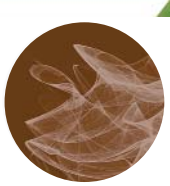
SIGGRAPH2004

the World's Premier Conference on Computer Graphics and Interactive Techniques

conference
8-12 AUGUST 2004
exhibition
10-12 AUGUST 2004

ADVANCE PROGRAM

Los Angeles, California USA
www.siggraph.org/s2004



CONTENTS

SIGGRAPH 2004
IS YOUR BEST OPPORTUNITY THIS YEAR TO REALIZE

Knowledge

Learn what you need to know at the only conference that delivers serious insight in nearly every sub-discipline of computer graphics and interactive techniques. Try the tools you need on the world's biggest and best CG & IT show floor. With a Full Conference registration, you have access to ALL of SIGGRAPH 2004's learning opportunities: Courses, Educators Program, Panels, Papers, Posters, Sketches, Special Sessions, Web Graphics.

The full list of Courses: page 18, www.siggraph.org/s2004/conference/courses

The full list of Papers: page 25, www.siggraph.org/s2004/conference/papers

The full list of Panels: page 33, www.siggraph.org/s2004/conference/panels

The other program juries are selecting more sessions every month. For a complete list of everything that's available, bookmark this page: www.siggraph.org/s2004/updates

Creation

Watch researchers create new ideas that work, and some that still need some work. See mind-expanding digital views of universes, music, myths, history, pain, theorems, joy, and brain waves.

Art Gallery
www.siggraph.org/s2004/conference/art

Computer Animation Festival
www.siggraph.org/s2004/conference/caf

Create your own visions in the Guerilla Studio:
www.siggraph.org/s2004/conference/studio

Reconnection

Talk with everybody you haven't seen for months, or since SIGGRAPH 2003, at the conference reception on Wednesday evening. Schedule lunch at Ciudad. Find all the good after-hours networking opportunities sponsored by the industry's key companies. And don't miss the ACM SIGGRAPH Chapters Party on Monday evening: chapters.siggraph.org

Interaction

Form a new team. Most of the potential players will be in LA. Find out what the competition is up to. Negotiate new alliances to maximize intellectual and financial performance. See tomorrow's software-hardware-human interfaces in Emerging Technologies: www.siggraph.org/s2004/conference/etech

Return on Investment

If your schedule is tight, select One Day registration and choose the day that offers what you need. Conference Select registration is an even better investment, if you can schedule a few days at SIGGRAPH 2004. For access to everything, Full Conference delivers full value. Register before 2 July to get the best pre-conference discounts. Registration options and form: page 43, www.siggraph.org/s2004/registration

Your Self

Leave LA with new insights, enhanced skills, deeper understanding, more earning power, powerful partnerships, fresh inspiration, and valuable memories. You'll be totally prepared to create important work, collaborate with colleagues worldwide, and share some great stories, until you return to LA for SIGGRAPH 2005!

Dena Slothower
SIGGRAPH 2004 Conference Chair
Stanford University

SIGGRAPH 2004 Conference Registration Categories:

- ● Full Conference
- ◉ Conference Select
- ○ Exhibits Plus

Conference at a Glance

Schedule is Subject to Change. Check the SIGGRAPH 2004 web site often for updated information for this year's programs and events.

	7 SATURDAY	8 SUNDAY	9 MONDAY	10 TUESDAY	11 WEDNESDAY	12 THURSDAY
Registration	6 - 8 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 3 pm
Merchandise Pickup Center	6 - 8 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6 pm
SIGGRAPH Store	6 - 8 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6:30 pm	8 am - 6 pm
●◉○ Exhibition				10 am - 6 pm	10 am - 6 pm	10 am - 5 pm
PRESENTATIONS						
● Courses		8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	
● Papers			8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm
● Panels			10:30 am - 5:30 pm	10:30 am - 5:30 pm	1:45 - 3:15 pm	1:45 - 3:15 pm
●◉ Sketches		8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm
●◉ Posters		8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	
●◉ Web Graphics		1:45 - 5:30 pm	3:45 - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm	8:30 am - 5:30 pm
●◉ Educators Program					8:30 am - 5 pm	8:30 am - 5:30 pm
●◉○ Keynote Address/Awards			1:15 - 3:15 pm			
Special Sessions						
●◉ Real-Time 3DX: Demo or Die			6 - 8 pm			
●◉ Computer Music				1:45 - 3:15 pm		
●◉ Puppetry and Computer Graphics				6 - 8 pm		
●◉ VJ: The Art of Live Video Performance					6 - 8 pm	
●◉ Next-Generation Game Visuals						10:30 am - 12:15 pm
Special Event						
●◉○ Fast-Forward Papers Preview		6 - 8 pm				
●◉○ Exhibitor Tech Talks				10 am - 6 pm	10 am - 6 pm	10 am - 5 pm
EXPERIENCES						
●◉○ Art Gallery		1 - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 5 pm
Computer Animation Festival						
● Electronic Theater			7 - 9 pm	7 - 9 pm	7 - 9 pm	
●◉ Electronic Theater Matinée				1:30 - 3:30 pm	1:30 - 3:30 pm	
●◉○ Animation Theater		1 - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 5 pm
●◉○ Emerging Technologies		1 - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 5 pm
●◉○ Guerilla Studio		1 - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 6 pm	9 am - 5 pm
● Reception					8 - 10 pm	
SERVICES						
●◉○ Birds of a Feather	Throughout the week					
●◉○ Get Involved					5 - 6:30 pm	
●◉○ International Resources	6 - 8 pm	8 am - 6pm	8 am - 6 pm	8 am - 6 pm	8 am - 6 pm	8 am - 5 pm
●◉○ Job Fair				10 am - 4 pm	noon - 4 pm	
●◉○ Pathfinders	6 - 8 pm	8 am - 6 pm	8 am - 6 pm	8 am - 6 pm	8 am - 6 pm	8 am - 5 pm

Conference Overview

SIGGRAPH 2004
Molecular interiors, galactic visions, tomorrow's visual effects.

Responsive machines, extra-human intelligence, alternative realities.

Code, concepts, mathematics, theories, applications.

World-class experts teach all this and more. Creative adventurers show 2004's most advanced achievements in computer graphics and interactive techniques. And you acquire the inside data you need to succeed in this amazing industry.

Register online today!
www.siggraph.org/registration

Keynote Address and Awards

Monday, 9 August, 1:15 - 3:15 pm

Bruce Sterling, science fiction writer, speculates on what happens when graphic simulation conquers the world.

When Blobjects Rule the Earth
A picture is worth a thousand words. A model is worth a thousand pictures. What happens when there's no longer any practical difference between computer-generated models and physical, manufactured objects? Desktop fabrication is a lab curiosity – so far – but what happens to societies, markets, industries, and professions when you can push "print" and spit out a bicycle?

Immediately before the keynote address, ACM SIGGRAPH presents the Computer Graphics Achievement Award to Hugues Hoppe, Microsoft Research; the Significant New Researcher Award to Zoran Popović, The University of Washington; and the Outstanding Service Award to Judith R. Brown, The University of Iowa (Retired); and Steve Cunningham, California State University, Stanislaus and National Science Foundation.

SIGGRAPH 2004 Conference Registration Categories:

- ● Full Conference
- ◉ Conference Select
- ○ Exhibits Plus

Presentations

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Courses

Sunday – Wednesday, 8-11 August

Practical skills, deep understanding, and clear explanations presented by the leading experts in computer graphics and interactive techniques. Tutorials, half-day sessions, and full-day courses teach beginning, intermediate, and advanced topics in digital art and science, including interaction design, perception, computing hardware, display systems, wireless applications, gaming, animation, and modeling. Complete list of Courses: pages 18-24.

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Papers

Monday – Thursday, 9-12 August

The premier international forum for ground-breaking, provocative, and important new work in computer graphics and interactive techniques. SIGGRAPH 2004 papers set the standard in the field, stimulate future trends, and explore challenging issues in related fields: human-computer interaction, computer-aided design, computer vision, robotics, visualization, web graphics, and computer games, among others. Complete list of Papers: pages 25-32.

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Panels

Monday – Thursday, 9-12 August

Debate, argument, and discussion on important topics in computer graphics and interactive techniques, and related fields. Experts and skeptics deliver opinions, insights, speculation, and summaries of recent work. The audience follows up with questions, comments, and criticism. The result: new perspectives on key questions and current controversies. Complete list of Panels: pages 33-36.

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Sketches

Sunday – Thursday, 8-12 August

Short talks followed by question-and-answer exchanges on a broad spectrum of topics in art, design, science, and engineering. Sketches emphasize novel and interdisciplinary applications of computer graphics and interactive techniques, including provocative speculation, academic research, industrial development, practical tools, and behind-the-scenes explanations of commercial and artistic works. Speakers and topics: www.siggraph.org/s2004/conference/sketches

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Educators Program

Wednesday – Thursday, 11-12 August

Content: how to teach computer graphics and develop academic resources. Continuity: computer graphics in education, from pre-school to post-graduate study. Collaboration: between art and science, educators and researchers, teachers and students, the classroom and the real world. Panels, forums, papers, and Quick Takes explore all this and more in the not-just-for-Educators Program. Detailed information on the Educators Program: www.siggraph.org/s2004/conference/educators

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Posters

Sunday – Wednesday, 8-11 August

New for SIGGRAPH 2004. Poster displays of research in computer graphics and interactive techniques, including newly developing projects, smaller works, incremental or partial results, and late-breaking research. Presenters and topics will be available here in July: www.siggraph.org/s2004/conference/posters

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Web Graphics

Sunday – Thursday, 8-12 August

Presentations and demonstrations of the year's most innovative online work. Artists, designers, producers, and programmers from around the world share their achievements in rich internet applications, web 3D, navigation, visualization, usability, motion graphics, web art, web content for handheld devices, and many more areas. Speakers and topics: www.siggraph.org/s2004/conference/web

New for SIGGRAPH 2004: the popular 5k award competition for excellence in web design and production is part of SIGGRAPH 2004 Web Graphics.

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Exhibitor Tech Talks

Tuesday – Thursday, 10-12 August

Late-breaking updates on the year's most important advances in 3D animation, games, shading, visualization, processors, APIs, career development, and more. In Exhibitor Tech Talks, SIGGRAPH 2004 exhibitors present two-hour tutorials and interactive instruction on their products and services. Preliminary list of Exhibitor Tech Talks: page 9.

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Special Event

Fast-Forward Papers Preview
Sunday, 8 August, 6 - 8 pm

Snapshot overviews of the paper sessions, in which authors give short summaries of their work. It's a fast, fun, and provocative preview of the latest and most significant findings in computer graphics and interactive techniques.

Special Sessions

Real-Time 3DX: Demo or Die

Monday, 9 August, 6 - 8 pm

This demonstration highlights real-time graphics of all types in a fast paced, fun, and inspiring way. If you want to see the best real-time computer graphics work from industry, universities, and "secret" labs, this is the event for you. Participants have approximately two minutes to show off their best stuff in one of four categories:

- Business, Educational, Artistic, Scientific, Training
- Games, Entertainment
- 3D Multiuser Environments
- Emerging Technologies

Submit entries at www.realism.com/SIGGRAPH/3DX/ until 1 June. All demos are non-commercial, and the host drags participants off the stage if they indulge in hype. Bring an enthusiastic attitude to the event and be prepared for serious fun. The audience votes for category and best-of-show winners, in real time, using an innovative laser-pointer voting system developed at Iowa State University. Bring your laser pointers!

Organizers
Sandy Ressler
National Institute of Standards Technology

Leonard Daly
Daly Realism

Computer Music

Tuesday, 10 August, 1:45 - 3:15 pm

The field of computer music, which has evolved from its origins in early computing technology, analog electronic music, digital signal processing, audio engineering, and the experimental music tradition, represents the nexus of modern creative and technical issues associated with digital audio and analysis. This Special Session features experts at the forefront of several primary research areas:

- Software-based sound synthesis
- Human-computer interface technologies for performers and composers
- Acoustic simulation of auditory environments
- Sound spatialization and presentation of electro-acoustic music
- Intuitive computer music composition
- Computer-assisted music composition and affective music computing systems
- Stylistic emulation and modeling of human performers
- Music information retrieval

Each panel member addresses ongoing research in these primary points of focus within the broader context of their historical impetus and potential future applications.

Organizer
Colby Leider
University of Miami

Puppetry and Computer Graphics

Tuesday, 10 August, 6 - 8 pm

Pioneering artists such as Jim Henson and Phil Tippett, and many other puppeteers, have been experimenting with computer graphics from the beginning.

Jim Henson's early CG puppets, Waldo C. Graphic and Tizzy the Bee, led to development of the Henson Digital Performance Studio, and, more recently, CG versions of Kermit the Frog and Gonzo the Great. Tippet's Digital Input Device first gave CG animation access to additional stop-motion animators working on "Jurassic Park" and "Starship Troopers." Virtual CG sets of "The Jim Henson Hour" and "The Wubbulous World of Dr. Suess" also added a broader freedom to the medium.

This special session reviews the history, advantages, and future of CG in puppetry, and it presents many personal stories from the puppeteers' perspective.

VJ: The Art of Live Video Performance

Wednesday, 11 August, 6 - 8 pm

The explosive new generation of visual artists known as VJs and the dozens of companies that support them with new tools, equipment, and software are continually creating more complex and vivid presentations. In this roundtable discussion hosted by Los Angeles Video Artists (LAVA), several respected and widely known VJs offer insight into current and future trends for this adventurous new culture. For more information and updates, see: www.la-va.org/siggraph2004

Organizer
James Cui
Los Angeles Video Artists (LAVA)

Next-Generation Game Visuals

Thursday, 12 August
10:30 am - 12:15 pm

The next generation of game hardware and real-time, per-pixel shading will make it possible to create more compelling interactive visuals then ever before. Dramatic improvements are on the horizon in high-resolution models and textures, soft subtle lighting, complex character animation, and amazing visual effects. Presenters from top game companies, including Habib Zargarpur ("Need to Speed Underground" and "007 Bond: Everything or Nothing") and Henry LaBounta ("SSX3") from Electronic Arts, show examples of what they are doing now to push the envelope and speak about their plans for creating the breathtaking games of tomorrow.

Organizer
Henry LaBounta
Electronic Arts Canada

Experiences

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Art Gallery: Synaesthesia

Sunday – Thursday, 8-12 August

Original digital art that emerges from the conjunction of cybernetics and human vision to help us re-experience, re-examine, and make sense of our bodies, our technologies, and our culture. Synaesthesia features visionary work in every field of digital art: 2D, 3D, interactive techniques, installations, virtual reality, multimedia, telecommunications, web art, and animation. For detailed information on the Art Gallery, visit: www.siggraph.org/s2004/conference/art

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Computer Animation Festival

Animation Theater
Sunday – Thursday, 8-12 August

Electronic Theater
Monday – Wednesday, 9-11 August

The world's most innovative, imaginative works in computer graphics and interactive techniques: animation, visualization, simulation, visual effects, and technical imagery produced by adventurers who blend art and science into unique visual experiences. The Computer Animation Festival jury presents selected works in the Electronic Theater (matinée and evening shows) and the Animation Theater (throughout the week). For a complete list of accepted work, visit: www.siggraph.org/s2004/conference/caf

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- ● Full Conference
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- ○ Exhibits Plus

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Emerging Technologies

Sunday – Thursday, 8-12 August

Interactive displays of assumption-shattering concepts that will enhance human life in the near and distant future. What's next in ubiquitous computing, wearable systems, hand-held devices, real-time graphics, mobile technologies and much more: robotics, graphics, music, audio, displays, haptics, sensors, gaming, the web, artificial intelligence, visualization, collaborative environments, medicine, biotechnology, design, entertainment, aerospace, and art. For detailed information on the Emerging Technologies exhibits, visit: www.siggraph.org/s2004/conference/etech

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Guerilla Studio

Sunday – Thursday, 8-12 August

The Guerilla Studio is an integrated network of machines for realizing ideas in 2D, 3D, 4D, and n-dimensional media, a working computer graphics laboratory for explorations in fine art, animation, science, and other CG disciplines. It features high-end computer workstations, a multitude of software (featuring 2D and 3D design), and print technologies. Artists, scientists, and engineers can walk in, create, and realize their creations right in the lab.

The Guerilla Studio also provides an educational component where artists in residence instruct attendees on technique and explore the possibilities of digital art.

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Reception

Wednesday, 11 August, 8-10 pm

Computer graphics pioneers, students, executives, superstars, engineers, theorists, and fans of all genders and backgrounds gather for the international SIGGRAPH community's annual celebration. Food, drinks, music, and fun in a high-energy Los Angeles location.

Services

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Birds of a Feather

Attendees who want to get together with others who share their interests, goals, technologies, environments, or backgrounds are invited to organize and/or attend a Birds of a Feather event. Questions? Review the Birds of a Feather FAQs at www.siggraph.org/s2004/conference/birds/faqs.php

To schedule a Birds of a Feather session prior to arrival, send email to: bofs@siggraph.org

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Get Involved

Wednesday, 11 August, 5 - 6:30 pm

Inside information on how you can contribute your expertise and energy to SIGGRAPH 2005 and SIGGRAPH 2006. All attendees, exhibitors, and presenters are invited. All questions and comments are welcome.

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International Resources

In the International Center, the multilingual International Resources Committee answers attendee questions, offers space for talks and demonstrations, and provides informal translation services. See page 37 for the International Committee listing.

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Job Fair

Leading companies in computer graphics discuss employment opportunities with SIGGRAPH 2004 attendees in a relaxed, informal setting. For details, see page 39. Sponsored by:

Exhibition

Welcome to the future of computer graphics and interactive techniques. By its very nature, SIGGRAPH attracts an exclusive group of buyers from around the world, across all facets of this expanding technology. Much of the research in computer graphics is exploding into everyday products that are vital in today's technology-hungry culture. Organizations that support the tools used in computer graphics and interactive techniques are eager to take advantage of future opportunities.

What's the best way for your organization to meet these challenges that are reshaping the technology in computer graphics and interactive techniques? See the latest, most complete list of SIGGRAPH 2004 exhibitors, see: www.siggraph.org/s2004/exhibition

For a complete directory of the organizations that supply hardware, software, and systems to the computer graphics industry, visit: www.siggraph.org/industry

Reserve Your Space Now!

To purchase exhibition space for SIGGRAPH 2004, call or write:

SIGGRAPH 2004 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

www.siggraph.org/industry
For a complete directory of the organizations that supply hardware, software, and systems to the computer graphics industry.

Exhibitors

As of 12 April 2004

@Last Software, Inc. - SketchUp
3Dconnexion
3D Consortium
3D Nature, LLC
3D Pipeline Corporation
3DTotal.com
3rdTech, Inc.
4DCulture Inc.
A K Peters, Ltd.
Academy of Art College
Accom, Inc.
Advanced Imaging Magazine
Advanced Media Production
AJA Video Systems Inc.
Alias Systems
AMAX Information Technologies
AMD
American Cinematographer
American Paper Optics, Inc.
Animation Magazine Inc.
Animation World Network
Anthro Corporation
Apple Computer, Inc.
ArchVision, Inc.
Artbeats, Inc.
Ascension Technology Corporation
ATI Technologies Inc.
Auto FX Software
auto.des.sys, Inc.
AXIO by Harodesign Inc.
Barco
Bell Computer
Bitboys Oy
BitMicro Networks, Inc.
Blue Sky Studios, Inc.
BlueArc Corporation
BOXX Technologies, Inc.
Brigham Young University
cebas Computer GmbH
CELCO, Inc.
CG Channel
Chaos Group
Charles River Media
Collins College
Computer Graphics World
Course PTR
Curious Labs Incorporated
Curious Software Company Limited
Darim Vision Co., Ltd.
DataDirect Networks, Inc.
Desktop Images
Digital Domain, Inc.
Disc Makers
Discreet
DNP Electronics America, LLC
DVS GmbH
Electronic Arts Inc.
Elumens Corporation
ESC Entertainment
eyeon Software Inc.
FCS Control Systems B.V.
GDC Entertainment Ltd.
Geometry Systems, Inc.
Gnomon, Inc. School of Visual Effects
GVS
Hash Inc.
Hewlett-Packard Company
Hollywood Creative Directory
Hoodman Corporation
IdN Magazine
IEEE Computer Society
Illuminate Labs
Immersion Corporation
Inch by Inch Productions
Industrial Light + Magic
InSpeck Inc.
IntegrityWare, Inc./nPower Software, Inc.
Intel Corporation
Italian Institute for Foreign Trade
JourneyEd.com
Kaydara, Inc.
Kelseus Ltd.
La Cantoche Production
Lasergraphics, Inc.
Lightspace Technologies, Inc.
LightWork Design Ltd.
MAXON Computer Inc.
Media Design School
Meta Motion
Micoy
Midway Home Entertainment Inc.
Morgan Kaufmann Publishers
Motion Analysis Corporation
Natural Motion Limited
NewTek
New Zealand Trade and Enterprise
Nexstar
Next Limit S.L.
NIST Advanced Technology Program
nStor Corporation, Inc.
NVIDIA Corporation
NXN Software AG
Okino Computer Graphics, Inc.
Oregon3D, Inc.
PDI/DreamWorks
Peachpit Press
Photron USA, Inc.
P.I. Engineering, Inc.
Pipelinefx, LLC
Pixar Animation Studios
Pixologic, Inc.
PL Studios Inc.
Plenoptics
PNY Technologies, Inc.
Point Grey Research Inc.
Polhemus, Inc.
Post Magazine (Advanstar Communications)
Primedia Business Magazines & Media
ProMax Systems, Inc.
Purdue University, Department of Computer Graphics Technology
RackSaver, Inc.
Radical Entertainment Inc.
Realviz S.A.
Rebelthink
Rhythm & Hues Studios
Right Hemisphere
Ringling School of Art and Design
Savannah College of Art and Design
SensAble Technologies, Inc.
Side Effects Software
Softimage Co.
Solid Modeling Solutions
Sony Pictures Imageworks Inc.
SpectSoft, LLC
SpheronVR AG
Springer-Verlag New York, Inc.
Stratasys Inc.
Sybex, Inc.
SyFlex LLC
Systems in Motion AS
TechnoDream21
Texas Memory Systems, Inc.
TGS, Inc.
The Art Institutes
The Compulsive Creative
The Industry Flip Book
The Orphanage Inc.
Trolltech AS
Vancouver Film School
Wacom Technology Corporation
Walt Disney Feature Animation
John Wiley & Sons, Inc.
wondertouch, LLC
Xerox Corporation
Z Corporation

Exhibitor Tech Talks

The Power of Pixel Shaders: Using High-Level Shading Languages in Professional Applications

ATI Technologies Inc.
Tuesday, 10 August, 1 – 3 pm

Programmable pixel shaders are all the rage for today's computer games. But how can they be leveraged in today's workstation software applications? Learn how high-level shading languages are used to create a new generation of professional content creation and CAD applications.

MOTIONBUILDER

Kaydara Inc.
Tuesday, 10 August, 4 – 6 pm

An in-depth look at Kaydara's renowned 3D character animation application, MOTIONBUILDER. Includes demonstrations by special guests.

Training for Careers in Animation and Technology

Vancouver Film School
Wednesday, 11 August, 10 am – noon

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.

PCI Express* Technology: A Breakthrough Technology for the Graphics Industry

Intel Corporation
Wednesday, 11 August, 10 am – Noon

PCI Express Technology, a new I/O interconnect technology replacing PCI and AGP in 2004 systems, promises to offer a plethora of performance advancements for the graphics community. In this session, Intel experts discuss the performance attributes of PCI Express-enabled workstations and rendering-farm applications, and explain the availability of PCI Express graphics capability.

Middle Earth: Imagination Made More Real

New Zealand Trade and Enterprise
Wednesday, 11 August, 4 – 6 pm

A showcase of New Zealand's creative technology companies specializing in cutting-edge animation, simulation, 3D-modeling, and augmented reality.

NVIDIA Corporation

Tuesday - Thursday, 10 - 12 August
10:30 am, 1:30 pm, 3:30 pm

HLSL Shader Workshop: Introductory
NVIDIA invites you to try your hand at writing shaders and other real-time effects! This hands-on workshop introduces real-time shader programming with the Microsoft DirectX 9.0 High-Level Shader Language (HLSL). Attendees learn how to harness the power of the latest GPU technology through a language as familiar as C while using a powerful shader IDE. Developers learn how to integrate shaders with their applications and create new effects that are only possible with Shader Model 3.0.

The workshop also includes tips for writing efficient shaders and strategies for debugging them. The workshop is intended for experienced graphics programmers familiar with fundamental 3D graphics techniques, including simple matrix math.

HLSL Shader Workshop: Advanced
In this hands-on NVIDIA session, attendees develop a variety of advanced shader effects, including new effects that are only possible with Shader Model 3.0 as found in the Microsoft DirectX 9.0 High-Level Shader Language (HLSL). The focus is on practical, high-quality techniques that can easily be integrated with attendees' ongoing and future projects to help set them apart from the pack. Topics include high-dynamic-range lighting (HDR), floating-point filtering, and floating-point blending.

The workshop also includes tips for writing efficient shaders in the NVIDIA FX Composer IDE, strategies for debugging shaders, and an overview of potential applications in graphics and general-purpose scenarios. The advanced session is for experienced coders who are already conversant with writing shaders and want to take their knowledge to a higher level.

Sunday, 8 August

8 8:15 8:30 8:45 9 9:15 9:30 9:45 10 10:15 10:30 10:45 11 11:15 11:30 11:45 12 12:15 12:30 12:45 1 1:15 1:30 1:45

Courses/Half Day 8:30 am – 12:15 pm

9. Photorealistic Hair Modeling, Animation, and Rendering

Animation Theater

Art Gallery

Emerging Technologies

Guerilla Studio

Courses/Full Day 8:30 am – 5:30 pm

1. Real-Time Shading
2. Color Science and Color Appearance Models for CG, HDTV, and D-cinema
3. Introduction to Computer Graphics (Open to all SIGGRAPH 2004 attendees)
4. State of the Art in Monte Carlo Global Illumination
5. Facial Modeling and Animation
6. Point-Based Computer Graphics
7. Seeing, Hearing, and Touching: Putting It All Together
8. Multiple-View Geometry for Image-Based Modeling

Sketches 8:30 am – 5:30 pm

Posters 8:30 am – 5:30 pm

Monday, 9 August

8 8:15 8:30 8:45 9 9:15 9:30 9:45 10 10:15 10:30 10:45 11 11:15 11:30 11:45 12 12:15 12:30 12:45 1 1:15 1:30 1:45

Papers 8:30 – 10:15 am

Papers: Graphics is Fun
Papers: Curves & Surfaces

Keynote/Awards

Courses/Half Day 8:30 am – 12:15 pm

12. Art-Directed Technology: Anatomy of a “Shrek 2” Sequence
13. High-Dynamic-Range Imaging
14. Collision Detection and Proximity Queries
15. Shape-Based Retrieval and Analysis of 3D Models
16. Performance OpenGL: Platform-Independent Techniques
17. Unconventional Human-Computer Interfaces
18. Commodity-Based Projection VR

Sketches 8:30 am – 5:30 pm

Posters 8:30 am – 5:30 pm

Animation Theater 9 am – 6 pm

Art Gallery 9 am – 6 pm

Emerging Technologies 9 am – 6 pm

Guerilla Studio 9 am – 6 pm

Papers, Panels 10:30 am – 12:15 pm

Papers: Interactng With Images
Papers: 3D Texture

Panel: Building a Bridge to the Aesthetic Experience:
Artistic Virtual Environments and Other Interactive Digital Art

Day at a Glance

2 2:15 2:30 2:45 3 3:15 3:30 3:45 4 4:15 4:30 4:45 5 5:15 5:30 5:45 6 6:15 6:30 6:45 7 7:15 7:30 7:45 8

1 – 6 pm

1 – 6 pm

1 – 6 pm

1 – 6 pm

Courses/Half Day 1:45 – 5:30 pm

10. "Lord of the Rings": The Visual Effects That Brought Middle Earth to the Screen
11. Acting and Drawing for Animation

Web Graphics 1:45 – 5:30 pm

Fast Forward Papers Preview 6 – 8 pm

2 2:15 2:30 2:45 3 3:15 3:30 3:45 4 4:15 4:30 4:45 5 5:15 5:30 5:45 6 6:15 6:30 6:45 7 7:15 7:30 7:45 8

1:15 – 3:15 pm

Courses/Tutorials 3:45 – 5:30 pm

19. A Practical Guide to Ray Tracing and Photon Mapping
20. Color in Information Display: Principles, Perception, and Models
21. Introduction to Bayesian Learning
22. Projectors: Advanced Graphics and Vision Techniques
23. There Can Still Be Only One: Independent Animation Production for the Lonely
24. Enhancing Three-Dimensional Vision With Three-Dimensional Sound

Papers, Panel 3:45 – 5:30 pm

Papers: Photo & Video Texture
Panel: Careers in Computer Graphics Entertainment

Web Graphics 3:45 – 5:30 pm

Special Session 6 – 8 pm

Real-Time 3DX: Demo or Die

Electronic Theater 7 – 9 pm

Chapters Party 9 pm - 2 am

Tuesday, 10 August

8 8:15 8:30 8:45 9 9:15 9:30 9:45 10 10:15 10:30 10:45 11 11:15 11:30 11:45 12 12:15 12:30 12:45 1 1:15 1:30 1:45

Papers 8:30 – 10:15 am
Papers: Dynamics & Modeling

Courses/Half Day 8:30 am – 12:15 pm
29. An Interactive Introduction to OpenGL Programming

Courses/Full Day 8:30 am – 5:30 pm
25. Developing Augmented Reality Applications
26. Real-Time Shadowing Techniques
27. Level Set and PDE Methods for Computer Graphics
28. Real-Time Volume Graphics

Sketches 8:30 am – 5:30 pm

Posters 8:30 am – 5:30 pm

Web Graphics 8:30 am – 5:30 pm

Animation Theater 9 am – 6 pm

Art Gallery 9 am – 6 pm

Emerging Technologies 9 am – 6 pm

Guerilla Studio 9 am – 6 pm

Job Fair 10 am – 4 pm

Exhibition 10 am – 6 pm

Papers, Panel 10:30 am – 12:15 pm
Papers: Identifying & Sketching the Future
Papers: Smoke, Water & Goop
Panel: 3D Animation: Difficult or Impossible to Teach and Learn?

Day at a Glance

2 2:15 2:30 2:45 3 3:15 3:30 3:45 4 4:15 4:30 4:45 5 5:15 5:30 5:45 6 6:15 6:30 6:45 7 7:15 7:30 7:45 8

Exhibitor Tech Talk 1 – 3 pm
The Power of Pixel Shaders: Using High Level Shading Languages in Professional Applications

Electronic Theater Matinée 1:30 – 3:30 pm

Special Session 1:45 – 3 pm
Computer Music

Papers, Panel 1:45 – 3:15 pm
Papers: Lighting & Sampling
Panel: Next-Generation User Interface Technology for Consumer Electronics

Courses Half Day 1:45 – 5:30 pm
30. Visualizing Geospatial Data

Papers, Panel 3:45 – 5:30 pm
Papers: Data Driven Character Animation
Panel: Cultural Heritage and Computer Graphics: What Are the Issues?

Exhibitor Tech Talk 4 – 6 pm
MOTIONBUILDER

Special Session 6 – 8 pm
Puppetry and Computer Graphics

Electronic Theater 7 – 9 pm

Wednesday, 11 August

8 8:15 8:30 8:45 9 9:15 9:30 9:45 10 10:15 10:30 10:45 11 11:15 11:30 11:45 12 12:15 12:30 12:45 1 1:15 1:30 1:45

Educators Ramp In 8:30 - 9 am

Exhibition 10 am – 6 pm

Papers 8:30 – 10:15 am
Papers: Shape & Motion

Courses/Full Day 8:30 am – 5:30 pm
31. The Elements of Nature: Interactive and Realistic Techniques
32. GPGPU: General-Purpose Computation on Graphics Hardware
33. Crowd and Group Animation

Sketches 8:30 am – 5:30 pm

Posters 8:30 am – 5:30 pm

Web Graphics 8:30 am – 5:30 pm

Animation Theater 9 am – 6 pm

Art Gallery 9 am – 6 pm

Emerging Technologies 9 am – 6 pm

Guerilla Studio 9 am – 6 pm

Educators 9 – 9:30 am
Collaboration is Key

Job Fair noon – 4 pm

Exhibitor Tech Talk 10 am – noon
- Training for Careers in Animation and Technology
- PCI Express* Technology – A Breakthrough Technology for the Graphics Industry

Educators 10 – 10:30 am
CoGIP: A Course on 2D Computer Graphics and Image Processing

Educators 9 – 10:30 am
Résumés and Demo Reels:
If Yours Aren't Working, Neither Are You!

Papers 10:30 am – 12:15 pm
Papers: Video-Based Rendering
Papers: Shape Analysis

Educators 10:30 – 11 am
Group Projects: Issues and Practices in Computer Graphics Technology

Educators 11 – 11:30 am
Team Teaching Animation Art and Technology

Educators 11:30 am – noon
The Pipeline Project: A Holistic Approach to Teaching Multimedia.

Educators noon – 12:30 pm
Integrating Modeling and Animation Tools Into an

Educators 9:30 – 10 am
Teaching Art With 3D Software

Educators 10:30 am – 1 pm
Studio Views of Demo Tapes

Educators
Developing 3D

Day at a Glance

Student Research Competition 3:45 – 5:30 pm

Papers 3:45 – 5:30 pm
Papers: Flash & Color

Electronic Theater Matinée 1:30 – 3:30 pm

Exhibitor Tech Talk 4 – 6 pm
Middle Earth: Imagination Made More Real

Get Involved 5 – 6:30 pm

Special Session 6 – 8 pm
VJ: The Art of Live Video Performance

Papers, Panel 1:45 – 3:15 pm
Papers: Interactive Modeling
Panel: Custom Software Development in Post-Production

Educators 1:45 – 3 pm
Preparing Students for Job Hunting in High-End CG Industries

Educators 4 – 5 pm
Building the World-Wide Community of Graphics Educators

Educators 3 – 5 pm
Exploring the Current State of In-House Training

Introductory Computer Science Graphics Course

Educators 3:30 – 4 pm
CGEMS: Computer Graphics Educational Materials Source

1:30 – 2 pm
Design Education for Continuing Education and Professional Students

Educators 2 – 3 pm
The Technological Imperative in Contemporary Art and Design Studies

Electronic Theater 7 – 9 pm

Educators 3 - 3:30 pm
National Science Foundation Funding for Education Projects

Reception 8 – 10 pm

Thursday, 12 August

8 8:15 8:30 8:45 9 9:15 9:30 9:45 10 10:15 10:30 10:45 11 11:15 11:30 11:45 12 12:15 12:30 12:45 1 1:15 1:30 1:45

Educators 8:30 – 8:45 am
Building The Virtual Reality Instructor

Papers 8:30 – 10:15 am
Papers: Capture From Images
Papers: Reprise of UIST and VRST

Sketches 8:30 am – 5:30 pm

Web Graphics 8:30 am – 5:30 pm

Animation Theater 9 am – 5 pm

Art Gallery 9 am – 5 pm

Emerging Technologies 9 am – 5 pm

Guerilla Studio 9 am – 5 pm

Educators 8:45 – 9 am
Teaching Beyond the Human Form

Educators 9 - 9:15 am
Teaching Physics by Designing Games

Exhibition 10 am – 5 pm

Educators 8:30 – 10 am
Databases and Virtual Environments:
A Good Match for Communicating
Complex Cultural Sites

Papers 10:30 am – 12:15 pm
Papers: HDR and Perception
Papers: Large Meshes and GPU Programming

Educators 9:15 – 9:30 am
Virtual Worlds,
Cognitive Maps

Educators 11 – 11:45 am
Ratava's Line: Emergent Learning and Design Using Collaborative Virtual Worlds

Educators 9:30 – 9:45 am
Immersive Visualization
in K-12 Education

Educators 9:45 – 10 am
SeaMaven: A Web-Based
Virtual Learning Environment

Educators 10 – 10:15 am
A Novel Way to Study Muscle Anatomy of the Beef Animal

Educators 10 – 10:15 am
Computer Visualization as a Tool for
Historic Preservation and Education

Educators 11:45 am – noon
Motionary: A Dictionary of Meaning in Motion

Educators 10:15 – 10:30 am
Designing the New Memory Space for
Cultural Heritage

Educators noon – 12:15 pm
Animation of Mathematical Concepts Using
Polynomiography

Educators 10:15 – 10:30 am
Visualizing Alzheimer's Disease: A Classroom Collaboration of Design and Science

Educators 10:30 – 10:45 am
Freedom Bound: Creating A Public Art Project

Special Session 10:30 am – 12:15 pm
Next-Generation Game Visuals

Educators 1:30 – 3:3

Educators 11 am – 12:15 pm
Genova 2004: A Test Bed for Industrial Design Students to Integrate
Cultural Content and Information Technologies in Cross-Media Platforms

Day at a Glance

Papers, Panel 1:45 – 3:15 pm
Papers: Lightfield Acquisition & Display
Papers: Mesh Parameterization
Panel: Games Development: How Will You Feed the Next Generation of Hardware?

Papers 3:45 – 5:30 pm
Papers: Fixing Models

Educators 3:30 – 5 pm
The Computer Arts: Origins and Contexts

Educators 3:30 – 4:30 pm
Summoning the Ghosts of Globalization:
Using Invention and Immersion to Teach About Media Image & Culture

Educators 1:30 – 2:30 pm
Ray Tracing in the Age of Renaissance

Educators 2:30 – 3:30 pm
Virtual Photography? A Framework for Teaching Image Synthesis

pm
Using Computer Graphics in Archaeology: A Struggle for
Educative Science or to Educate Science?

Educators 4:30 – 5:30 pm
Educators Ramp Out

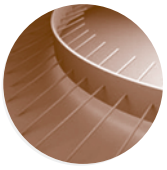
For detailed information on all SIGGRAPH 2004 Courses, visit:
www.siggraph.org/s2004/conference/courses

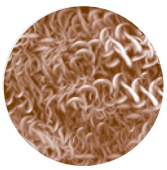
Courses

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 2004 Courses. All the Course Notes are on the Full Conference DVD-ROM that Full Conference attendees receive with their registration. For additional information on the level of experience and education required to make best use of the instruction offered in each course, see the SIGGRAPH 2004 web site: www.siggraph.org/s2004/conference/courses

Seating in Courses is on a first-come, first-served basis. Please be sure to arrive early for the Courses you wish to attend.





Sunday, 8 August

1

Real-Time Shading

Sunday, Full-Day, 8:30 am - 5:30 pm
LEVEL: ADVANCED

The dream of real-time procedural shading can now be experienced on a very broad range of technologies, from game consoles to the highest-end PCs. This updated course brings together hardware developers and leading researchers to share the latest developments in shading hardware and languages, and to present methods, models and ideas useful across all of them.

Organizer
Marc Olano
University of Maryland, Baltimore County

2

Color Science and Color Appearance Models for CG, HDTV, and D-cinema

Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

This course introduces the science behind image digitization, tone reproduction, and color reproduction in computer-generated imagery, HDTV, and digital cinema (D-cinema). It details the emerging theory of color appearance models, which help deal with things that classical color science cannot predict.

Organizer
Charles Poynton

3

Introduction to Computer Graphics

Sunday, Full-Day, 8:30 am - 5:30 pm
LEVEL: BEGINNING

Course 3 is open to all SIGGRAPH 2004 attendees. All other Courses require Full Conference registration.

This course is designed to ease newcomers into computer graphics and the whole SIGGRAPH conference experience. It covers not only how computer graphics works (at the hardware and software levels), but also some key application areas such as modeling, rendering, animation, visualization, VR, and web-based graphics.

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

Sunday, 8 August

4

State of the Art in Monte Carlo Global Illumination

Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

A detailed overview of state-of-the-art techniques in Monte Carlo global illumination algorithms. This course reviews the fundamentals of radiometry and material properties, and explains general light-path generation strategies as well as some widely used algorithms such as photon mapping and Monte Carlo radiosity.

Co-Organizers
Philip Dutré
Katholieke Universiteit Leuven

Henrik Wann Jensen
University of California, San Diego

5

Facial Modeling and Animation

Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

An overview of concepts and current techniques in facial modeling and animation. All stages, from initial data acquisition and modeling through a variety of facial animation techniques, rendering techniques, and specific application scenarios, are discussed in detail.

Co-Organizers
Jörg Haber
MPI Informatik

Demetri Terzopoulos
New York University

6

Point-Based Computer Graphics

Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

With the increasing complexity of computer graphics objects, points have attracted new interest in computer graphics research. This course introduces points as a powerful and versatile graphics primitive. Speakers present their latest concepts for acquisition, representation, processing, modeling, and rendering of point-sampled geometry.

Co-Organizers
Markus Gross
Eidgenössische Technische Hochschule Zürich

Hanspeter Pfister
Mitsubishi Electric Research Labs

Matthias Zwicker
Massachusetts Institute of Technology

Sunday, 8 August

7

Seeing, Hearing, and Touching: Putting It All Together
Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

As computer display technologies become increasingly multimodal, ubiquitous, and immersive, interaction designers must understand how vision, sound, and touch are perceived and understood by users. In this course, attendees learn key aspects of perceptual theory and its application to design of interactive multimedia systems through lectures, demonstrations, and design case studies.

Organizer
Brian Fisher
The University of British Columbia

8

Multiple-View Geometry for Image-Based Modeling
Sunday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

The state of the art in multiple-view geometry, including theory, algorithms, and systems for reconstructing 3D geometric models of static or dynamical scenes from photographs or videos. The course is based on a novel approach that requires only linear algebra, not projective/algebraic geometry. It makes image-based modeling techniques more accessible to the graphics audience.

Organizer
Yi Ma
University of Illinois at Urbana-Champaign

9

Photorealistic Hair Modeling, Animation, and Rendering
Sunday, Half Day, 8:30 am - 12:15 pm
LEVEL: INTERMEDIATE

The past four years have been a renaissance for hair modeling, rendering, and animation. This course summarizes hair-simulation problems and presents working solutions, including both novel research ideas and time-tested industrial practices. Topics include hairstyling, hair-hair interactions, hair rendering using graphics hardware, and cultural-heritage applications.

Organizer
Nadia Magnenat-Thalmann
MIRALab, Université de Genève

Sunday, 8 August

10

“Lord of the Rings”: The Visual Effects That Brought Middle Earth to the Screen
Sunday, Half Day, 1:45 - 5:30 pm
LEVEL: BEGINNING

An in-depth look at Weta Digital's work on the “Lord of the Rings.” This course summarizes the techniques that were used in all three films to create the creatures, environments, and battle scenes of Middle Earth, including the groundbreaking animation of Gollum.

Organizer
Matt Aitken
Weta Digital Ltd

11

Acting and Drawing for Animation
Sunday, Half Day, 1:45 - 5:30 pm
LEVEL: BEGINNING

This workshop provides hands-on demonstrations of acting and drawing principles required to achieve strong animated performances. It covers staging, power centers, positioning, character development and design, emotional recall, fluidity, improvisation for storytelling, and timing.

Organizer
Lucilla Potter Hoshor
Savannah College of Art and Design

Monday, 9 August

12

Art-Directed Technology: Anatomy of a “Shrek 2” Sequence
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: BEGINNING

New insights into art-directed animation technology and the evolution of a sequence during the production process. This course introduces the story and art departments and discusses how artistic vision is translated and embedded into technical improvements during the film-making process for sophisticated 3D animation.

Co-Organizers
Rachel Falk
Harry Max
PDI/DreamWorks

Monday, 9 August

13

High-Dynamic-Range Imaging
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: INTERMEDIATE

New techniques in capturing, representing, processing, and displaying high-dynamic-range Images that cover the full range of light in the real world. Applications to photoreal lighting and compositing are also covered. The techniques enable marked improvements in visual fidelity and photorealism for computer graphics.

Organizer
Paul Debevec
University of Southern California ICT

14

Collision Detection and Proximity Queries
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: INTERMEDIATE

An authoritative overview of various collision detection techniques. Proponents and expert practitioners from academia and industry cover widely accepted and proven methodologies in detail, and review nascent topics. They also review and compare their most appropriate techniques and applications.

Co-Organizers
Dave Eberle
Sunil Hadap
PDI/DreamWorks

15

Shape-Based Retrieval and Analysis of 3D Models
Monday, Half-Day, 8:30 am - 12:15 pm
LEVEL: INTERMEDIATE

Concepts, methods, and applications for retrieving and analyzing 3D models in large databases. Emphasis is on geometric representations and algorithms for indexing and matching 3D objects based on their shapes. Topics include current shape descriptors, query interfaces, and shape-based retrieval applications.

Organizer
Thomas Funkhouser
Princeton University

Monday, 9 August

16

Performance OpenGL: Platform-Independent Techniques
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: INTERMEDIATE

Performance OpenGL is designed to provide OpenGL programmers with platform-independent techniques to improve the correctness and performance of their OpenGL applications. This course provides an in-depth analysis of the OpenGL geometry and rasterization pipelines, as well as tools and other hints for improving OpenGL's performance.

Organizer
Dave Shreiner
SGI

17

Unconventional Human-Computer Interfaces
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: BEGINNING

An introduction to the potential of various human systems, how these systems can be interfaced with hardware components, and for what purposes they can be applied. This course demonstrates a wide range of unconventional interfaces and explores the potential for new kinds of systems and application areas.

Co-Organizers
Steffi Beckhaus
Universität Hamburg

Ernst Kruijff
Fraunhofer-Institut für Medienkommunikation

18

Commodity-Based Projection VR
Monday, Half Day, 8:30 am - 12:15 pm
LEVEL: BEGINNING

How to build a moderate-cost, single-screen, projection-based virtual reality system. This course covers the basics of virtual reality (stereoscopy, tracking, audio) and the options for implementing them with commodity hardware. It includes a discussion of open-source software that can be used to drive the system.

Organizer
Dave Pape
University at Buffalo

Monday, 9 August

19

A Practical Guide to Ray Tracing and Photon Mapping

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: INTERMEDIATE

A detailed description of the ray-tracing and photon-mapping algorithms for simulating global illumination, including caustics, participating media, and subsurface scattering. This tutorial provides the practical insight necessary for using and implementing ray tracing and photon mapping.

Organizer
Henrik Wann Jensen
University of California, San Diego

20

Color in Information Display: Principles, Perception, and Models

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: BEGINNING

Effective use of color in information display is often considered strictly a design problem. But many design principles have their roots in color perception and wise use of media. This tutorial surveys algorithmic creation of effective, robust color for visualization, illustration, and user-interface design.

Organizer
Maureen Stone
StoneSoup Consulting

21

Introduction to Bayesian Learning

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: INTERMEDIATE

Bayesian reasoning is a fundamental tool of machine learning and statistics. Beginning from first principles, this course develops the general methodologies for designing learning algorithms and describes their application to several problems in graphics.

Organizer
Aaron Hertzmann
University of Toronto

Monday, 9 August

22

Projectors: Advanced Graphics and Vision Techniques

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: ADVANCED

Projectors are widely used in art, virtual/augmented reality, and large-scale displays. In addition to design, rendering, and calibration algorithms in conventional systems, this course reviews relevant topics in parametric image warping, projective geometry, curved-screen rendering, immersive displays, handheld projectors, graphics hardware acceleration, and camera-assisted methods, with real examples.

Organizer
Ramesh Raskar
Mitsubishi Electric Research Labs

23

There Can Still Be Only One: Independent Animation Production for the Lonely

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: INTERMEDIATE

Many logistical challenges await independent animators. This beginner- to intermediate tutorial, expanded from a popular tutorial offered at SIGGRAPH 2003, addresses the ambitious loner who is seeking to create animation without a large budget or staff. Attendees learn how to take animation from concept to creation to festival submission.

Co-Organizers
Kristen Palana
Steve Rittler
William Paterson University

24

Enhancing Three-Dimensional Vision With Three-Dimensional Sound

Monday, Tutorial, 3:45 - 5:30 pm
LEVEL: INTERMEDIATE

Current audio techniques in multi-channel, three-dimensional sound. This course starts with the history and development of multi-channel sound, followed by 3D-sound synthesis, common 3D-sound engines, currently available hardware, and a more detailed description of virtualization techniques and spatial audio algorithms.

Organizer
Philipp Stampfl
AUDITE

Tuesday, 10 August

25

Developing Augmented Reality Applications
Tuesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

A detailed introduction to augmented reality (AR) and how to build AR applications. Attendees also learn about current research and explore hands-on demonstrations.

Co-Organizers
Mark Billinghurst
University of Canterbury

Dieter Schmalstieg
Technische Universität Wien

26

Real-Time Shadowing Techniques
Tuesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

How to incorporate shadows in real-time rendering. Basic shadowing techniques, more advanced techniques that exploit new features of graphics hardware, the differences among these algorithms, and their strengths and weaknesses. The course includes implementation details.

Co-Organizers
Jan Kautz
Massachusetts Institute of Technology

Marc Stamminger
Friedrich-Alexander-Universität Erlangen-Nürnberg

27

Level Set and PDE Methods for Computer Graphics
Tuesday, Full Day, 8:30 am - 5:30 pm
LEVEL: ADVANCED

The underlying concepts, equations and numerical methods for level set and partial differential equation methods. This course describes their use in a variety of graphics applications, including image/video inpainting, pattern formation, 3D geometric modeling, 3D shape reconstruction, image/volume segmentation, image/shape morphing, and simulation of natural phenomena.

Organizer
David Breen
Drexel University

Tuesday,10 August

28

Real-Time Volume Graphics
Tuesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

A comprehensive overview of Real-time volume graphics on graphics hardware. Applications include both scientific visualization of volume data and real-time rendering of atmospheric phenomena and participating media (such as fire, smoke, and clouds). Topics include local and global illumination, scattering, transfer function design, animation and deformation, and large volumes.

Co-Organizers
Markus Hadwiger
VRVis Research Center

Christof Rezk-Salama
Universität Siegen

29

An Interactive Introduction to OpenGL Programming
Tuesday, Half Day, 8:30 am - 12:15 pm
LEVEL: BEGINNING

The knowlege that OpenGL programmers need to author interactive, 3D graphics applications. This course covers fundamental topics such as modeling, lighting, depth buffering, and texture mapping, and introduces advanced topics such as using vertex and fragment programs.

Organizer
Dave Shreiner
SGI

30

Visualizing Geospatial Data
Tuesday, Half Day, 1:45 - 5:30 pm
LEVEL: INTERMEDIATE

Processes and methods associated with visualizing geospatial data, cartographic and geographic traditions of visual display, and recent developments in scientific and information visualization and their impacts on geovisualization. Examples from wide ranges of available geospatial data, geoinformatics, and distributed geovisualizations are shown in real time.

Organizer
Theresa-Marie Rhyne
North Carolina State University

Wednesday, 11 August

31

The Elements of Nature: Interactive and Realistic Techniques

Wednesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

The state of the art for interactive and photorealistic simulation of water, sky, clouds, fire, landscapes/terrain, plants, and plant ecosystems. Topics include: new interactive approximation techniques, complex movie-quality simulation techniques, practical implementation techniques, and state-of-the-art research issues.

Organizer
David Ebert
Purdue University

32

GPGPU: General-Purpose Computation on Graphics Hardware

Wednesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

Recent advances in graphics processor (GPU) technology have transformed GPUs into powerful engines capable of a variety of computations beyond computer graphics. This course presents a detailed introduction to general-purpose computation on graphics hardware (GPGPU), with an emphasis on core computational building blocks, ranging from linear algebra to database queries.

Co-Organizers
Mark Harris
NVIDIA Corporation

David Luebke
University of Virginia

33

Crowd and Group Animation

Wednesday, Full Day, 8:30 am - 5:30 pm
LEVEL: INTERMEDIATE

A continuous challenge for special effects in movies is the production of realistic virtual crowds. Real-time crowds are also required for games and virtual reality applications. This course presents state-of-the-art techniques and examples in recent movies (“Star Wars,” “Lord of the Rings,” “Shrek”) and VR applications.

Organizer
Daniel Thalmann
Swiss Federal Institute of Technology (EPFL)

Papers

The premier international forum for ground-breaking, provocative, and important new work in computer graphics and interactive techniques. SIGGRAPH 2004 papers set the standard in the field, stimulate future trends, and explore challenging issues in related fields: human-computer interaction, computer-aided design, computer vision, robotics, visualization, web graphics, and computer games, among others.

Each accepted Paper is presented by the author(s) at SIGGRAPH 2004, printed in the ACM Transactions on Graphics (Conference Proceedings special issue), and included on the Full Conference DVD-ROM that Full Conference attendees receive with their registration.

The Papers listed here have been conditionally accepted and are undergoing a final review. When that process is complete, the final list will be available on the SIGGRAPH 2004 web site: www.siggraph.org/s2004/conference/papers

Full Conference registration allows attendees access to all SIGGRAPH 2004 Papers. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Paper sessions you wish to attend.

●●○

Special Event
Fast-Forward Papers Preview
Sunday, 8 August, 6-8 pm

Snapshot overviews of the paper sessions, in which authors give short summaries of their work. It's a fast, fun, and provocative preview of the latest and most significant findings in computer graphics and interactive techniques.

Monday, 9 August

8:30 - 10:15 am

Graphics is Fun

Session Chair: Frédo Durand, Massachusetts Institute of Technology

Graphics Gems Revisited: Fast and Physically Based Rendering of Gemstones
Stephane Guy
PRIMA-GRAVIR/IMAG-INRIA

Cyril Soler
ARTIS-GRAVIR/IMAG-INRIA

Band Moiré Images
Roger D. Hersch
Sylvain Chosson
École polytechnique fédérale de Lausanne

Perceptual Audio Rendering of Complex Virtual Environments
Nicolas Tsingos
Emmanuel Gallo
George Drettakis
REVES, INRIA Sophia Antipolis

Making Papercraft Toys From Meshes Using Strip-Based Approximate Unfolding
Jun Mitani
Hiromasa Suzuki
The University of Tokyo

8:30 - 10:15 am

Curves & Surfaces

Session Chair: Marc Alexa, Technische Universität Darmstadt

Defining Point-Set Surfaces
Nina Amenta
Yong Kil
University of California, Davis

A Simple Manifold-Based Construction of Surfaces of Arbitrary Smoothness
Lexing Ying
Denis Zorin
New York University

T-Spline Simplification and Local Refinement
Thomas W. Sederberg
David Cardon
G. Thomas Finnigan
Nicholas North
Brigham Young University

Jianmin Zheng Nanyang
Technological University

Tom Lyche
Oslo University

Energy-Minimizing Splines in Manifolds
Michael Hofer
Helmut Pottmann
Technische Universität Wien

10:30 am - 12:15 pm

3D Texture

Session Chair: Julie Dorsey, Yale University

Volumetric Illustration: Designing 3D Models with Internal Textures
Shigeru Owada
University of Tokyo

Frank Nielsen
Sony Computer Science Laboratories, Inc.

Makoto Okabe
The University of Tokyo/Sony Computer Science Laboratories, Inc.

Takeo Igarashi
The University of Tokyo

Stereological Techniques for Solid Textures
Robert Jagnow
Massachusetts Institute of Technology

Julie Dorsey
Yale University

Holly Rushmeier
IBM T.J. Watson Research Center

A Multilinear Approach to Image-Based Rendering: TensorTextures
M. Alex O. Vasilescu
University of Toronto

Demetri Terzopoulos
New York University

Shell Texture Functions
Yanyun Chen
Xin Tong
Steve Lin
Microsoft Research Asia

Jiaping Wang
Institute of Computing Technology, Chinese Academy of Sciences

Baining Guo
Heung-Yeung Shum
Microsoft Research Asia

10:30 am - 12:15 pm
Interacting With Images

Session Chair: Aaron Hertzmann, University of Toronto

Interactive Digital Photomontage
Aseem Agarwala
Mira Dontcheva
The University of Washington

Maneesh Agrawala
Steven Drucker
Alex Colburn
Microsoft Research

Brian Curless
The University of Washington

David Salesin
The University of Washington

Michael F. Cohen
Microsoft Research

LazySnapping
Yin Li
Hong Kong University of Science and Technology

Jian Sun
Microsoft Research Asia

Chi-Keung Tang
Hong Kong University of Science and Technology

Heung-Yeung Shum
Microsoft Research Asia

GrabCut - Interactive Foreground Extraction Using Iterated Graph Cuts
Carsten Rother
Andrew Blake
Vladimir Kolmogorov
Microsoft Research Ltd.

Poisson Matting
Jian Sun
Microsoft Research Asia

Jiaya Jia
Chi-Keung Tang
Hong Kong University of Science and Technology

Heung-Yeung Shum
Microsoft Research Asia

3:45 - 5:30 pm
Photo & Video Texture

Session Chair: Dani Lischinski, The Hebrew University of Jerusalem

Textureshop: Texture Synthesis as a Photograph Editing Tool
Hui Fang
John C. Hart
University of Illinois at Urbana-Champaign

Flow-Based Video Synthesis and Editing
Kiran Bhat
Carnegie Mellon University

Steve Seitz
The University of Washington

Jessica Hodgins
Pradeep Khosla
Carnegie Mellon University

Feature Deformation and Synthesis for Textures
Qing Wu
Yizhou Yu
University of Illinois at Urbana-Champaign

Near-Regular Texture Analysis and Manipulation
Yanxi Liu
Wen-Chieh Lin
James Hays
Carnegie Mellon University

8:30 -10:15 am
Dynamics & Modeling

Session Chair: Jovan Popović, Massachusetts Institute of Technology

Rigid Fluid: Animating the Interplay Between Rigid Bodies and Fluid
Mark Carlson
Peter J. Mucha
Greg Turk
Georgia Institute of Technology

A Virtual Node Algorithm for Changing Mesh Topology During Simulation
Neil Molino
Zhaosheng Bao
Stanford University

Ronald Fedkiw
Stanford University/
Industrial Light + Magic

BD-Tree: Output-Sensitive Collision Detection for Reduced Deformable Models
Doug L. James
Carnegie Mellon University

Dinesh K. Pai
Rutgers University

Deformation Transfer for Triangle Meshes
Robert W. Sumner
Jovan Popović
Massachusetts Institute of Technology

Tuesday, 10 August

10:30 am - 12:15 pm

Identifying & Sketching the Future

Session Chair: Maneesh Agrawala, Microsoft Research

RFIG Lamps: Interacting with a Self-Describing World via Photosensing Wireless Tags and Projectors
Ramesh Raskar
Paul Beardsley
Jeroen van Baar
Yao Wang
Paul Dietz
Darren Leigh
Thomas Willwacher
Mitsubishi Electric Research Laboratories

VisualIDs: Automatic Distinctive Icons for Desktop Interfaces
J.P. Lewis
University of Southern California

Ruth Rosenholtz
Massachusetts Institute of Technology

Nickson Fong
ESC Entertainment

Ulrich Neumann
University of Southern California

Motion Doodles: An Interface for Sketching Character Motion
Matthew Thorne
David Burke
Michiel van de Panne
The University of British Columbia

MathPad^2: A System for the Creation and Exploration of Mathematical Sketches
Joseph J. LaViola, Jr.
Robert C. Zeleznik
Brown University

10:30 am - 12:15 pm

Smoke, Water, & Goop

Session Chair: Doug L. James, Carnegie Mellon University

Target-Driven Smoke Animation
Raanan Fattal
Dani Lischinski
The Hebrew University of Jerusalem

Fluid Control Using the Adjoint Method
Antoine McNamara
Adrien Treuille
Zoran Popović
University of Washington

Jos Stam
Alias Systems

Simulating Water and Smoke with an Octree Data Structure
Frank Losasso
Frederic Gibou
Stanford University

Ronald Fedkiw
Stanford University/Industrial Light + Magic

A Method for Animating Viscoelastic Fluids
Tolga G. Goktekin
Adam W. Bargteil
James F. O'Brien
University of California, Berkeley

1:45 - 3:15 pm

Lighting & Sampling

Session Chair: Kavita Bala, Cornell University

An Approximate Global Illumination System for Computer Generated Films
Eric Tabellion
Arnauld Lamorlette
PDI/Dreamworks

Triple Product Wavelet Integrals for All-Frequency Relighting
Ren Ng
Stanford University

Ravi Ramamoorthi
Columbia University

Pat Hanrahan
Stanford University

Fast Hierarchical Importance Sampling With Blue Noise Properties
Victor Ostromoukhov
Charles Donohue
Pierre-Marc Jodoin
Université de Montréal

Efficient BRDF Importance Sampling Using A Factored Representation
Jason Lawrence
Szymon Rusinkiewicz
Princeton University

Ravi Ramamoorthi
Columbia University

Wednesday, 11 August

3:45 - 5:30 pm
Data-Driven Character Animation

Session Chair: Nancy Pollard, Carnegie Mellon University

Speaking With Hands: Creating Animated Conversational Characters From Recordings of Human Performance
Matthew Stone
Doug DeCarlo
Insuk Oh
Christian Rodriguez
Adrian Stere
Rutgers University

Alyssa Whitlock Lees
Christoph Bregler
New York University

Synthesizing Physically Realistic Human Motion in Low-Dimensional, Behavior-Specific Spaces
Alla Safonova
Jessica Hodgins
Nancy Pollard
Carnegie Mellon University

Style-Based Inverse Kinematics
Keith Grochow
Steven L. Martin
The University of Washington

Aaron Hertzmann
University of Toronto

Zoran Popović
The University of Washington

Synthesizing Animations of Human Manipulation Tasks
Katsu Yamane
University of Tokyo

James Kuffner
Jessica Hodgins
Carnegie Mellon University

8:30 - 10:15 am
Shape & Motion

Session Chair: Leonard McMillan, University of North Carolina at Chapel Hill

Pitching a Baseball: Tracking High-Speed Motion With Multi-Exposure Images
Christian Theobalt
Irene Albrecht
Jörg Haber
Marcus Magnor
Hans-Peter Seidel
Max-Planck-Institut für Informatik

Spacetime Faces: High-Resolution Capture for Modeling and Animation
Li Zhang
Keith Noah Snavely
Brian Curless
Steven M. Seitz
The University of Washington

Automated Extraction and Parameterization of Motions in Large Data Sets
Lucas Kovar
Michael Gleicher
University of Wisconsin-Madison

Obscuring Length Changes During Animated Motion
Jason Harrison
Ronald A. Rensink
Michiel van de Panne
The University of British Columbia

10:30 am - 12:15 pm
Video-Based Rendering

Session Chair: Irfan Essa, Georgia Institute of Technology

Video Tooning
Jue Wang
The University of Washington

Yingqing Xu
Heung-Yeung Shum
Microsoft Research Asia

Michael F. Cohen
Microsoft Research

Keyframe-Based Tracking for Rotoscoping and Animation
Aseem Agarwala
The University of Washington

Aaron Hertzmann
University of Toronto

David H. Salesin
The University of Washington/Microsoft Research

Steven M. Seitz
The University of Washington

Video Matching
Peter Sand
Seth Teller
Massachusetts Institute of Technology

High-Quality Video View Interpolation Using a Layered Representation
Charles Lawrence Zitnick
Sing Bing Kang
Matt Uyttendaele
Simon Winder
Richard Szeliski
Microsoft Research

Wednesday, 11 August

10:30 am - 12:15 pm
Shape Analysis

Session Chair: Nina Amenta, University of California, Davis

Ridge-Valley Lines on Meshes via Implicit Surface Fitting
Yutaka Ohtake
Alexander Belyaev
Hans-Peter Seidel
Max-Planck-Institut für Informatik

Fair Morse Functions for Extracting the Topological Structure of a Surface Mesh
Xinlai Ni
Michael Garland
John C. Hart
University of Illinois at Urbana-Champaign

Shape Matching and Anisotropy
Michael Kazhdan
Thomas Funkhouser
Szymon Rusinkiewicz
Princeton University

1:45 - 3:15 pm
Interactive Modeling

Session Chair: Mark Pauly, Stanford University

An Intuitive Framework for Real-Time Freeform Modeling
Mario Botsch
Leif P. Kobbelt
RWTH Aachen

Interactive Modeling of Topologically Complex Geometric Detail
Jianbo Peng
Daniel Kristjansson
Denis Zorin
New York University

Mesh Editing With Gradient Field Manipulation
Yizhou Yu
University of Illinois at Urbana-Champaign

Kun Zhou
Microsoft Research Asia

Dong Xu
Xiaohan Shi
Microsoft Research Asia/Zhejiang University

Baining Guo
Heung-Yeung Shum
Microsoft Research Asia

Modeling by Example
Thomas Funkhouser
Michael Kazhdan
Philip Shilane
Princeton University

Patrick Min
Universiteit Utrecht

William Kiefer
Princeton University

Ayellet Tal
Technion - Israel Institute of Technology

Szymon Rusinkiewicz
David Dobkin
Princeton University

3:45 - 5:30 pm
Flash & Color

Session Chair: Richard Szeliski, Microsoft Research

Digital Photography with Flash and No-Flash Image Pairs
Georg Petschnigg
Maneesh Agrawala
Hugues Hoppe
Richard Szeliski
Michael Cohen
Kentaro Toyama
Microsoft Research

Flash Photography Enhancement Via Intrinsic Relighting
Elmar Eisemann Artis
Frédo Durand
Massachusetts Institute of Technology

Stylized Images Using a Multi-Flash Camera
Ramesh Raskar
Karhan Tan
Mitsubishi Electric Research Laboratories

Rogerio Feris
University of California, Santa Barbara

Jingyi Yu
Massachusetts Institute of Technology

Matthew Turk
University of California, Santa Barbara

Colorization Using Optimization
Anat Levin
Dani Lischinski
Yair Weiss
The Hebrew University of Jerusalem

Thursday, 12 August

8:30 - 10:15 am
Capture From Images

Session Chair: Markus Gross, Eidgenössische Technische Hochschule Zürich

Protected Interactive 3D Graphics Via Remote Rendering
David Koller
Michael Turitzin
Marc Levoy
Stanford University

Marco Tarini
Giuseppe Croccia
Paolo Cignoni
Roberto Scopigno
Istituto di Scienza e Technologie dell'Informazione

Eyes for Relighting
Ko Nishino
Shree K. Nayar
Columbia University

Capture of Hair Geometry From Multiple Images
Sylvain Paris
Hector Briceno
François Sillion
ARTIS - GRAVIR/IMAG, INRIA

Reconstruction and Interactive Rendering of Trees from Photographs
Alex Reche
REVES/INRIA and CSTB

Ignacio Martin
GGG/Universitat de Girona

George Drettakis
REVES/INRIA

8:30 - 10:15 am
Reprise of UIST and VRST

The User-Interface Software and Technology Symposium and the Symposium on Virtual Reality Software and Technology are two small conferences sponsored by ACM SIGGRAPH. Five of the best papers from the most recent UIST and VRST symposia are presented in abbreviated form.

10:30 am - 12:15 pm
HDR and Perception

Session Chair: Jack Tumblin, Northwestern University

Perception-Motivated High-Dynamic-Range Video Encoding
Rafal Mantiuk
Grzegorz Krawczyk
Karol Myszkowski
Hans-Peter Seidel
Max-Planck-Institut für Informatik

Perceptual Illumination Components: A New Approach to Efficient, High-Quality Global Illumination Rendering
William A. Stokes
James A. Ferwerda
Bruce Walter
Donald P. Greenberg
Cornell University

Supra-Threshold Control of Peripheral LOD
Benjamin Watson
Northwestern University

Neff Walker
UNAIDS

Larry Hodges
University of North Carolina

High-Dynamic-Range Display Systems
Helge Seetzen
Sunnybrook Technologies/The University of British Columbia

Wolfgang Heidrich
The University of British Columbia

Wolfgang Stuerzlinger
York University

Greg Ward
Sunnybrook Technologies

Lorne Whitehead
Matthew Trentacoste
Abhijeet Ghosh
The University of British Columbia

Andrejs Vorozcovs
York University

10:30 am - 12:15 pm
Large Meshes and GPU Programming

Session Chair: Peter-Pike Sloan, Microsoft Corporation

Geometry Clipmaps: Terrain Rendering Using Nested Regular Grids
Frank Losasso
Stanford University

Hugues Hoppe
Microsoft Research

Brook for GPUs: Stream Computing on Graphics Hardware
Ian Buck
Tim Foley
Daniel Horn
Jeremy Sugerman
Pat Hanrahan
Stanford University

Shader Algebra
Michael McCool
Stefanus Du Toit
Tiberiu Popa
Bryan Chan
Kevin Moule
University of Waterloo

Adaptive TetraPuzzles: Efficient Out-of-Core Construction and Visualization of Gigantic Multiresolution Polygonal Models
Paolo Cignoni
Fabio Ganovelli
Istituto di Scienza e Technologie dell'Informazione

Enrico Gobbetti
Center for Advanced Studies, Research and Development in Sardinia

Fabio Marton
Center for Advanced Studies, Research and Development in Sardinia

Federico Ponchio
Roberto Scopigno
Istituto di Scienza e Technologie dell'Informazione

Thursday, 12 August

1:45 - 3:15 pm
Lightfield Acquisition & Display

Session Chair: Hanspeter Pfister, Mitsubishi Electric Research Laboratories

Achieving Near-Correct Focus Cues Using Multiple Image Planes
Kurt Akeley
Stanford University

Simon J. Watt
Ahna Reza Girshick
Martin S. Banks
University of California, Berkeley

3D TV: A Scalable System for Real-Time Acquisition, Transmission, and Autostereoscopic Display of Dynamic Scenes
Wojciech Matusik
Hanspeter Pfister
Mistubishi Electric Research Laboratories

Synthetic Aperture Confocal Imaging
Marc Levoy
Billy Chen
Vaibhav Vaish
Mark Horowitz
Stanford University

Ian McDowall
Mark Bolas
Fakespace Labs

DISCO - Acquisition of Translucent Objects
Michael Goesele
Hendrik P. A. Lensch
Jochen Lang
Christian Fuchs
Hans-Peter Seidel
Max-Planck-Institut für Informatik

1:45 - 3:15 pm
Mesh Parameterization

Session Chair: Michael Garland, University of Illinois at Urbana-Champaign

Painting Detail
Nathan A. Carr
John C. Hart
University of Illinois at Urbana Champaign

Polycube-Maps
Marco Tarini
Kai Hormann
Paolo Cignoni
Claudio Montani
Istituto di Scienza e Technologie dell'Informazione

Cross-Parameterization and Compatible Remeshing of 3D Models
Vladislav Kraevoy
Alla Sheffer
The University of British Columbia

Inter-Surface Mapping
John Schreiner
Arul Prakash
Emil Praun
University of Utah

Hugues Hoppe
Microsoft Research

3:45 - 5:30 pm
Fixing Models

Session Chair: Emil Praun, University of Utah

Context-Based Surface Completion
Andrei Sharf
Tel Aviv University

Marc Alexa
Technische Universität Darmstadt

Daniel Cohen Or
Tel Aviv University

Robust Repair of Polygonal Models
Tao Ju
Rice University

Interpolating and Approximating Implicit Surfaces From Polygon Soup
Chen Shen
James F. O'Brien
Jonathan R. Shewchuk
University of California, Berkeley

Variational Shape Approximation
David Cohen-Steiner
Duke University

Pierre Alliez
INRIA

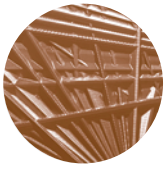
Mathieu Desbrun
University of Southern California

Panels

Debate, argument, and discussion on important topics in computer graphics and interactive techniques, and related fields. Experts and skeptics deliver opinions, insights, speculation, and summaries of recent work. The audience follows up with questions, comments, and criticism. The result: new perspectives on key questions and current controversies.

Panelist position papers are presented in the Full Conference DVD-ROM that Full Conference attendees receive with their registration.

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



Monday, 9 August

Building a Bridge to the Aesthetic Experience: Artistic Virtual Environments and Other Interactive Digital Art

Monday, 10:30 am - 12:15 pm

Most artists, curators, and museum educators share an important common goal: to create or curate art that viewers can appreciate and enjoy. Ideally, they also want viewers to enter an experience that is immersive and builds a connection with the work beyond the surface of the media. This aesthetic experience is complex and multifaceted, and may be characterized by a finely tuned state of consciousness, or awe, intense focus, and pure enjoyment (Dewey, 1934; Csikszentmihalyi & Robinson, 1990a). Csikszentmihalyi also refers to this state as the flow experience (Csikszentmihalyi, 1990b).

Many people feel that virtual environments or other digital technologies may facilitate the aesthetic experience for the viewer. Others feel that this equipment does nothing to bring participants closer to a flow experience, and that the complexity, expense, and inaccessibility of this genre of art installations may confuse and alienate viewers.

This panel is not about the validity of virtual environments and interactive digital works as art forms. It is a debate on the effectiveness of this technology to help the viewer experience art in a richer way. Panelists discuss theory, experiences of individual artists, and studies that connect the quality of the aesthetic experience to digital interactivity.

Moderator
Dena Eber
Bowling Green State University

Panelists
Brian Betz
Kent State University

Tobey Crockett
University of California, Irvine

Juliet Davis
University of Tampa

Flavia Sparacino
Sensing Places/Massachusetts Institute of Technology

Careers in Computer Graphics Entertainment

Monday, 3:45 - 5:30 pm

A forum for information exchange between people who are interested in the field and the organizations they might work for. Panelists from large, mid-sized, and small companies spanning digital features, games, visual effects, commercials, and more discuss today's job market and how to best prepare for entry into the industry.

Topics include: skills required for production, production support, entry-level positions, internships, reel and résumé preparation, how to apply for work, and typical job shortages and surpluses. If you're a student, an educator, or just plain curious, this panel delivers inside information.

Moderator
Rachel Falk
PDI/DreamWorks

Panelists
Hael Kobayashi
Animal Logic

Bob Nicoll
Electronic Arts

Luke O'Byrne
The Orphanage

Dan Scherlis
Etherplay

Kate Shaw
Industrial Light + Magic

Tuesday, 10 August

3D Animation: Difficult or Impossible to Teach and Learn?

Tuesday, 10:30 am - 12:15 pm

Teaching the skills needed to animate in current 3D software is difficult. Learning it may be more so. Being the only totally digital art form, it does not fall neatly into computer science or art. It does share an abundance of the complexities and consternations of both. Current applications can feel like a hodge-podge of ideas from drafting, particle and Newtonian physics, geometry, and puppet animation, forcing the student to face the most complex interface in computerdom. The programs get harder to learn as you read this.

This panel is for anyone who has ever been frustrated by 3D software. The panelists attempt to determine the nature of current educational practice in 3D animation. They examine the situation from three viewpoints (user, creator, and educator) and search for a consensus on what works and what doesn't. Multiple insights help us understand where we are in the evolution of 3D education and what directions to explore in the future.

Particular emphasis is placed on the existing model: coursework, demo projects, internships, employment, and continuing development of software. What are the negative and positive aspects of this situation? How does this compare to other areas of digital imagery training? Who is getting what they need out of the situation? Should education be application-specific? Should it be delivered in a trade school or a liberal arts college?

Panelists were selected for their positions in the infrastructure of 3D training: educator, employer, or software author. This may be the first time representatives from all these groups have gathered to discuss how people learn to produce the virtual worlds they create.

Moderator
Francis Schmidt
Bergen Community College

Panelists
Jim Jagger
BioWare Corp.

Jim McCampbell
Ringling School of Art and Design

Craig Slagel
Electronic Arts

Next-Generation User Interface Technology for Consumer Electronics

Tuesday, 1:45 - 3:15 pm

As the power and complexity of consumer electronic devices continues to increase, the potential for a more enthralling, visually exciting, and compelling user experience also increases. The purpose of this panel is to investigate application of existing tools and techniques from various disciplines within the ACM SIGGRAPH community to the next generation of consumer devices. This panel is a follow-on to the ACM SIGGRAPH Campfire (Workshop) on the same subject held in May 2004 in Snowbird, Utah.

Given the power of the CPUs and graphics engines being designed into the next generation of devices, is it possible, meaningful, useful, and/or appropriate to exploit such technologies as:

- OpenGL/DirectX
- Game engines
- Parallel processing
- Haptic devices
- Augmented reality
- Story-telling interactivity
- Scientific visualization
- Animation

As we prepare to step into a new world of human interaction with electronics devices in our daily lives, we must find new ways to create an effective and enjoyable user experience. The ACM SIGGRAPH community is uniquely positioned to influence the interaction between consumers and their home environments.

Moderator
Garry Paxinos
US Digital Television

Cultural Heritage and Computer Graphics: What Are the Issues?

Tuesday, 3:45 - 5:30 pm

In many parts of the world, governments are allocating more financial support for projects that use technology to preserve and communicate cultural heritage. This panel considers several key related questions: What is the role of computer graphics in these projects? Is cultural heritage just an interesting area for using graphics, or does it present unique research challenges? How successful have projects in computer graphics and cultural heritage been? Are the basic tools and techniques developed in graphics adequate for use in cultural heritage, or are we missing opportunities?

This panel brings together the growing population of people who work in the area of computer graphics and cultural heritage. People who have worked on these projects report on their experiences (what has worked and what has not) and explore unsolved problems. The goal is to determine what we need to move past the current "yet-another-project" phase and build a formal body of knowledge in computer graphics and cultural heritage.

Moderator
Holly Rushmeier
Yale University

Panelists
David Arnold
University of Brighton

Alan Chalmers
University of Bristol

Katsushi Ikeuchi
The University of Tokyo

Mark Mudge
Cultural Heritage Imaging

Roberto Scopigno
Istituto Scienza e Tecnologie dell'Informazione

Wednesday, 11 August

Custom Software Development in Post-Production

Wednesday, 1:45 - 3:15 pm

Most post-production and digital effects work employs custom software to varying degrees. This software may be necessary for high-end work, and it produces stunning results, but from the perspective of digital artists and other users it is often fragile and difficult to use.

This panel discusses in broad terms what is wrong with our custom software, why it is this way, and how it can be improved. Also a major topic: whether open-source software can be utilized to improve the situation.

Moderator
Andrew Chapman
Framestore CFC

Panelists
Jack Brooks
Walt Disney Imagineering

David Hart
PDI/DreamWorks

Daniel Maskit
Digital Domain

Steve Sullivan
Industrial Light + Magic

Thursday, 12 August

Games Development: How Will You Feed the Next Generation of Hardware?

Thursday, 1:45 - 3:15 pm

Every time a new high-end platform is released, development techniques become more complex. In the early 1980s, a videogame was a six-to-nine-month job for a single person. A typical team size these days is 25-30, and it's not uncommon to see games taking two or three years (or more) to complete. We see an increase in complexity with every new high-end platform, both in terms of development techniques and quantity of art assets. On average, each new console is 10 times more powerful than its predecessor and tends to require double the team size to produce games for the new environment. As development teams once again see new hardware fast approaching on the horizon, the question arises: How we will manage the increase in content creation?

Companies will not be able to expand their teams into the hundreds, take three years to put out a title, and then pray that it sells enough to support all those people and salaries. Simply bloating the old production model will not work. It's time for new solutions. With that in mind, the main thrust of this panel discussion is to explore how we can approach the challenge of making the games that the next generation of hardware will demand. The possible solutions are many, but are there any that will really allow teams to output both quantity and quality while still maintaining financial viability and manageable staff numbers?

Moderator
Christian Lavoie
Sony Computer Entertainment Europe

Panelists
Emilie Saulnier
Vicarious Visions

James Spoto
Frank Vitz
Electronic Arts

International Resources

In the International Center, the multi-lingual International Resources Committee answers attendee questions, hosts presentations for attendees from specific countries and regions, offers space for talks and demonstrations, and provides informal translation services.

New for SIGGRAPH 2004: The International Digest

Members of the International Resources Committee and Advisory Group will be producing daily web-based conference reports for those in their home countries and regions who are unable to attend the conference (www.siggraph.org/conference/international).

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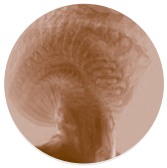

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ACM SIGGRAPH is a diverse group of researchers, artists, developers, filmmakers, scientists, and other professionals who share an interest in computer graphics and interactive techniques. The community values excellence, passion, integrity, volunteerism, and cross-disciplinary interaction. ACM SIGGRAPH sponsors 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, a traveling art show, and the SIGGRAPH Video Review. For additional information about ACM SIGGRAPH: www.siggraph.org

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Attendee Services

Airport Shuttle
Prime Time Shuttle is offering SIGGRAPH 2004 attendees a discount of $2 to and/or from Los Angeles International Airport. Print the coupon on this web page:

www.siggraph.org/s2004/travhouse

And present it to a Prime Time Shuttle representative at the airport. When you make your return reservations, be sure to mention the coupon to receive the discount. For more information, call: 800.RED.VANS.

Beaming Station
The SIGGRAPH 2004 beaming station in the Los Angeles Convention Center registration area delivers conference and exhibition information to Palm OS and Pocket PC devices.

Bookstore
For the latest books and CD-ROMs on computer animation, graphic design, gaming, 3D graphics, modeling, and digital lighting, visit the SIGGRAPH 2004 bookstore, which is managed by BreakPoint Books. Be sure to look for the latest books from SIGGRAPH 2004 speakers and ACM SIGGRAPH award winners. All prices are discounted 10 percent for SIGGRAPH 2004 attendees. To suggest books and CD-ROMs that should be available in the bookstore, contact:

BreakPoint Books
800.968.9622
+1.440.236.5686 fax
www.breakpointbooks.com

Job Fair
The Art Institutes is sponsoring this opportunity for leading companies in computer graphics to discuss employment opportunities with thousands of SIGGRAPH 2004 attendees in a relaxed, informal setting. The Job Fair is held on Tuesday, 10 August, 10 am - 4 pm, and Wednesday, 11 August, noon - 4 pm. All registered SIGGRAPH 2004 attendees are welcome to attend this event, at no cost. For more information, contact:

The Art Institutes℠
America's Leader in Creative Education

Connie Winn
VP, Career Services Specialist, Western Group
+1.503.645.0922
cwinn@edmc.edu

jobfair@siggraph.org
www.siggraph.org/s2004/conference/jobfair

Shipping Desk
For your convenience, a shipping desk is located in the registration area at SIGGRAPH 2004. It provides next-day air, second-day air, and regular ground shipping to destinations around the world.

Shuttle Service
SIGGRAPH 2004 provides limited complimentary shuttle bus service between most conference hotels and the Los Angeles Convention Center. There will be no mid-day shuttle service. Check the shuttle flyer and signs in hotel lobby for exact details. If you require special transportation assistance, please call Conference Management: +1.312.644.6610.

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 2004. Abuse of this policy will result in the loss of the individual's registration credentials.
- Food and beverages cannot be brought into Electronic Theater performances.

Los Angeles Convention Center

1201 South Figueroa Street
Los Angeles, California 90015

Accessibility
The convention center is handicap accessible. If you have special needs or requirements, please call Conference Management at: +1.312.644.6610

Business Center
USA Hosts Business Center offers computer time rental and faxing services. The Business Center also sells office supplies, phone cards, and U.S. stamps.

Food Services
Several restaurants and food carts are available throughout the convention center for the convenience of SIGGRAPH 2004 attendees.

Parking
SIGGRAPH 2004 attendees can park at the Los Angeles Convention Center for $10 per day. There are no in/out privileges. The Los Angeles Convention Center parking garages located in the West and South Halls open at 5:30 am and close one hour after the conclusion of the last scheduled SIGGRAPH 2004 function.

Housing & Travel

Hotel Reservations
SIGGRAPH 2004 has negotiated discount rates for hotels in downtown Los Angeles. These discounts are available to SIGGRAPH 2004 attendees only.

Attendee hotel reservations require a deposit of two nights' room and tax. Deposits are non-refundable after Monday, 12 July. SIGGRAPH 2004's deposit policy supersedes individual hotel deposit policies.

Visit the SIGGRAPH 2004 web site (www.siggraph.org/s2004/travhouse) to access the easy-to-use online hotel reservation system, which includes complete information on housing policies, procedures, and rates.

Or contact:
SIGGRAPH 2004 Housing
c/o ITS
108 Wilmot Road Suite 400
Deerfield, Illinois 60015 USA
800.974.9833 (Continental US and Canada)
+1.847.282.2529
+1.847.940.2386 fax
siggraph@itsmeetings.com

Air Travel
Fly on the official SIGGRAPH 2004 airlines, United Airlines and America West, and save! Plus save 10% off the lowest applicable America West fare when you book and ticket 60 days or more prior to travel, and 10% off the lowest applicable United Airlines fare when you book and ticket 30 days or more prior to travel.

To receive these exclusive discounts call ITS toll-free:
800.621.1083
+1.847.940.1176, outside the US and Canada
airtravel@itsmeetings.com
8 am - 5 pm Central time, Monday through Friday

Or use the ITS Online Reservation System, which provides airline reservations at the lowest available fare plus the convenience of booking air travel online. A nominal $20 service fee is charged for each airline ticket reserved and purchased by phone. The service fee is $5 if you book online.

Or call the official airlines directly:
United Airlines 800.521.4041 and mention file number: 522YB
America West 800.548.7575 and mention file number: AP4460

Hertz Rental Car Discount
SIGGRAPH 2004 has negotiated special rental rates with Hertz for car rentals from one week before through one week after the conference. These special rates are subject to availability. Advance reservations are recommended; blackout dates may apply. For rental car reservations, call ITS or Hertz directly at:

ITS: 800.621.1083 (US only)
Hertz: 800.654.2240 (US only); 800.263.0600 (Canada only); +1.416.620.9620 (Toronto); +1.405.749.4434 (all other areas)

When you call, mention file number: CV#010L0040

Enterprise Rent-A-Car
Enterprise Rent-A-Car offers special discount rates at Los Angeles International Airport and five rental locations in downtown Los Angeles. To reserve a car and free pick-up service from any SIGGRAPH 2004 hotel, call:

800.593.0505
Downtown LA office: +1.213.627.5432

When you call, mention discount code: 32H7421.

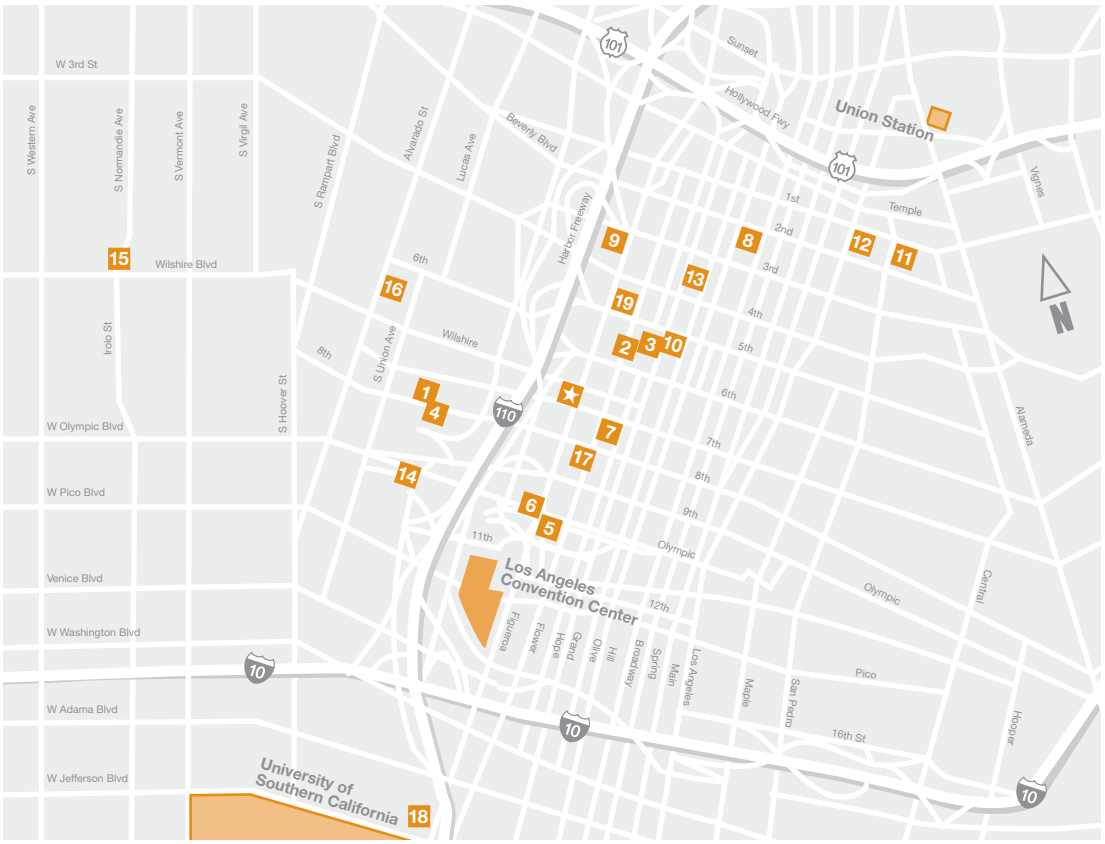
Metro Rail
The best alternative to congested freeways and expensive parking. Metro Rail offers convenient service from Los Angeles International Airport to the convention center and downtown hotels. From downtown, Metro Rail subways provide quick access to Pasadena, Hollywood, and Universal City.

Los Angeles
Where east meets west and north meets south in a multicultural metropolis that applies the next generation of computer graphics and interactive techniques to visual effects, scientific visualization, animation, game technologies, simulation, and internet environments.

For complete information on LA's tourist attractions, contact:
LA INC. The Convention and Visitors Bureau
333 South Hope Street, 18th Floor
Los Angeles, California 90071 USA
+1.213.689.8822

Shuttle Service
SIGGRAPH 2004 provides limited complimentary shuttle bus service between most conference hotels and the Los Angeles Convention Center. There will be no mid day shuttle service. Check the shuttle flyer and signs in hotel lobby for exact details. If you require special transportation assistance, please call Conference Management at: +1.312.644.6610.

Accommodations



Downtown Los Angeles

A 10.5% tax per night is added to all hotel bills in Los Angeles. Room occupancy taxes are subject to change. Early departure fees may apply. Prices listed are per night.

		single ($)	double ($)
★	Headquarters: Wilshire Grand Hotel	151	151
1	Best Western Mayfair Hotel	92	92
2	Downtown LA Standard	153	153
3	Hilton Checkers Hotel	145	145
4	Holiday Inn Downtown	95	105
5	Holiday Inn Los Angeles City Center	140	140
6	Hotel Figueroa	124	124
7	Hyatt Regency Los Angeles	149	149
8	Kawada Hotel	106	116
9	Los Angeles Marriott Downtown	152	152
10	Millennium Biltmore Hotel	147	147
11	Miyako Hotel Los Angeles	125	140
12	New Otani Hotel & Garden	143	143
13	Omni Los Angeles Hotel	153	153
14	Quality Inn & Suites Downtown	68	68
15	Radisson Wilshire Plaza	120	120
16	Ramada Inn Los Angeles	68	72
17	Ritz Milner Hotel	79	79
18	Vagabond Inn	105	115
19	Westin Bonaventure	161	171

● **Full Conference** ◉ **Conference Select** ○ **Exhibits Plus**

One Day registration includes access to conference programs and events. It does not include technical documentation or tickets for the reception and Electronic Theater.

Presentations, Experiences, Services & Documentation Included With Your SIGGRAPH 2004 Registration

Presentations

●	Courses
●	Papers
●	Panels
●◉	Sketches
●◉○	Posters
●◉	Web Graphics
●◉	Educators Program
●◉○	Keynote Address/Awards
●◉	Special Sessions
●◉○	Special Event
●◉○	Exhibitor Tech Talks

Experiences

●◉○	Art Gallery
	Computer Animation Festival
●	Electronic Theater Ticket - Any Show
●◉	Electronic Theater Matinée Ticket
●◉○	Animation Theater
●◉○	Emerging Technologies
●◉○	Guerilla Studio
●	Reception

Services

●◉○	Birds of a Feather
●◉○	Get Involved
●◉○	International Resources
●◉○	Pathfinders

Documentation

●	ACM *Transactions on Graphics* (Conference Proceedings special issue)
●	Full Conference DVD-ROM
●◉	Electronic Art & Animation Catalog
●◉	Conference Select CD-ROM

Technical Materials
Full Conference and Conference Select registrants must pick up conference technical materials included with registration at the SIGGRAPH 2004 Merchandise Pickup Center. Shipping services are available at SIGGRAPH 2004. Unclaimed technical materials will not be shipped after the conference. All the technical publications are also available for sale in the SIGGRAPH 2004 Store.

Full Conference DVD-ROM
This digital publication contains the electronic version of the technical papers, images, and supplemental material; all of the course and tutorial notes, including supplemental material – movies, source code, HTML presentations; permanent record of the Educators Program, Emerging Technologies, Panels, Sketches, Special Sessions, and Web Graphics programs; along with the permanent record of the Art Gallery and Computer Animation Festival.

ACM Transactions on Graphics (Conference Proceedings special issue) – Printed
Contains the SIGGRAPH 2004 technical papers and the ACM SIGGRAPH awards.

Conference Select CD-ROM
This new digital publication contains the permanent record of the Art Gallery and Computer Animation Festival and the electronic version of the Educators Program, Emerging Technologies, Sketches, Special Sessions, and Web Graphics programs. Papers, Panels, and Courses are available only on the Full Conference DVD-ROM.

Electronic Art & Animation Catalog – Printed
Contains the permanent record of images from the Art Gallery and Computer Animation Festival.

Merchandise
To purchase gifts for family, friends, colleagues, and yourself, order your merchandise in advance through the SIGGRAPH 2004 Registration Form on page 43. SIGGRAPH 2004 merchandise is available on a first-come, first-served basis. To see images of these items, visit the SIGGRAPH 2004 web site:

www.siggraph.org/s2004/conference/merch

All SIGGRAPH 2004 documentation (see chart at left) including the SIGGRAPH Video Review is available for sale after the conference.

To order, contact:
ACM Order Department
800.342.6626 (Continental US & Canada)
+1.212.626.0500 (International)
+1.212.944.1318 fax
orders@acm.org

Wireless cards are available for purchase in the SIGGRAPH Store.

SIGGRAPH Video Review
SIGGRAPH Video Review is the world's most widely circulated video-based publication. Nearly 150 programs document the annual SIGGRAPH Computer Animation Festival, providing an unequaled opportunity to study state-of-the-art computer graphics techniques, theory, and applications. New releases and recent issues available in DVD format. Visit the SIGGRAPH Review booth near the SIGGRAPH 2004 Store. For information, contact:
svrorders@siggraph.org

Registration Form

www.siggraph.org/s2004/registration

Please follow the registration instructions on the back of this form.

Part 1 Attendee Information

○ **Member or Student Member (SM): Membership Number** _____ ○ **Non-Member (NM)**

○ **Student Non-Member (SN): Advisor's Name** _____ **AND Advisor's Confirmation Number** _____
For details please refer to Registration Instructions & Policies.

First Name _____ **Last Name** _____

Job Title _____ **Organization** _____

Address _____

City _____ **State/Province** _____ **Country** _____ **Postal Code** _____

Telephone (Include all country, area, and city codes.) _____ **Fax** _____ **Email** _____

○ **Check if you do not want your contact information made available to exhibitors.**

Your primary business focus:
Check only one:

a ○ Animation/Special Effects
b ○ CAD/CAM/CAE Engineer
c ○ Digital Video
d ○ Educator
e ○ Game Developer
f ○ Graphic Arts/Design
g ○ Researcher/Scientist
h ○ Software Developer/Programmer
i ○ Web Developer/eCommerce
yy ○ Other: _____

Products and services you use, recommend, specify, or purchase annually:
Check all that apply:

j ○ Animation
k ○ Business/PC Graphics
l ○ CAD/CAM/CAE/CIM/Robotics
m ○ Desktop/Other Publishing
n ○ Digital Video
o ○ FineArts/Graphic Design
p ○ Monitors and Displays
q ○ Multimedia/Hypermedia
r ○ Scan Converters/Scanners
s ○ Scientific Visualization
t ○ Special Graphics Processors
u ○ Storage
v ○ Virtual Reality/Simulation
w ○ Web Graphics/Development
x ○ Workstations
zz ○ Other: _____

Rate your buying influence:
Check only one:

y ○ Final Decision
z ○ Specify/Recommend
aa ○ No Role

Is this your first SIGGRAPH?:

bb ○ yes
cc ○ no

Part 2 Registration Category — Registration Fee Subtotal $

Register for one category only:

Full Conference (FULL)

Postmarked by 2 July:
○ Member $700 ○ Non-Member $825 ○ Student $395

Received by 21 July:
○ Member $850 ○ Non-Member $1000 ○ Student $450

At SIGGRAPH 2004:
○ Member $950 ○ Non-Member $1100 ○ Student $500

Electronic Theater Ticket:
You must rank your time preference:
___ Monday 7 pm (670)
___ Tuesday 1:15 pm (671)
___ Tuesday 7 pm (672)
___ Wednesday 1:15 pm (673)
___ Wednesday 7 pm (674)

Conference Select (CS)

Postmarked by 2 July:
○ Member $220 ○ Non-Member $240 ○ Student $220

Received by 21 July:
○ Member $250 ○ Non-Member $270 ○ Student $250

At SIGGRAPH 2004:
○ Member $270 ○ Non-Member $300 ○ Student $270

Electronic Theater Ticket:
You must rank your time preference:
___ Tuesday 1:15 pm (671)
___ Wednesday 1:15 pm (673)

One Day

Postmarked by 2 July:
○ $300

Received by 21 July:
○ $350

At SIGGRAPH 2004:
○ $385

Days in Attendance:
Check up to two:
○ Sunday (SUN)
○ Monday (MON)
○ Tuesday (TUES)
○ Wednesday (WED)
○ Thursday (THUR)
○ Undecided (ODU)

Days ____ **x $** _____ **= $** _____

Exhibits Plus (EP)

Postmarked by 2 July:
○ $50

Received by 21 July:
○ $75

At SIGGRAPH 2004:
○ $75

Part 3 Merchandise — Merchandise Subtotal $

T-shirt	Item# (500)	Quantity ____ x Cost $18 =	Subtotal $ ____
Polo Shirt	Item# (520)	Quantity ____ x Cost $35 =	Subtotal $ ____
Coffee Mug	Item# (525)	Quantity ____ x Cost $13 =	Subtotal $ ____
Youth T-shirt	Item# (560)	Quantity ____ x Cost $13 =	Subtotal $ ____
SIGGRAPH 2004 Video Review Set (DVD) Member	Item# (601)	Quantity ____ x Cost $120 =	Subtotal $ ____
SIGGRAPH 2004 Video Review Set (DVD) Non-Member	Item# (601)	Quantity ____ x Cost $180 =	Subtotal $ ____

SIGGRAPH 2004 Merchandise and Video Reviews MUST BE PICKED UP at SIGGRAPH 2004 in the Merchandise Pickup Center.

Part 4 Electronic Theater Ticket Purchase — Electronic Theater Ticket Subtotal $

Please rank your preference:
___ Monday 7-9 pm (770) ___ Tuesday 1:15-3:30 pm (771) ___ Tuesday 7-9 pm (772) ___ Wednesday 1:15-3:30 pm (773) ___ Wednesday 7-9 pm (774)

One ticket is already included with Full Conference and Conference Select registrations.
Registrants in any category can purchase one additional ticket.

Quantity (1) x Cost $50 = Subtotal $50

Part 5 Credential Mailing — Mailing Charges Subtotal $

Two-day express mail to: ○ Continental US/Canada. Cost: $15 per person (990) ○ Outside continental US/Canada. Cost: $30 per person (991)

IMPORTANT: Credential mailing instructions and deadlines on reverse side of this form.

Part 6 Processing Fee For fax or mail (992) — Processing Fee Subtotal $ 15

Part 7 Payment Information — Total Amount Due $

○ Check or money order is enclosed, payable to SIGGRAPH 2004.
○ American Express ○ MasterCard ○ Visa Credit card # _____ Expiration date _____

Name _____ **Signature** _____

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

Registration Instructions & Policies

Complete all information on the registration form noting the following instructions and policies.

Part 1 Attendee 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.

Students: You must be a full-time student in order to qualify. You must provide the following to qualify for student rates (this applies for those registering in advance as well as at the conference:

- Your 2004 ACM student membership number.
  OR
- The name and confirmation number of an advisor, who is already registered for SIGGRAPH 2004, who can verify your student status.

Failure to provide valid information will result in you being charged the non-member rate. For membership and student verification inquiries, please contact the SIGGRAPH 2004 registration center: registration@siggraph.org

Note: Your badge will include your name, organization, city, state, and country as indicated on your registration form.

Part 2 Registration Category

Refer to page 42 for programs, activities, and conference documentation included with each registration category. Register for one category only.

Part 3 Merchandise

All SIGGRAPH 2004 technical materials and merchandise must be picked up at the conference at the Merchandise Pickup Center. No refunds will be given for items that are not claimed at the conference, nor will unclaimed items be shipped after the conference.

Part 4 Electronic Theater Ticket Purchase

One Electronic Theater ticket is included with Full Conference and Conference Select registrations. Registrants in any category can purchase one additional ticket. Please rank your preference, as tickets are issued on a first-come, first-served basis. No refunds. If you do not receive your first ticket choice, a limited number of tickets will be available for exchange at SIGGRAPH 2004 at the Ticket Exchange Counter in the registration area.

Part 5 Credential Mailing

If you would like to receive your badge in advance of the conference via express carrier, the following instructions apply:

- Select and include payment for the appropriate credential mailing option on the registration form.
- Your registration and payment must be postmarked by Friday, 2 July.
- Student and member status must be fully verified with ALL documentation by Friday, 2 July.
- Your registration must be paid in full.
- You must provide us with a street address as express carriers do not deliver to P.O. boxes.

If the above instructions are followed, your badge will be mailed two-day service the week of 26 July.

Credential Mailing Policies
- All prices are per person.
- SIGGRAPH 2004 is not responsible for lost credentials for which we have a carrier receipt that shows the package was received.
- Should your credentials be lost prior to arriving at the conference or should you forget to bring them, you will need to repay your registration fee and you will NOT receive a refund.

Part 6 Processing Fee

This fee must be paid in full before your registration credentials can be released.

Part 7 Payment Information

- Verify that subtotals add up correctly, and enclose payment.
- Checks and money orders ($US only) should be made payable to SIGGRAPH 2004.
- Credit card payments must include a signature.
- Purchase orders are NOT accepted as payment.
- Forms will not be processed without accompanying payment in full.
- Do not send more than one registration form or it may result in duplicate billing.

Part 8 Special Requirements

SIGGRAPH 2004 wants you to enjoy and experience the conference to its fullest. Some special requirements may take significant time to arrange. To assist SIGGRAPH 2004 in accommodating your needs, please notify us by 21 July. Describe your needs in the space provided below.

A Note About Faxing: We strongly recommend faxing your form well in advance of the Friday, 2 July deadline. Fax volume increases as the deadline approaches, and SIGGRAPH 2004 is NOT responsible for faxes not received due to busy telephone lines. Keep a copy of your fax transmission report to verify that your fax was transmitted successfully by the deadline in the event of a problem.

Important Dates

Friday, 2 July

Advance Early Registration Deadline
Registration forms must be postmarked (and full payment included) on or before this date in order to be eligible for advance early registration fees and to receive any mailed credentials.

Wednesday, 21 July

Advance Late Registration Fee Deadline
Registration forms must be postmarked (and full payment included) on or before this date in order to be eligible for advance late registration fees.

Refund Deadline
Cancellation requests for refunds must be made in writing and postmarked on or before Wednesday, 21 July. No refunds will be issued after this date. There is a refund processing fee of $US 75. Exhibits Plus registrations are not refundable.

Substitutions
Substitutions must be made in writing before Wednesday, 21 July in order to be processed in advance. Mail or email requests to SIGGRAPH 2004 Registration Management at the address below. In order to request a substitution at SIGGRAPH 2004, you must present, at the special assistance desk, a written request on company letterhead in addition to any previously mailed meeting credentials.

For more information, contact:
SIGGRAPH 2004
Registration Management
11212 Waples Mill Road, Suite 104
Fairfax, Virginia 22030
+1.703.449.6418
+1.703.631.6288 fax
registration@siggraph.org

For ACM SIGGRAPH Membership Information, contact:
ACM
+1.212.626.0500
+1.212.944.1318 fax
acmhelp@acm.org

Send form to SIGGRAPH 2004 as follows:

Mail form and payment to:
SIGGRAPH 2004
P.O. Box 809114
Chicago, Illinois 60680-9114 USA

or

Fax the registration form to:
+1.703.631.6288

or

Register online:
www.siggraph.org/s2004/registration

SIGGRAPH2004

ACM Student Research Competition

Wednesday, 11 August

Sponsored by Microsoft Research, the ACM Student Research Competition is an internationally recognized opportunity for undergraduate and graduate researchers to:

- **Share research results**
- **Exchange ideas and gain new insights**
- **Meet and talk with academic and industry luminaries**
- **Understand the possible, practical applications of their research**
- **Perfect their communications skills**

Finalists will be selected to present a talk on Wednesday, 11 August, 3:45 - 5:30 pm, at SIGGRAPH 2004. For more detailed information: www.siggraph.org/s2004/conference/posters

Call for Volunteers

ACM SIGGRAPH relies heavily on volunteers to plan and produce the premier international conference on computer graphics and interactive techniques. Volunteer opportunities for this vibrant event include: future conference chairs, SIGGRAPH 2005 subcommittee members. SIGGRAPH 2006 program chairs, and additional on-site volunteers for most years. Explore how you can contribute your ideas, energy, and expertise at: www.siggraph.org/volunteering

Co-Located Events

The annual SIGGRAPH conference is expanding the number and breadth of co-located workshops and small conferences. Two events are co-located with SIGGRAPH 2004:

GP^2: Workshop on General Purpose Computing on Graphics Processors
7 - 8 August 2004
Wilshire Grand Hotel
Los Angeles, California

Talks, panels, and poster presentations by leading researchers and practitioners from academia, research labs, and industry on several issues, including:

- **Could GPUs become useful co-processors for a wide variety of applications?**
- **What are their algorithmic and architectural niches and can they be broadened?**
- **Programmability, language and compiler support, and software environments.**
- **Future technology trends that might lead to more widespread use of GPUs.**

More information and registration: www.cs.unc.edu/Events/Conferences/GP2/

First Symposium on Applied Perception in Graphics and Visualization
7 - 8 August 2004
Wilshire Grand Hotel
Los Angeles, California

A forum for wider exchange of ideas and information between members of the graphics and visualization communities who are developing more effective visual, auditory, and/or haptic representation, and members of the vision-sciences community who are using computer graphics to investigate fundamental perception processes.

More information and registration: www.graphics.umn.edu/apgv04/

Inquiries about co-locating events with the annual SIGGRAPH conference should be directed to:

Barbara Helfer
ACM SIGGRAPH Vice President
colocate@siggraph.org

Future Conference Dates

SIGGRAPH 2005
31 July - 4 August 2005
Los Angeles, California

Sponsored by ACM**SIGGRAPH**

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