies)
16101	Academy of Digital Animation
16105	Advanced Media Production
8107	Avtoma
15093	BARCO Projection Systems America
20086	Binary Research International Inc.
5063	CDIS Center for Digital Imaging & Sound
3081	cebas Computer GmbH/Trinity3D.com
8101	Cyra Technologies, Inc.
10057	Desktop Images
3040	Ex'pression Center for New Media
8086	eyeon Software Inc.
15111	Fakespace Systems Inc.
13115	Full Sail Real World Education
5098	Media Design School
20092	Meta Motion
6084	newtekPRO Magazine
4059	Oregon3D, Inc.

Booth	Product
3060	Purdue Univ., Computer Graphics Technolo
5072	Savannah College of Art and Design
5059	Sense8
13108	SGDL Systems, Inc.
13063	SGI
8071	Softimage Co.
5047	SolidScape, Inc.
13071	Sun Microsystems, Inc.
4062	Technical Animations, Inc.
16063	TGS, Inc.
11105, 11111	The Art Institutes International, Inc.
3071	Vancouver Film School
16071	Viewpoint Corporation

Electronic Publishing

16075	Adobe Systems Incorporated
13102	AMD
5063	CDIS Center for Digital Imaging & Sound
5029	Electronic Arts
19082	Eyematic Interfaces, Inc.
8086	eyeon Software Inc.
16091	IDELIX Software Inc.
16106	JourneyEd.com
8084	NewTek
5100	NTT Advanced Technology Corporation
7032	Right Hemisphere Ltd.
13063	SGI
13071	Sun Microsystems, Inc.
13089	Waskul Entertainment

Encoders/ Decoders

13102	AMD
13097	ATI Technologies Inc.
8107	Avtoma
5060	Khronos Group
8086	Leitch Technology Corporation
13108	SGDL Systems, Inc.
16089	The3DShop.com

Booth	Product
Encoders/ Decoders-HW	
5087	AJA Video Systems Inc.
13102	AMD
13097	ATI Technologies Inc.
13078	Hewlett-Packard Company
3063	Lake Technology Corporation
8086	Leitch Technology Corporation
13071	Sun Microsystems, Inc.
16089	The3DShop.com

Engineering Applications

6085	3D Nature, LLC
5101	5DT (Fifth Dimension Technologies)
19070	Actuality Systems, Inc.
5078	auto.des.sys, Inc.
13113	CCT International
3072	CMLabs Simulations, Inc.
17111	Computer Graphics Systems Development Corporation
8101	Cyra Technologies, Inc.
15111	Fakespace Systems Inc.
6082	Flow Analysis, Inc.
16091	IDELIX Software Inc.
7047	Immersion Corporation
16113	IntegrityWare, Inc.
16106	JourneyEd.com
3063	Lake Technology Corporation
14109	LightWork Design
5096	MENSI, Inc.
16080	Motion Analysis Corporation
5110	Next Limit SL
10046	Okino Computer Graphics, Inc.
15098	Phoenix Technologies Incorporated
7032	Right Hemisphere Ltd.
5059	Sense8
13108	SGDL Systems, Inc.
13063	SGI

Booth	Product
17107	StereoGraphics Corporation
16063	TGS, Inc.
11110	Trolltech AS

Furniture

3056	Anthro Corporation
13111	Matsushita Electric Works, Ltd.
16089	The3DShop.com

Geographic Information Systems

19070	Actuality Systems, Inc.
15111	Fakespace Systems Inc.
5096	MENSI, Inc.
13071	Sun Microsystems, Inc.

Geographic Information Systems-HW

6085	3D Nature, LLC
19070	Actuality Systems, Inc.
17111	Computer Graphics Systems Development Corporation
8101	Cyra Technologies, Inc.
13078	Hewlett-Packard Company
8099	InterSense, Incorporated
13063	SGI
13071	Sun Microsystems, Inc.

Graphic Design Systems

16075	Adobe Systems Incorporated
13085	Alias Wavefront
13102	AMD
19108	Artabel
5078	auto.des.sys, Inc.
8107	Avtoma
19078	BOXX Technologies, Inc.
7029	Computer Graphics World
9029	Elumens Corporation
8086	eyeon Software Inc.
16091	IDELIX Software Inc.
16106	JourneyEd.com

Booth	Product
8084	NewTek
6084	newtekPRO Magazine
7032	Right Hemisphere Ltd.
13108	SGDL Systems, Inc.
13063	SGI
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

Graphics Accelerator Boards

19086	3Dlabs Inc. Ltd.
19108	Artabel
13097	ATI Technologies Inc.
16066	Compaq Computer Corporation
7029	Computer Graphics World
13078	Hewlett-Packard Company
16091	IDELIX Software Inc.
16106	JourneyEd.com
5060	Khronos Group
19105	Matrox Graphics Inc.
6084	newtekPRO Magazine
20098	ProMax Systems, Inc.
7032	Right Hemisphere Ltd.
5072	Savannah College of Art and Design
13108	SGDL Systems, Inc.
13063	SGI
13071	Sun Microsystems, Inc.
16089	The3DShop.com

Graphics Accelerator Boards-HW

19086	3Dlabs Inc. Ltd.
13102	AMD
19108	Artabel
13097	ATI Technologies Inc.
16066	Compaq Computer Corporation
7029	Computer Graphics World
9029	Elumens Corporation
13078	Hewlett-Packard Company
6084	newtekPRO Magazine

Booth	Product
8110,	
19102	NVIDIA Corporation
5072	Savannah College of Art and Design
13063	SGI
13071	Sun Microsystems, Inc.
16089	The3DShop.com

Graphics Standards Software

3075	3D Pipeline Corporation
19086	3Dlabs Inc. Ltd.
13097	ATI Technologies Inc.
8107	Avtoma
16091	IDELIX Software Inc.
5060	Khronos Group
13108	SGDL Systems, Inc.
13063	SGI
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

GroupWare

13071	Sun Microsystems, Inc.
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GroupWare Software

8107	Avtoma
8101	Cyra Technologies, Inc.
16091	IDELIX Software Inc.
13071	Sun Microsystems, Inc.

Haptic Input Devices

7029	Computer Graphics World
4043	FCS Control Systems BV
13078	Hewlett-Packard Company
7047	Immersion Corporation
8099	InterSense, Incorporated
3058	Reachin Technologies AB

Harcopy Devices; Photographs/Slides

8026	Global Haptics, Inc.
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Booth	Product
HDTV	
5097	Accom, Inc.
5087	AJA Video Systems Inc.
13102	AMD
13097	ATI Technologies Inc.
3045	B&H Photo-Video-Pro Audio Corp.
19078	BOXX Technologies, Inc.
10059	CELCO
10058	da Vinci Systems, Inc.
20065	Digital Voodoo Australia Pty Ltd.
5090	DVS GmbH
8086	eyeon Software Inc.
8099	InterSense, Incorporated
8086	Leitch Technology Corporation

8110, 19102	NVIDIA Corporation
3079	Orad Hi-Tec Systems Ltd.
20098	ProMax Systems, Inc.
5072	Savannah College of Art and Design
13063	SGI
13071	Sun Microsystems, Inc.
13089	Waskul Entertainment

Head Mounted Displays

5101	5DT (Fifth Dimension Technologies)
17111	Computer Graphics Systems Development Corporation
7029	Computer Graphics World
8099	InterSense, Incorporated
20092	Meta Motion
16099	Polhemus Inc.

High Performance Graphics Processors

19086	3Dlabs Inc. Ltd.
5087	AJA Video Systems Inc.
19108	Artabel
13097	ATI Technologies Inc.
10059	CELCO

Booth	Product
7029	Computer Graphics World
8101	Cyra Technologies, Inc.
8099	InterSense, Incorporated
19105	Matrox Graphics Inc.
16108	Minicomputer Exchange, Inc.
6084	newtekPRO Magazine
8110, 19102	NVIDIA Corporation
3079	Orad Hi-Tec Systems Ltd.
5072	Savannah College of Art and Design
13063	SGI
13071	Sun Microsystems, Inc.

High Resolution Technologies

19086	3Dlabs Inc. Ltd.
19096	3rdTech, Inc.
19070	Actuality Systems, Inc.
5087	AJA Video Systems Inc.
13102	AMD
15093	BARCO Projection Systems America
19078	BOXX Technologies, Inc.
10059	CELCO
10058	da Vinci Systems, Inc.
20065	Digital Voodoo Australia Pty Ltd.
5090	DVS GmbH
9029	Elumens Corporation
15111	Fakespace Systems Inc.
8099	InterSense, Incorporated
16108	Minicomputer Exchange, Inc.

8110, 19102	NVIDIA Corporation
15098	Phoenix Technologies Incorporated
20098	ProMax Systems, Inc.
13063	SGI
15109	SpheronVR AG
13071	Sun Microsystems, Inc.
17106	Surphaser, Inc. (Basis Software)
6090	Virtual Clones

Booth	Product
Image Based Modeling	
16101	Academy of Digital Animation
16075	Adobe Systems Incorporated
5075	ArchVision, Inc.
8107	Avtoma
17111	Computer Graphics Systems Development Corporation
8101	Cyra Technologies, Inc.
19082	Eyematic Interfaces, Inc.
16091	IDELIX Software Inc.
7047	Immersion Corporation
8084	NewTek
5100	NTT Advanced Technology Corporation
4046	Point Grey Research Inc.
19074	REALVIZ S.A.
7032	Right Hemisphere Ltd.
3087	Singular Inversions Inc.
16063	TGS, Inc.
6090	Virtual Clones

Image Management

16075	Adobe Systems Incorporated
8107	Avtoma
16091	IDELIX Software Inc.
5100	NTT Advanced Technology Corporation
7032	Right Hemisphere Ltd.
13063	SGI
13071	Sun Microsystems, Inc.

Industrial Design

13085	Alias Wavefront
5078	auto.des.sys, Inc.
7029	Computer Graphics World
8101	Cyra Technologies, Inc.
8086	eyeon Software Inc.
5032	Eyetrionics
6082	Flow Analysis, Inc.
8026	Global Haptics, Inc.
10042	headus (metamorphosis) Pty Ltd.

13078	Hewlett-Packard Company
16091	IDELIX Software Inc.
7047	Immersion Corporation
16106	JourneyEd.com
14109	LightWork Design
16080	Motion Analysis Corporation
6084	newtekPRO Magazine
10046	Okino Computer Graphics, Inc.
15098	PhoeniX Technologies Incorporated
7032	Right Hemisphere Ltd.
13108	SGDL Systems, Inc.
13063	SGI
8091	SiTex Graphics
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

Information Visualization

6085	3D Nature, LLC
5101	5DT (Fifth Dimension Technologies)
19070	Actuality Systems, Inc.
13102	AMD
5078	auto.des.sys, Inc.
8107	Avtoma
15093	BARCO Projection Systems America
13113	CCT International
3072	CMLabs Simulations, Inc.
17111	Computer Graphics Systems Development Corporation
8101	Cyra Technologies, Inc.
9029	Elumens Corporation
8086	eyeon Software Inc.
15111	Fakespace Systems Inc.
6082	Flow Analysis, Inc.
8026	Global Haptics, Inc.
16091	IDELIX Software Inc.
7047	Immersion Corporation
8099	InterSense, Incorporated
13111	Matsushita Electric Works, Ltd.
8084	NewTek

15098	PhoeniX Technologies Incorporated
7032	Right Hemisphere Ltd.
13108	SGDL Systems, Inc.
13063	SGI
13071	Sun Microsystems, Inc.
16063	TGS, Inc.
16071	Viewpoint Corporation

Input Devices

19096	3rdTech, Inc.
5101	5DT (Fifth Dimension Technologies)
5087	AJA Video Systems Inc.
15102	Ascension Technology Corporation
7029	Computer Graphics World
8101	Cyra Technologies, Inc.
5032	Eyetrionics
15111	Fakespace Systems Inc.
8026	Global Haptics, Inc.
7047	Immersion Corporation
8099	InterSense, Incorporated
17114	Measurand Inc.
5096	MENSI, Inc.
20092	Meta Motion
6084	newtekPRO Magazine
8098	P.I. Engineering, Inc.
15098	PhoeniX Technologies Incorporated
4046	Point Grey Research Inc.
16099	Polhemus Inc.
5072	Savannah College of Art and Design
13071	Sun Microsystems, Inc.
17106	Surphaser, Inc. (Basis Software)
16089	The3DShop.com
5093	Wacom Technology Corporation

Interface Tools

19096	3rdTech, Inc.
5101	5DT (Fifth Dimension Technologies)
6080	American Paper Optics, Inc.
8101	Cyra Technologies, Inc.
5090	DVS GmbH

8026	Global Haptics, Inc.
7047	Immersion Corporation
8099	InterSense, Incorporated
5072	Savannah College of Art and Design

Mapping and Cartography

6085	3D Nature, LLC
5101	5DT (Fifth Dimension Technologies)
19070	Actuality Systems, Inc.
8086	eyeon Software Inc.
16091	IDELIX Software Inc.
13108	SGDL Systems, Inc.
13063	SGI
17107	StereoGraphics Corporation
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

Medical Imaging Software

5101	5DT (Fifth Dimension Technologies)
7029	Computer Graphics World
5102	Curious Labs, Inc.
8086	eyeon Software Inc.
16091	IDELIX Software Inc.
8099	InterSense, Incorporated
7040	MAXON Computer Inc.
16080	Motion Analysis Corporation
8084	NewTek
6084	newtekPRO Magazine
5110	Next Limit SL
5059	Sense8
13063	SGI
13071	Sun Microsystems, Inc.
16063	TGS, Inc.

Booth	Product
Mobile Computing	
13097	ATI Technologies Inc.
7029	Computer Graphics World
8101	Cyra Technologies, Inc.
13078	Hewlett-Packard Company
8099	InterSense, Incorporated
8110, 19102	NVIDIA Corporation
16089	The3DShop.com

Booth	Product
Monitors and Displays	
5101	5DT (Fifth Dimension Technologies)
19070	Actuality Systems, Inc.
15093	BARCO Projection Systems America
16066	Compaq Computer Corporation
7029	Computer Graphics World
9029	Elumens Corporation
15111	Fakespace Systems Inc.
4043	FCS Control Systems BV
13078	Hewlett-Packard Company
16108	Minicomputer Exchange, Inc.
6084	newtekPRO Magazine
17104	Panoram Technologies, Inc.
20098	ProMax Systems, Inc.
3058	Reachin Technologies AB
5072	Savannah College of Art and Design
13063	SGI
17107	StereoGraphics Corporation
13071	Sun Microsystems, Inc.
16089	The3DShop.com
5093	Wacom Technology Corporation
13089	Waskul Entertainment

Booth	Product
Motion Capture Equipment	
19096	3rdTech, Inc.
5101	5DT (Fifth Dimension Technologies)
13102	AMD
15102	Ascension Technology Corporation
5063	CDIS Center for Digital Imaging & Sound
7029	Computer Graphics World
5032	Eyetrionics
13078	Hewlett-Packard Company
7047	Immersion Corporation
8099	InterSense, Incorporated
16106	JourneyEd.com
17114	Measurand Inc.
20092	Meta Motion
16080	Motion Analysis Corporation
15098	PhoeniX Technologies Incorporated
4046	Point Grey Research Inc.
16099	Polhemus Inc.
3043	SIMI Reality Motion Systems GmbH
17096	Vicon Motion Systems
6090	Virtual Clones

Booth	Product
Motion Capture Software	
19096	3rdTech, Inc.
5101	5DT (Fifth Dimension Technologies)
16075	Adobe Systems Incorporated
13102	AMD
8107	Avtoma
5063	CDIS Center for Digital Imaging & Sound
7029	Computer Graphics World
5029	Electronic Arts
19082	Eyematic Interfaces, Inc.
5032	Eyetrionics
13078	Hewlett-Packard Company

Booth	Product
8099	InterSense, Incorporated
16106	JourneyEd.com
16084	Kaydara, Inc.
20092	Meta Motion
16080	Motion Analysis Corporation
8089	NaturalMotion
6084	newtekPRO Magazine
5100	NTT Advanced Technology Corporation
15098	PhoeniX Technologies Incorporated
4046	Point Grey Research Inc.
7032	Right Hemisphere Ltd.
13063	SGI
3043	SIMI Reality Motion Systems GmbH
8071	Softimage Co.
17096	Vicon Motion Systems
6090	Virtual Clones

Booth	Product
Multimedia Tools and Applications	
6085	3D Nature, LLC
16075	Adobe Systems Incorporated
9032	Anark Corporation
13097	ATI Technologies Inc.
8107	Avtoma
20086	Binary Research International Inc.
5063	CDIS Center for Digital Imaging & Sound
16066	Compaq Computer Corporation
7029	Computer Graphics World
5102	Curious Labs, Inc.
8101	Cyra Technologies, Inc.
10057	Desktop Images
19099	Digital Vision Ltd.
8062	Discreet
9029	Elumens Corporation
8081	e-on software, inc.
19082	Eyematic Interfaces, Inc.
8086	eyeon Software Inc.
5084	eZedia Inc.
9044	Hash Inc.
16091	IDELIX Software Inc.
7047	Immersion Corporation

Booth	Product
8099	InterSense, Incorporated
16106	JourneyEd.com
16084	Kaydara, Inc.
5060	Khronos Group
8086	Leitch Technology Corporation
20092	Meta Motion
16080	Motion Analysis Corporation
8084	NewTek
6084	newtekPRO Magazine
5100	NTT Advanced Technology Corporation
10046	Okino Computer Graphics, Inc.
5044	Pixologic, Inc.
20098	ProMax Systems, Inc.
3060	Purdue Univ., Computer Graphics Technologies
6091	QEDSoft, Inc.
7032	Right Hemisphere Ltd.
5072	Savannah College of Art and Design
5059	Sense8
13108	SGDL Systems, Inc.
13063	SGI
8071	Softimage Co.
13071	Sun Microsystems, Inc.
4062	Technical Animations, Inc.
16071	Viewpoint Corporation

Booth	Product
Multimedia Tools and Applications-HW	
19086	3DLabs Inc. Ltd.
5097	Accom, Inc.
19070	Actuality Systems, Inc.
6080	American Paper Optics, Inc.
15093	BARCO Projection Systems America
5063	CDIS Center for Digital Imaging & Sound
16066	Compaq Computer Corporation
9029	Elumens Corporation
7047	Immersion Corporation
8099	InterSense, Incorporated
8086	Leitch Technology Corporation

Booth	Product
19105	Matrox Graphics Inc.
16080	Motion Analysis Corporation
8084	NewTek
6084	newtekPRO Magazine
15098	PhoeniX Technologies Incorporated
13063	SGI
13071	Sun Microsystems, Inc.
13089	Waskul Entertainment

Networking Equipment

16066	Compaq Computer Corporation
8086	eyeon Software Inc.
13078	Hewlett-Packard Company
10044	KTI Networks
13111	Matsushita Electric Works, Ltd.
16108	Minicomputer Exchange, Inc.
5072	Savannah College of Art and Design
13071	Sun Microsystems, Inc.
16089	The3DShop.com

Networking Infrastructure

8107	Avtoma
5063	CDIS Center for Digital Imaging & Sound
13078	Hewlett-Packard Company
7032	Right Hemisphere Ltd.
5072	Savannah College of Art and Design
13063	SGI
13071	Sun Microsystems, Inc.

OEM Components

19086	3DLabs Inc. Ltd.
19070	Actuality Systems, Inc.
13102	AMD
19108	Artabel
15102	Ascension Technology Corporation
13097	ATI Technologies Inc.

Booth	Product
19078	BOXX Technologies, Inc.
20065	Digital Voodoo Australia Pty Ltd.
5090	DVS GmbH
8099	InterSense, Incorporated
10044	KTI Networks
19105	Matrox Graphics Inc.
13111	Matsushita Electric Works, Ltd.
8098	P.I. Engineering, Inc.
16099	Polhemus Inc.
13071	Sun Microsystems, Inc.

Paint Systems

16075	Adobe Systems Incorporated
8107	Avtoma
5063	CDIS Center for Digital Imaging & Sound
8062	Discreet
8086	eyeon Software Inc.
8086	Leitch Technology Corporation
7040	MAXON Computer Inc.
8084	NewTek
6084	newtekPRO Magazine
5044	Pixologic, Inc.
7032	Right Hemisphere Ltd.
13063	SGI
8071	Softimage Co.
13071	Sun Microsystems, Inc.

Printers and Plotters

5054	3D Systems, Inc.
10059	CELCO
7029	Computer Graphics World
13078	Hewlett-Packard Company
3089	Roland DGA Corporation
5047	Solidscape, Inc.
16089	The3DShop.com
9025	Xerox Office Printing Business

Projectors

5101	5DT (Fifth Dimension Technologies)
19070	Actuality Systems, Inc.

Booth	Product
15093	BARCO Projection Systems America
7029	Computer Graphics World
9029	Elumens Corporation
17104	Panoram Technologies, Inc.
5072	Savannah College of Art and Design
16089	The3DShop.com
13089	Waskul Entertainment

Publications

16111	A K Peters, Ltd.
17102	ACM SIGCHI
14107	Animation Magazine
10045	ASC-American Cinematographer
8107	Avtoma
7029	Computer Graphics World
6082	Flow Analysis, Inc.
3044	Focal Press
8080	IdN Magazine
10054	Morgan Kaufmann Publishers
6084	newtekPRO Magazine
17093	PBI Media, LLC.
11104	POST Magazine (Advanstar Technology Comm
3060	Purdue Univ., Computer Graphics Technolo
3093	SMPTE
5099	Springer-Verlag New York, Inc.
17113	Videography Magazine/United Entertainment

RAID Systems and Storage

3042	Baydel North America, Inc.
19078	BOXX Technologies, Inc.
7029	Computer Graphics World
5090	DVS GmbH
13078	Hewlett-Packard Company

Booth	Product
5081	LSI Logic Storage Systems, Inc.
16108	Minicomputer Exchange, Inc.
6084	newtekPRO Magazine
20098	ProMax Systems, Inc.
13063	SGI
13071	Sun Microsystems, Inc.
9047	Texas Memory Systems, Inc.
16089	The3DShop.com

Rendering and Modeling

6085	3D Nature, LLC
16101	Academy of Digital Animation
19070	Actuality Systems, Inc.
16075	Adobe Systems Incorporated
13085	Alias Wavefront
13102	AMD
5075	ArchVision, Inc.
5078	auto.des.sys, Inc.
8107	Avtoma
3073	Big Idea Productions, Inc.
3068	Blizzard Entertainment
19078	BOXX Technologies, Inc.
5063	CDIS Center for Digital Imaging & Sound
3081	cebas Computer GmbH/Trinity3D.com
17108	Charles River Media
3072	CMLabs Simulations, Inc.
16066	Compaq Computer Corporation
7029	Computer Graphics World
5102	Curious Labs, Inc.
8101	Cyra Technologies, Inc.
16104	Darkling Simulations
8062	Discreet
5029	Electronic Arts
9029	Elumens Corporation
8081	e-on software, inc.
8086	eyeon Software Inc.
8026	Global Haptics, Inc.

Booth	Product	Booth	Product	Booth	Product	Booth	Product
10042	headus (metamorphosis) Pty Ltd.	Robotics		15098	PhoeniX Technologies Incorporated	6086	Tata Elxsi Limited
13078	Hewlett-Packard Company	16111	A K Peters, Ltd.	13108	SGDL Systems, Inc.	16063	TGS, Inc.
16091	IDELIX Software Inc.	4043	FCS Control Systems BV	13063	SGI	Simulation	
7047	Immersion Corporation	8099	InterSense, Incorporated	3043	SIMI Reality Motion Systems GmbH	6085	3D Nature, LLC
19093	InSpeck Inc.	17114	Measurand Inc.	13071	Sun Microsystems, Inc.	5101	5DT (Fifth Dimension Technologies)
16113	IntegrityWare, Inc.	15098	PhoeniX Technologies Incorporated	6086	Tata Elxsi Limited	19070	Actuality Systems, Inc.
16106	JourneyEd.com	Scan Converters		16063	TGS, Inc.	5075	ArchVision, Inc.
14109	LightWork Design	7029	Computer Graphics World	Scientific Visualization			
7040	MAXON Computer Inc.	Scanners		6085	3D Nature, LLC	19108	Artabel
5096	MENSI, Inc.	10040	3DFAMILY TECHNOLOGY CO., LTD.	5101	5DT (Fifth Dimension Technologies)	8107	Avtoma
20092	Meta Motion	19096	3rdTech, Inc.	19070	Actuality Systems, Inc.	15093	BARCO Projection Systems America
8084	NewTek	10059	CELCO	13085	Alias Wavefront	11108	CG2, Inc.
6084	newtekPRO Magazine	7029	Computer Graphics World	5078	auto.des.sys, Inc.	3072	CMLabs Simulations, Inc.
5110	Next Limit SL	8101	Cyra Technologies, Inc.	3072	CMLabs Simulations, Inc.	17111	Computer Graphics Systems Development Corporation
10046	Okino Computer Graphics, Inc.	5032	Eyetrionics	17111	Computer Graphics Systems Development Corporation	7029	Computer Graphics World
5044	Pixologic, Inc.	13078	Hewlett-Packard Company	5102	Curious Labs, Inc.	8101	Cyra Technologies, Inc.
3058	Reachin Technologies AB	7047	Immersion Corporation	8062	Discreet	5062	Digital Element, Inc.
19074	REALVIZ S.A.	19093	InSpeck Inc.	9029	Elumens Corporation	9029	Elumens Corporation
7032	Right Hemisphere Ltd.	16106	JourneyEd.com	8086	eyeon Software Inc.	8081	e-on software, inc.
5072	Savannah College of Art and Design	5096	MENSI, Inc.	15111	Fakespace Systems Inc.	8086	eyeon Software Inc.
13108	SGDL Systems, Inc.	20092	Meta Motion	6082	Flow Analysis, Inc.	15111	Fakespace Systems Inc.
13063	SGI	16099	Polhemus Inc.	8099	InterSense, Incorporated	6082	Flow Analysis, Inc.
3087	Singular Inversions Inc.	3089	Roland DGA Corporation	16106	JourneyEd.com	8099	InterSense, Incorporated
8091	SiTex Graphics	5072	Savannah College of Art and Design	16084	Kaydara, Inc.	16106	JourneyEd.com
8071	Softimage Co.	17106	Surphaser, Inc. (Basis Software)	14109	LightWork Design	16084	Kaydara, Inc.
5047	Solidscape, Inc.	16089	The3DShop.com	5096	MENSI, Inc.	14109	LightWork Design
20089	Spatial Integrated Systems, Inc.	6090	Virtual Clones	20092	Meta Motion	5096	MENSI, Inc.
15109	SpheronVR AG	Scientific Application		20092	Meta Motion	20092	Meta Motion
17107	StereoGraphics Corporation	6085	3D Nature, LLC	8084	NewTek	8084	NewTek
13071	Sun Microsystems, Inc.	3072	CMLabs Simulations, Inc.	5110	Next Limit SL	5110	Next Limit SL
6086	Tata Elxsi Limited	7029	Computer Graphics World	3060	Purdue Univ., Computer Graphics Technologies	3060	Purdue Univ., Computer Graphics Technologies
4062	Technical Animations, Inc.	5102	Curious Labs, Inc.	3058	Reachin Technologies AB	3058	Reachin Technologies AB
16063	TGS, Inc.	8101	Cyra Technologies, Inc.	5059	Sense8	5059	Sense8
16089	The3DShop.com	6082	Flow Analysis, Inc.	13108	SGDL Systems, Inc.	13108	SGDL Systems, Inc.
16071	Viewpoint Corporation	7047	Immersion Corporation	13063	SGI	13063	SGI
		16106	JourneyEd.com	8071	Softimage Co.	8071	Softimage Co.
		8084	NewTek	20089	Spatial Integrated Systems, Inc.	20089	Spatial Integrated Systems, Inc.
		5110	Next Limit SL	17107	StereoGraphics Corporation	17107	StereoGraphics Corporation
				13071	Sun Microsystems, Inc.	13071	Sun Microsystems, Inc.
				6086	Tata Elxsi Limited	6086	Tata Elxsi Limited
				16063	TGS, Inc.	16063	TGS, Inc.
				16071	Viewpoint Corporation	16071	Viewpoint Corporation

Booth Product
Storage Devices; Tape/Disk

- 5097 Accom, Inc.
- 7029 Computer Graphics World
- 10058 da Vinci Systems, Inc.
- 5090 DVS GmbH
- 13078 Hewlett-Packard Company
- 16106 JourneyEd.com
- 10044 KTI Networks
- 5081 LSI Logic Storage Systems, Inc.
- 16108 Minicomputer Exchange, Inc.
- 20098 ProMax Systems, Inc.
- 5072 Savannah College of Art and Design
- 13063 SGI
- 7025 Spectra Logic Corporation
- 13071 Sun Microsystems, Inc.
- 9047 Texas Memory Systems, Inc.
- 16089 The3DShop.com
- 13089 Waskul Entertainment

Streaming Technology

- 19070 Actuality Systems, Inc.
- 13102 AMD
- 8107 Avtoma
- 5063 CDIS Center for Digital Imaging & Sound
- 19082 Eyematic Interfaces, Inc.
- 16106 JourneyEd.com
- 8086 Leitch Technology Corporation
- 8084 NewTek
- 6084 newtekPRO Magazine
- 4046 Point Grey Research Inc.
- 6091 QEDSoft, Inc.
- 5072 Savannah College of Art and Design
- 13063 SGI
- 13071 Sun Microsystems, Inc.
- 6086 Tata Elxsi Limited
- 9047 Texas Memory Systems, Inc.
- 16089 The3DShop.com
- 16071 Viewpoint Corporation
- 13089 Waskul Entertainment

Booth Product
Systems Integrators

- 5101 5DT (Fifth Dimension Technologies)
- 13102 AMD
- 8107 Avtoma
- 15093 BARCO Projection Systems America
- 17111 Computer Graphics Systems Development Corporation
- 20092 Meta Motion
- 20098 ProMax Systems, Inc.
- 6086 Tata Elxsi Limited
- 16089 The3DShop.com
- 13089 Waskul Entertainment

Terminals, Monitors and Displays

- 5101 5DT (Fifth Dimension Technologies)
- 19070 Actuality Systems, Inc.
- 13102 AMD
- 15093 BARCO Projection Systems America
- 7029 Computer Graphics World
- 9029 Elumens Corporation
- 15111 Fakespace Systems Inc.
- 13078 Hewlett-Packard Company
- 16108 Minicomputer Exchange, Inc.
- 6084 newtekPRO Magazine
- 5072 Savannah College of Art and Design
- 13063 SGI
- 13071 Sun Microsystems, Inc.
- 16089 The3DShop.com
- 5093 Wacom Technology Corporation

Video Effects Equipment

- 19086 3DIabs Inc. Ltd.
- 5097 Accom, Inc.
- 3045 B&H Photo-Video-Pro Audio Corp.
- 19078 BOXX Technologies, Inc.

- 5063 CDIS Center for Digital Imaging & Sound
- 10059 CELCO
- 7029 Computer Graphics World
- 20065 Digital Voodoo Australia Pty Ltd.
- 8099 InterSense, Incorporated
- 8086 Leitch Technology Corporation
- 16108 Minicomputer Exchange, Inc.
- 8084 NewTek
- 6084 newtekPRO Magazine
- 3079 Orad Hi-Tec Systems Ltd.
- 15098 Phoenix Technologies Incorporated
- 5072 Savannah College of Art and Design
- 13089 Waskul Entertainment

Video Encoding and Compression

- 3075 3D Pipeline Corporation
- 5097 Accom, Inc.
- 13102 AMD
- 13097 ATI Technologies Inc.
- 8107 Avtoma
- 3045 B&H Photo-Video-Pro Audio Corp.
- 5063 CDIS Center for Digital Imaging & Sound
- 16066 Compaq Computer Corporation
- 16106 JourneyEd.com
- 5060 Khronos Group
- 8086 Leitch Technology Corporation
- 8084 NewTek
- 6084 newtekPRO Magazine
- 5100 NTT Advanced Technology Corporation
- 20098 ProMax Systems, Inc.
- 5072 Savannah College of Art and Design
- 13063 SGI
- 13071 Sun Microsystems, Inc.
- 6086 Tata Elxsi Limited
- 16089 The3DShop.com
- 13089 Waskul Entertainment

Booth Product
Video Servers

- 5097 Accom, Inc.
- 3045 B&H Photo-Video-Pro Audio Corp.
- 19078 BOXX Technologies, Inc.
- 10058 da Vinci Systems, Inc.
- 5090 DVS GmbH
- 16108 Minicomputer Exchange, Inc.
- 5072 Savannah College of Art and Design
- 13063 SGI
- 13071 Sun Microsystems, Inc.
- 9047 Texas Memory Systems, Inc.
- 16089 The3DShop.com

Visual Effects Software

- 17096 2d3 Ltd.
- 16075 Adobe Systems Incorporated
- 13085 Alias|Wavefront
- 9032 Anark Corporation
- 5040 Artbeats Digital Film Library
- 8107 Avtoma
- 19078 BOXX Technologies, Inc.
- 5063 CDIS Center for Digital Imaging & Sound
- 10059 CELCO
- 7029 Computer Graphics World
- 5102 Curious Labs, Inc.
- 16104 Darkling Simulations
- 5066 Digimation, Inc.
- 19099 Digital Vision Ltd.
- 8062 Discreet
- 8081 e-on software, inc.
- 8086 eyeon Software Inc.
- 10042 headus (metamorphosis) Pty Ltd.
- 13078 Hewlett-Packard Company
- 16091 IDELIX Software Inc.
- 8099 InterSense, Incorporated
- 16106 JourneyEd.com
- 16084 Kaydara, Inc.
- 5060 Khronos Group
- 8086 Leitch Technology Corporation

Booth	Product	Booth	Product	Booth	Product	Booth	Product
7040	MAXON Computer Inc.	7032	Right Hemisphere Ltd.	8084	NewTek	16106	JourneyEd.com
20092	Meta Motion	5059	Sense8	6084	newtekPRO Magazine	20092	Meta Motion
8084	NewTek	13063	SGI	10046	Okino Computer Graphics, Inc.	8084	NewTek
6084	newtekPRO Magazine	8071	Softimage Co.	6091	QEDSoft, Inc.	6084	newtekPRO Magazine
5110	Next Limit SL	20089	Spatial Integrated Systems, Inc.	19074	REALVIZ S.A.	5100	NTT Advanced Technology Corporation
5100	NTT Advanced Technology Corporation	13071	Sun Microsystems, Inc.	7032	Right Hemisphere Ltd.	10046	Okino Computer Graphics, Inc.
16102	Photron USA, Inc.	6086	Tata Elxsi Limited	5072	Savannah College of Art and Design	3060	Purdue Univ., Computer Graphics Technolo
20098	ProMax Systems, Inc.	16063	TGS, Inc.	5059	Sense8	19074	REALVIZ S.A.
19074	REALVIZ S.A.	Web 3D		13108	SGDL Systems, Inc.	7032	Right Hemisphere Ltd.
7032	Right Hemisphere Ltd.	6085	3D Nature, LLC	13063	SGI	5072	Savannah College of Art and Design
5072	Savannah College of Art and Design	16101	Academy of Digital Animation	8071	Softimage Co.	20089	Spatial Integrated Systems, Inc.
13063	SGI	19070	Actuality Systems, Inc.	13071	Sun Microsystems, Inc.	13071	Sun Microsystems, Inc.
8091	SiTex Graphics	13085	Alias Wavefront	6086	Tata Elxsi Limited	13063	SGI
8071	Softimage Co.	13102	AMD	16063	TGS, Inc.	8071	Softimage Co.
19062	Sony Pictures Imageworks Inc.	6080	American Paper Optics, Inc.	16089	The3DShop.com	13071	Sun Microsystems, Inc.
13071	Sun Microsystems, Inc.	9032	Anark Corporation	16071	Viewpoint Corporation	16063	TGS, Inc.
6086	Tata Elxsi Limited	13097	ATI Technologies Inc.	6090	Virtual Clones	16089	The3DShop.com
16063	TGS, Inc.	13113	CCT International	Web Graphics		16071	Viewpoint Corporation
16071	Viewpoint Corporation	5063	CDIS Center for Digital Imaging & Sound	6085	3D Nature, LLC	13089	Waskul Entertainment
13089	Waskul Entertainment	3081	cebas Computer GmbH/Trinity3D.com	17099	Addison-Wesley/New Riders Publishing	Workstations	
VR Software		16066	Compaq Computer Corporation	16075	Adobe Systems Incorporated	19086	3DLabs Inc. Ltd.
5101	5DT (Fifth Dimension Technologies)	17111	Computer Graphics Systems Development Corporation	16105	Advanced Media Production	19070	Actuality Systems, Inc.
8107	Avtoma	7029	Computer Graphics World	13085	Alias Wavefront	13102	AMD
15093	BARCO Projection Systems America	5102	Curious Labs, Inc.	13102	AMD	3056	Anthro Corporation
11108	CG2, Inc.	8062	Discreet	9032	Anark Corporation	19108	Artabel
3072	CMLabs Simulations, Inc.	5062	Digital Element, Inc.	13097	ATI Technologies Inc.	13097	ATI Technologies Inc.
17111	Computer Graphics Systems Development Corporation	5029	Electronic Arts	19078	BOXX Technologies, Inc.	16066	Compaq Computer Corporation
8101	Cyra Technologies, Inc.	8081	e-on software, inc.	16066	Compaq Computer Corporation	7029	Computer Graphics World
5062	Digital Element, Inc.	19082	Eyematic Interfaces, Inc.	17111	Computer Graphics Systems Development Corporation	9029	Elumens Corporation
8081	e-on software, inc.	5032	Eyetrionics	5063	CDIS Center for Digital Imaging & Sound	13078	Hewlett-Packard Company
5032	Eyetrionics	9044	Hash Inc.	16066	Compaq Computer Corporation	3063	Lake Technology Corporation
15111	Fakespace Systems Inc.	10042	headus (metamorphosis) Pty Ltd.	17111	Computer Graphics Systems Development Corporation	16108	Minicomputer Exchange, Inc.
16091	IDELIX Software Inc.	16091	IDELIX Software Inc.	7029	Computer Graphics World	6084	newtekPRO Magazine
7047	Immersion Corporation	7047	Immersion Corporation	5102	Curious Labs, Inc.	8110,	
8099	InterSense, Incorporated	19093	InSpeck Inc.	10057	Desktop Images	19102	NVIDIA Corporation
16084	Kaydara, Inc.	16113	IntegrityWare, Inc.	5062	Digital Element, Inc.	20098	ProMax Systems, Inc.
3063	Lake Technology Corporation	16106	JourneyEd.com	19099	Digital Vision Ltd.	5072	Savannah College of Art and Design
13111	Matsushita Electric Works, Ltd.	13111	Matsushita Electric Works, Ltd.	5029	Electronic Arts	13063	SGI
20092	Meta Motion	7040	MAXON Computer Inc.	8086	eyeon Software Inc.	13071	Sun Microsystems, Inc.
3058	Reachin Technologies AB	20092	Meta Motion	16091	IDELIX Software Inc.	16089	The3DShop.com



ACM SIGGRAPH Organization

Location:
ACM SIGGRAPH
West Lobby

ACM
West Lobby

**Professional & Student
Chapters**
West Lobby

Education
West Lobby

SIGGRAPH Video Review
Exhibit Hall A

SIGGRAPH 2003
Bridge Lobby

ACM SIGGRAPH

In the span of 30 years, ACM SIGGRAPH has grown from a handful of computer graphics enthusiasts to a diverse group of researchers, artists, developers, filmmakers, scientists, and other professionals who share an interest in computer graphics and interactive techniques. Our community values excellence, passion, integrity, volunteerism, and cross-disciplinary interaction. We sponsor not only the annual SIGGRAPH conference, but also focused symposia, chapters in cities throughout the world, awards, grants, educational resources, online resources, a public policy program, traveling art show, and the SIGGRAPH Video Review.

Membership

The SIGGRAPH community depends on your support. Please help by joining ACM SIGGRAPH for \$27 per year (\$20 per year for students or Eurographics members). In recognition of their support, members receive the *Computer Graphics* quarterly, discounted registrations for the annual conference and all other ACM SIGGRAPH-sponsored programs, and access to the archive of SIGGRAPH Proceedings in the ACM Digital Library. For more details on membership or to join online, visit www.siggraph.org and select Membership.

ACM

ACM SIGGRAPH's parent organization is the Association for Computing Machinery (ACM), the world's first and largest computing society. ACM serves as an umbrella organization for information-technology professionals, and ACM SIGGRAPH members may also join ACM. Benefits of adding ACM membership include discounts on cutting-edge magazines, journals, books, and conferences. ACM members may also subscribe to the Digital Library, which contains the archive of ACM-related publications. Computer graphics professionals who join both ACM and ACM SIGGRAPH are eligible for discounted subscriptions to *ACM Transactions on Graphics* and the *Journal of Graphics Tools*. For more information, see: www.acm.org

Professional & Student Chapters

Chapters of ACM SIGGRAPH exist in 50 cities in 20 countries around the world. They form an international multi-cultural network of people who develop, share, continue, and extend the work and achievements presented at the annual conference. Chapter members include those involved in research, development, education, art, gaming, visualization, and entertainment, just to name a few. Student chapters have been chartered in 10 schools. These groups host activities on their campuses that highlight computer graphics and interactive techniques.

For more information about the ACM SIGGRAPH network of chapters, or if you would like to start a Professional or Student Chapter, visit: www.siggraph.org/chapters

Education Program

ACM SIGGRAPH supports both computer graphics education and the use of computer graphics in education with curriculum studies, a Web site for educators, and other educational projects. The ACM SIGGRAPH Education 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, a juried exhibition of student Web-based projects. For more information, see: www.siggraph.org/education

Symposia

ACM SIGGRAPH helps organize and sponsor focused conferences, workshops, and other symposia around the world on topics related to computer graphics and interactive techniques. These gatherings enable groups with specific interests to get together and exchange information. To see the list of symposia or find out how to get help for a conference you'd like to organize, stop by the ACM SIGGRAPH booth or visit: www.siggraph.org/conferences

Awards

ACM SIGGRAPH awards the prestigious Steven A. Coons award for lifetime achievement, the Computer Graphics Achievement Award for notable achievements, the Outstanding Service Award for extraordinary service to ACM SIGGRAPH by a volunteer, and the Significant New Researcher, for new contributors to our field. For a list of past award recipients, visit: www.siggraph.org/awards

Publications

ACM SIGGRAPH's publications provide the world's leading forums for computer graphics research. Our conference series provides the largest source of citations in the computer graphics literature. The Computer Graphics quarterly provides articles on current topics in computer graphics and personal viewpoints on the evolving fields that make up our community. Publications are available to ACM SIGGRAPH members for substantial discounts, see: www.siggraph.org/publications

SIGGRAPH Video Review

SIGGRAPH Video Review is the world's most widely circulated video-based publication. Over 140 programs document the annual SIGGRAPH Computer Animation Festival, providing an unequalled opportunity to study state-of-the-art computer graphics techniques, theory, and applications. Issues available on DVD and VHS tape in NTSC and PAL standards. Visit the SIGGRAPH Video Review booth at the SIGGRAPH 2002 Store or see: www.siggraph.org/publications/video-review/SVR.html

SIGGRAPH 2003

Next July, San Diego will be your kind of town. On the waterfront: The San Diego Convention Center, overlooking Coronado Bay's sailboats, yachts, and aircraft carriers. Inside: SIGGRAPH 2003's thinkers, builders, creators, buyers, sellers, enthusiasts, and critics. Three blocks away: urban galleries, restaurants, and boutiques. Twenty minutes south: the world's busiest border crossing. Thirty minutes east: orchards, ranches, and small towns in a dramatic North American desert. Ten minutes north: the rolling green hills of Balboa Park overlooking the city. Fifteen minutes west: some of the world's most important biomedical research, seaside restaurants, museums, and Pacific sunsets beyond palm trees and eucalyptus groves. For more information, see: www.siggraph.org/s2003

ACM SIGGRAPH Forum

The organization's annual "town meeting" hosted by the ACM Executive Committee. Updates on the past year's activities. Information on volunteer opportunities. And an open forum to discuss questions and concerns. All SIGGRAPH 2002 attendees are invited.

**ACM SIGGRAPH Booth/ West Lobby
Thursday, 25 July, 12:15 – 1:30 pm.**

Volunteers!

All of the programs developed by ACM SIGGRAPH rely heavily on volunteer support. As a member, you are eligible to serve in some of ACM SIGGRAPH's most visible positions, including leading a professional chapter, chairing the annual conference, or serving on the ACM SIGGRAPH Executive Committee. Visit the ACM SIGGRAPH Booth. Attend the ACM SIGGRAPH Forum or Get Involved session. For more information, see: www.siggraph.org/volunteering



Societies That Have Cooperation Agreements With ACM SIGGRAPH

AFRIGRAPH

AFRIGRAPH promotes computer graphics, virtual reality, and interactive techniques in Africa. It adapts these technologies to the realities of the African region, builds links between research and industry, encourages international participation of African researchers, and promotes computer graphics and interactive techniques as leading African research and application activities. The next biennial AFRIGRAPH conference is 2 – 3 February 2003 in Cape Town: AFRIGRAPH 2003: the 2nd International Conference on Computer Graphics, Virtual Reality, Visualization and Interaction in Africa.

www.afrigraph.org
www.saga.za.org/

China Society of Image and Graphics (CSIG)

China Society of Image and Graphics is an academic society of scholars and engineers engaged in basic research, software and hardware development, or their applications in imaging and graphics. CSIG promotes research and development in theory and high technology, and advances popularization and applications of computer graphics. Its main roles are to organize academic-exchange programs; accelerate transformation, popularization, and application of graphics research achievements; train and recommend promising young people; publish books and periodicals, including CSIG Journal; collaborate with international academic societies; provide technical consultation and services; and protect the legal rights and interests of CSIG members.

www.jig.com.cn

Computer Graphics Arts Society (CG-ARTS)

The Computer Graphic Arts Society (CG-ARTS), officially recognized by the Japanese government in 1992, is a publicly funded body dedicated to promoting Japanese computer graphics education. It is also dedicated to developing a distinctive Japanese media arts culture in the 21st century by extending support to media-arts-related activities and artists.

www.cgarts.or.jp/

Digital Content Association of Japan (DCAj)

As digital content changes society and business, DCAj is promoting production, distribution, and use of high-quality digital content that will lead today's networked society.

www.dcaj.or.jp/

Eurographics

The European Association for Computer Graphics is a professional association that assists members with their work and careers in computer graphics and interactive digital media. Eurographics has members worldwide and maintains close links with developments in the USA, Japan, and other countries, by inviting speakers from those countries to participate in Eurographics events and by sending representatives to other events.

ACM SIGGRAPH has an affiliation agreement with Eurographics that entitles members who join both organizations to receive a discounted membership rate.

www.eg.org/

Imagina

Imagina, the 21st International Festival for Digital Images, will be held at the Grimaldi Forum in Monaco, 3 – 6 February 2003. Under the direction of the Monaco MediAx, Imagina will reaffirm its position as the leading festival for the image industry in Europe.

Imagina features:

- A cycle of conferences focusing on the major challenges of new image technologies. International experts will provide insight into the state of the art and consider prospects in the main research areas of the imaging industry.
- The Imagina Awards for animated computer graphics will celebrate entries for their technical achievements as well for the emotions they generate.
- The Industry and Innovation Village, where multimedia and digital communications companies and a selection of research laboratories and universities display their most innovative and promising projects.

www.imagina.mc

International Game Developers Association (IGDA)

The International Game Developers Association (IGDA) is a non-profit association established by game developers to foster creation of a worldwide game-development community. The IGDA's mission is to build a community of game developers that leverages the expertise of its members for the betterment of the industry and the development of the art form.

www.igda.org
info@igda.org

International Visual Literacy Association (IVLA)

The International Visual Literacy Association is a not-for-profit association of educators, artists, and researchers dedicated to the principles of visual literacy. It was formed for the purpose of providing education, instruction, and training in modes of visual communication and their application through the concept of visual literacy to individuals, groups, organizations, and the general public. IVLA members represent a wide range of disciplines including the arts, science, education, communication, business, videography, photography, instructional technology, health, and computer applications.

www.ivla.org/

Nordic Interactive

Nordic Interactive focuses on initiating and stimulating research, development, and education in interactive digital technology in the Nordic countries (Denmark, Norway, Finland, Sweden). The organization facilitates collaboration among business, research, development, and education communities to create links among planned and existing projects, programs, and activities. Membership includes universities, research labs, and companies who are active in significant areas, human-computer interaction, mobile computing, hypermedia, object technology, pattern recognition, human-centered information systems design, pervasive computing, entertainment technology, and digital culture.

www.nordicinteractive.org
secr@nordicinteractive.org

Swedish Computer Graphics Society (SIGRAD)

SIGRAD, the Swedish Association for Computer Graphics, constitutes a meeting place for academic researchers and students, and professionals in industry with an interest in computer graphics and its applications. SIGRAD organizes an annual national conference on computer graphics as well as several workshops on various computer graphics themes.

www.sigrad.org

Committees

SIGGRAPH 2002 Committee

SIGGRAPH 2002
Conference Chair
Tom Appolloni
Harris Corporation

ACM SIGGRAPH Conference
Chief Staff Executive
Dino Schweitzer
Capstone Solutions, Inc.

SIGGRAPH 2002
Conference Manager
Janet McAndless
Capstone Solutions, Inc.

Accounting/Conference
Management/Copy Coordination/
Marketing and Media/Registration
Smith, Bucklin, & Associates, Inc.

Art Gallery
Karen Sullivan
Ringling School of Art and Design

Audio/Visual Support
AVW-TELAV Audio Visual
Solutions

Community Outreach
Nancy Wood
San Antonio College

Computer Animation Festival
John McIntosh
School of VISUAL ARTS

Conference Administration
Capstone Solutions, Inc.

Courses
Valerie Miller
Georgia State University

Creative Applications Lab
Tony Baylis
National Center for
Supercomputing Applications,
University of Illinois at Urbana-
Champaign

Educators Program
James L. Mohler
Purdue University

Emerging Technologies
Scott Senften
SGI

Exhibition Management
Hall-Erickson, Inc.

General Services
Freeman Decorating Company

Graphic Design/Editing/Web Site
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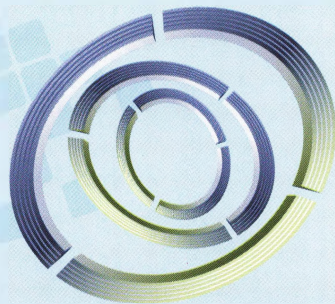


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Ballrooms C1, C2 & C3

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- SIGGRAPH 2002 Information
- Baggage Check
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3rd Level

Park View

Merchandise Boutique

Courses/Sketches

Internet Access Room

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Creative Applications Lab

Speakers Prep

Media Center

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Room 218

Room 209

Open View to Hall D

Room 207

Room 205

View to Bridge Hall Below

Room 204

View to River Court Below

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Exhibitor Tech Talks

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East Lobby

West Lobby

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Sketches

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Exhibition Management

Courses/Sketches

River Level

Room 008

Room 007

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Courses

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