The People Behind the Pixels

# SIGGRAPH2010
## Los Angeles

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Updated 13 July

# Advance Program

The 37th International Conference and Exhibition on Computer Graphics and Interactive Techniques

## Conference 25-29 July 2010   Exhibition 27-29 July 2010

Los Angeles Convention Center   Los Angeles, California   USA

FOR COMPLETE DETAILS:
www.siggraph.org/s2010

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## Conference at a Glance   *Schedule subject to change.*

| | Sunday, 25 July | Monday, 26 July | Tuesday, 27 July | Wednesday, 28 July | Thursday, 29 July |
|---|---|---|---|---|---|
| **Registration/ Merchandise Pickup Center** | 9 am-6 pm | 8:30 am-6 pm | 8:30 am-6 pm | 8:30 am-6 pm | 8:30 am-3:30 pm |
| **SIGGRAPH Store** | 9 am-6 pm | 8:30 am-6 pm | 8:30 am-6 pm | 8:30 am-6 pm | 8:30 am-3:30 pm |
| ■ ● ▲ **ACM SIGGRAPH Award Presentations** | | 11 am-1 pm | | | |
| ■ ● **ACM SIGGRAPH Award Talks** | | 2-3:30 pm | | | |
| ■ ● ▲ **ACM Student Research Competition Final Presentation** | | | | 2-3:30 pm | |
| ■ ● **Art Gallery** | noon-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-1 pm |
| ■ **Art Papers** | | | 9-10:30 am  3:45-5:15 pm | | |
| ■ ● ▲ **Birds of a Feather** | Throughout the week | | | | |
| ■ **Courses** | 2-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm |
| ■ ● **Emerging Technologies** | noon-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-1 pm |
| ■ ● ▲ **Exhibition** | | | 9:30 am-6 pm | 9:30 am-6 pm | 9:30 am-3:30 pm |
| ■ ● ▲ **Exhibitor Tech Talks** | | | 9:30 am-6 pm | 9:30 am-6 pm | 9:30 am-3:30 pm |
| ■ **Game Papers** | | | | 9 am-12:15 pm | 2-3:30 pm |
| ■ **Geek Bar** | noon-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-1 pm |
| ■ ● **International Center** | 9 am-6 pm | 9 am-6 pm | 9 am-6 pm | 9 am-6 pm | 9 am-3:30 pm |
| ■ ● ▲ **Job Fair** | | | 9:30 am-6 pm | 9:30 am-6 pm | 9:30 am-3:30 pm |
| ■ ● ▲ **Keynote Speakers** Don Marinelli (ACM SIGGRAPH Awards Presentations) | | 11 am-12:45 pm | | | |
| Jim Morris | | | 11 am-12:30 pm | | |
| ■ **Panels** | 3:45-5:15 pm | 2-5:15 pm | | 9 am-12:15 pm | 9-10:30 am |
| ■ ● **Posters** | noon-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm |
| ■ ● **Poster Sessions** | | | 12:15-1:15 pm | 12:15-1:15 pm | |
| ■ **Reception** | | | | 8-10 pm | |
| ■ ● **Research Challenge** | | | | 2-3:30 pm | |
| ■ ● ▲ **SIGGRAPH Dailies!** | | | 6-7:30 pm | 6-7:30 pm | |
| ■ **Talks** | 2-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm | 2-3:30 pm | 9 am-5:15 pm |
| ■ **Technical Papers** | | 9 am-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm | 9 am-5:15 pm |
| ■ ● ▲ **Technical Papers Fast Forward** | 6-8 pm | | | | |
| ■ ● **The Sandbox** | noon-6 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-1 pm |
| ■ ● **The Studio** | noon-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-5:30 pm | 9 am-1 pm |
| ■ ▲ **Computer Animation Festival** | | | | | |
| Electronic Theater | | 6-8 pm | 6-8 pm | 6-8 pm | |
| Special Screenings | | 2-3:30 pm  3:45-5:15 pm | 3:45-5:15 pm | 3:45-5:15 pm | 2-3:30 pm |
| Production Sessions | | 2-3:30 pm | 9 am-12:15 pm  2-3:30 pm | 9 am-12:15 pm  2-3:30 pm | 9 am-12:15 pm |
| Live Real-Time Demo | | 4:30-5:15 pm | 4:30-5:15 pm | 4:30-5:15 pm | |
| Animation Clinic | | | 2-3:30 pm | 2-3:30 pm | |

# The TOP 10 Reasons to Attend SIGGRAPH 2010

**Knowing that the majority of SIGGRAPH conference attendees rely on their employers to fund their registration and travel in part or in full, we have developed the following value-based talking points for you to share with your boss.**
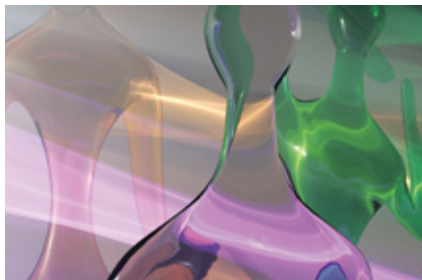
### 1. Value

Learn all the latest techniques, tips, and technologies in one location at a very reasonable price. SIGGRAPH 2010's exclusive educational programs offer the best return on investment for your organization's training budget.

### 2. Hands-On Knowledge

Consolidate new knowledge and skills by working directly with the experts in the field. In SIGGRAPH 2010's workshops and studios, you'll develop the professional assets you need for another year of creative and business success.

### 3. Time Optimization

Explore the full spectrum of computer graphics and interactive techniques in one intense, rewarding week. At SIGGRAPH 2010, you'll gain knowledge, contacts, and skills that could take over a year to acquire elsewhere.

### 4. Customization

Design the conference experience that delivers the best value for you and your organization. SIGGRAPH 2010 offers a very diverse range of sessions, experiences, and collaboration opportunities.

### 5. Industry Visionaries

Meet and exchange ideas with the superstars who created this dynamic field and the young visionaries who are building its future. They'll all be in Los Angeles for SIGGRAPH 2010.

### 6. Connections

Join your friends and colleagues from around the world, and make invaluable new connections with the people behind the pixels. SIGGRAPH 2010 is the annual world headquarters of computer graphics and interactive techniques.

### 7. Essential Resources

Discover all the resources you need to support your creativity, improve your efficiency, and grow your business. The SIGGRAPH 2010 Exhibition features hardware, software, and services from the leading companies behind the pixels.

### 8. World-Class Animation and Visual Effects

Immerse yourself in this year's best work in animated storytelling, scientific visualization, advertising, games, and feature films. The Computer Animation Festival presents five days of screenings, talks, panels, and live demos.

### 9. Los Angeles

Soak up the creativity, advanced technology, and business innovation that have made Los Angeles the world capital of digital media.

### 10. Inspiration

Leave Los Angeles with new skills, creativity, and energy, ready to rejuvenate your career and inspire your organization's next phase of leadership in computer graphics and interactive techniques.

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Live Space Gathering © 2010 Microsoft, Xin Sun
Luminos © 2010 Hasso Plattner Institute
Brink © 2010 Image courtesy of Blur Studio, Inc.

## Conference Overview

# SIGGRAPH 2010, Los Angeles:

**The best place in the world to experience the explosive evolution of computer graphics and interactive techniques. See, meet, and interact with the "People Behind the Pixels" who are creating the next wave of international excellence in research, animation, art, software, visualization, hardware, games, visual effects, and education. Gain amazing insights, enrich your skill set, and expand your worldwide contacts.**

**Conference Registration Categories:**

- ■ **Full Conference Access**
- ● **Basic Conference Pass**
- ▲ **Computer Animation Festival**

One-Day registration includes access for one day to conference programs and events associated with that level of registration and all days of the Exhibition (Tuesday-Thursday). One-Day access does not include technical documentation or tickets for the Reception.

### ■ ● ▲ ACM Student Research Competition
#siggraph #awards

Twenty-five student posters are selected for judging at SIGGRAPH 2010. The panel of distinguished judges selects five semi-finalists. And the semi-final poster authors present their work to the judges.

### ■ ● Art Gallery
#siggraph #artgallery

**TouchPoint: Haptic Exchange Between Digits**
Travel far beyond the visual and interact with polysensory artworks that integrate haptic connections with digital environments. See how the world's most creative digital artists are expanding the definition of art in new media.

### ■ ● ▲ Birds of a Feather (BOF)
#siggraph #bof

Informal presentations, discussions, and demonstrations, designed by and for people who share interests, goals, technologies, environments, or backgrounds.

To schedule a Birds of a Feather session before the conference, complete the online submission form.

### ■ Courses
#siggraph #courses

Learn new skills, improve your qualifications, and gain inside knowledge that advances your career. Courses taught by industry experts cover a full range of topics, from the basic foundations of computer graphics and interactive techniques to highly technical summaries of the latest research breakthroughs.

### ■ ● Emerging Technologies
#siggraph #etech

Explore this year's most adventurous technologies. Interact with the innovators as they demonstrate advanced displays, robotics, input devices, haptic systems, and the technologies of tomorrow.

### ■ ● ▲ Exhibition
#siggraph #exhibits

All the products and services you need for another year of creative achievement. Try the latest systems, talk with the people who developed them, and get all the information you need to make budget and purchase decisions. The SIGGRAPH 2010 Exhibition is your best opportunity to explore this year's new software, hardware, and services offered by vendors from throughout the world.

### ■ ● ▲ Exhibitor Tech Talks
#siggraph #techtalks

Exhibiting companies present in-depth information on their latest developments. Join question-and-answer exchanges and one-on-one conversations after each presentation by SIGGRAPH 2010 exhibitors.

### ■ Geek Bar
Real-time human networking. Streaming content from the SIGGRAPH 2010 session rooms. Wireless access. Comfy chairs.

### ■ ● International Resources
#siggraph #international

Learn how the industry is evolving worldwide and collaborate with attendees from five continents. The International Center offers bilingual tours of SIGGRAPH 2010 programs, informal translation services, and space for meetings, talks and demonstrations.

# Conference Overview

■ **Full Conference Access**   ● **Basic Conference Pass**   ▲ **Computer Animation Festival**

## ■ Reception

**WESTIN BONAVENTURE BALLROOM**
**WEDNESDAY, 28 JULY, 8-10 PM**

Mingle with the movers and synergize with the shakers as the international computer graphics community gathers for its biggest social event of the year. Bring your business cards. SIGGRAPH 2010 provides food, beverages, and a legendary LA location: The Westin Bonaventure Hotel, which has starred in many feature films: "Buck Rogers in the 25th Century", "This is Spinal Tap", "In the Line of Fire", "Nick of Time", "True Lies", "Midnight Madness", "Hard to Kill", and "Chuck". In "Escape From LA" and "Epicenter", it was destroyed by visual effects.

### ■ ● ▲ Job Fair

e #siggraph #jobfair

Actively looking for a new job? Networking to see what opportunities are available? Interested in meeting with some great companies? The Job Fair is where SIGGRAPH 2010 attendees connect with employers before the conference, during the conference via the Job Fair, and after the conference via the CreativeHeads.net job board and candidate profiling system.

### ■ Panels

e #siggraph #panels

Expand your perspective as expert panelists share experiences, opinions, speculation, disagreement, and controversy with each other and the audience.

### ■ Papers

Explore the latest, most advanced research results in computer graphics and interactive techniques. These prestigious juried programs are the premier international forums in their respective fields.

#### Technical Papers

e #siggraph #technicalpapers

Watch the next wave emerge, as the world's leading researchers present the discoveries and insights that will create the next generation of digital entertainment, science, and industry.

#### Art Papers

e #siggraph #artpapers

Hear academic artists explain the digital tradition in art history and future trends in art and technology.

#### Game Papers

e #siggraph #gamepapers

Monitor current and future issues in game development and player experience.

### ■ ● Posters

e #siggraph #posters

Observe graphic displays of incremental, preliminary, partial, and innovative insights that will shape the future of computer graphics and interactive techniques. Then join poster presenters to explore and critique their work in scheduled sessions.

### ■ ● Research Challenge

e #siggraph #researchchallenge

Individuals and teams developed innovative solutions to a challenge problem, demonstrating their creativity, design, and execution skills. Selected finalists present their work to a panel of distinguished judges in a public session, where final awards are announced.

### ■ ● The Sandbox

e #siggraph #sandbox

Test drive current game-development technologies, explore game design, and play the games that are defining the next generation of digital interactivity.

### ■ ● ▲ SIGGRAPH Dailies! NEW!

e #siggraph #dailies

Watch the producers behind the pixels present images and short animations of extraordinary power and beauty, and tell their real-life production stories.

### ■ ● The Studio

e #siggraph #studio

Collaborate in a hands-on learning lab, where students, professionals, artists, scientists, engineers, and the latest technologies create surprising artworks and systems.

### ■ Talks

e #siggraph #talks

Discover recent achievements in all areas of computer graphics and interactive techniques: art, design, animation, visual effects, interactivity, research, engineering, and more.

### ■ ● ▲ Technical Papers Fast Forward

e #siggraph #technicalpapers

The world's leading experts in computer graphics and interactive techniques preview the technical papers in provocative, sometimes hilarious summaries of the field's evolution.

# Conference Overview

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# Keynote Speakers

#siggraph #keynotes

**MONDAY, 26 JULY, 11 AM-12:45 PM**

### Don Marinelli
**Executive Producer**
**Carnegie Mellon Entertainment Technology Center**

For almost 30 years, Don Marinelli has served various roles at Carnegie Mellon, including co-creator of the Master of Arts Management Program, co-creator of the Master of Fine Arts in Acting degree program with the Moscow Art Theatre School in Russia, and co-founder of the Master of Entertainment Technology Degree Program. The Entertainment Technology Center brings artists and technologists together to produce installations that entertain, inform, inspire, or otherwise affect an audience, guest, player, or participant. His book, The Comet and the Tornado, published this year, recounts the six years he and Pausch shared an office and created the center that has become recognized internationally as Carnegie Mellon's "Dream Fulfillment Factory".

**TUESDAY, 27 JULY, 11 AM-12:30 PM**

### Jim Morris
**General Manager and Executive Vice President of Production**
**Pixar Animation Studios**

At Pixar since 2005, Morris has worked as a producer and production executive in the motion picture industry for more than 23 years. As part of Pixar's executive team, he has served as production executive on many of Pixar's most successful films including "Ratatouiile", "Up", and the upcoming "Toy Story 3". In 2009, he produced Disney•Pixar's highly acclaimed, "WALL•E", which won the Oscar for Best Animated Feature and garnered him the Producer of the Year Award in Animated Theatrical Motion Pictures from the Producer's Guild of America. He is currently producing Disney's much anticipated "John Carter of Mars", which is scheduled for release in 2012.

■ ● ▲

## ACM SIGGRAPH Award Presentations
**MONDAY, 26 JULY, 11 AM-12:45 PM**

#siggraph #awards

■ ●

## ACM SIGGRAPH Award Talks
**MONDAY, 26 JULY, 2-3:30 PM**

#siggraph #awards

### The Computer Graphics Achievement Award
Awarded annually to recognize a major accomplishment that: provided a significant advance in the state of the art of computer graphics and is still significant and apparent.

### The Significant New Researcher Award
Awarded annually to a researcher who has made a recent significant contribution to the field of computer graphics and is new to the field. The intent is to recognize people who, though early in their careers, have already made a notable contribution.

### The Distinguished Artist Award for Lifetime Achievement in Digital Art
Awarded annually to an artist who has created a substantial and important body of work that significantly advances aesthetic content in the field of digital art.

### ACM SIGGRAPH Outstanding Service Award
This award, presented during even-numbered years, recognizes outstanding service to ACM SIGGRAPH by a volunteer.

# Computer Animation Festival

t #siggraph #caf

**Immerse yourself in the world's most innovative and stimulating computer-generated animation and visual effects. Celebrate with the people behind the pixels as they present a full spectrum of genres and styles, ranging from narrative character animation to scientific visualization, commercials for mainstream TV, and cinematic digital effects. In addition to the prestigious Electronic Theater and a series of thematic screenings, the five-day Computer Animation Festival features:**

**NEW!**

## Animation Clinic
Eavesdrop on experienced animators as they offer creative, production, technical, and career advice.

## Talks and Production Sessions
Learn how world-class creative and production talent created the computer animation and visual effects in some of the festival's most provocative works.

## Live Real-Time Demos
Experience video games and real-time simulations that push the boundaries of what users and viewers have come to expect. No post-production, just great interactive graphics demonstrated in real time. Selected projects will be available to try in The Sandbox.

Image Credits:

The Lost Thing © 2010 Andrew Ruhemann, Shawn Tan, Passion Pictures Australia

Loom © 2010 Jan Bitzer, Ilija Brunck, Csaba Letay, Polynoid

"2012" - The Last Fluid Simulation © 2010 Columbia Pictures

# Conference Schedule

## ▦ Registration

| | |
|---|---|
| SUNDAY, 25 JULY | 9 AM-6 PM |
| MONDAY, 26 JULY | 8:30 AM-6 PM |
| TUESDAY, 27 JULY | 8:30 AM-6 PM |
| WEDNESDAY, 28 JULY | 8:30 AM-6 PM |
| THURSDAY, 29 JULY | 8:30 AM-3:30 PM |

## ▦ Art Gallery, Emerging Technologies, Geek Bar Posters, The Sandbox, The Studio

| | |
|---|---|
| SUNDAY, 25 JULY | NOON-5:30 PM |
| MONDAY, 26 JULY | 9 AM-5:30 PM |
| TUESDAY, 27 JULY | 9 AM-5:30 PM |
| WEDNESDAY, 28 JULY | 9 AM-5:30 PM |
| THURSDAY, 29 JULY | 9 AM-1 PM |

## Conference Schedule  *Subject to change.*

### Sunday, 25 July

**9 AM-6 PM**
**International Center**

**2-3:30 PM**
**BOF:** LA SIGGRAPH Meet & Greet
**Computer Animation Festival – Special Screenings**
Commercials and Cinematics
**Course:** Image Statistics: From Data Collection to Applications in Graphics
**Talks:** Avatar in Depth

**2-5:15 PM**
**Course:** Perceptually Motivated Graphics, Visualization, and 3D Displays
**Course:** Physically Based Shading Models in Film and Game Production
**Course:** Processing for Visual Artists and Designers
**Course:** Spectral Mesh Processing

**3:45-4:45 PM**
**BOF:** ACM SIGGRAPH Digital Arts Community

**3:45-5:15 PM**
**Course:** Build Your Own 3D Display
**Panel:** Future Directions in Graphics Research
**Talks:** Elemental Training 101

**6-8 PM**
**Technical Papers Fast Forward**

### Monday, 26 July

**9-10:30 AM**
**Talks:** All About Avatar
**Talks:** Rendering Intangibles
**Technical Papers:** Computational Photography
**Technical Papers:** Editing Motion
**Technical Papers:** Lighting & Material Design
**Course:** Biomedical Applications: What You Need to Know

**9 AM-12:15 PM**
**Course:** Stylized Rendering in Games

**9 AM-6 PM**
**International Center**

**10-11:30 AM**
**BOF:** FJORG! Reunion

**10:45 AM-12:15 PM**
**Talks:** Detailed Surfaces
**Talks:** Tissue & Medical Analysis

**11 AM-12:45 PM**
**ACM SIGGRAPH Award Presentations**
**Keynote Speaker:**
Don Marinelli, Executive Producer, Carnegie Mellon Entertainment Technology Center

**11 AM-1 PM**
**BOF:** Animux: Free Software for Animators

**2-3:30 PM**
**ACM SIGGRAPH Award Talks**
**BOF:** Blender Foundation: Community Meeting

# Conference Schedule

**Computer Animation Festival – Production Session**
The Making of "Avatar"

**Panel:** From Data to Diagnosis: The Intersection of Biomedical Applications and Computer Graphics

**Talks:** Volumes and Precipitation

**Talks:** Split Second Screen Space

**Technical Papers:** Elastic Models

**2-5:15 PM**
**Computer Animation Festival –** Talks & Production Sessions

**Course:** Recent Advances in Real-Time Collision and Proximity Computations for Games and Simulations

**3:45-5:15 PM**
**Computer Animation Festival— Special Screenings**

Shorts and Long Shorts

Student Animation

**Panel:** CS 292: The Lost Lectures – Computer Graphics People and Pixels in the Past 30 Years

**Talks:** Biomedical

**Technical Papers:** Architectural Patterns

**Technical Papers:** Faces & Capture

**4-6 PM**
**BOF:** Blender Foundation: Durian Open Movie Presentation

**4:30-5:15 PM**
**Computer Animation Festival –** Live Real-Time Demos

**6-8 PM**
**Computer Animation Festival –** Electronic Theater

**8:30-11 PM**
**BOF:** Taipei ACM SIGGRAPH Reunion

**9 PM-2 AM**
**ACM SIGGRAPH Chapters Party**
Club 740

## Tuesday, 27 July

**8-10 AM**
**BOF:** Women in Animation

**9-10:30 AM**
**Art Papers:** Design and Computation: Process, Product, Play

**Computer Animation Festival— Production Session**
"Iron Man 2" – Bringing in the "Big Gun"

**Course:** Filtered Importance Sampling for Production Rendering

**Talks:** Simulation in Production

**Technical Papers:** Fluids I

**Technical Papers:** Stylized Rendering & Illusions

**Technical Papers:** Rendering Hair & Scattering

**9 AM-12:15 PM**
**Computer Animation Festival –** Talks & Production Sessions

**Course:** Color Enhancement and Rendering in Film and Game Production

**9 AM-6 PM**
**International Center**

**9:30 AM-6 PM**
**Exhibition**

**Exhibitor Tech Talks**

**Job Fair**

**10:45 AM-12:15 PM**
**Computer Animation Festival – Production Session**
Animation Blockbusters Breakdown

**Technical Papers:** Expressive Rendering & Illustrations

**Technical Papers:** Fabrication

**11 AM-12:30 PM**
**Keynote Speaker:**
Jim Morris, General Manager and Executive Vice President of Production, Pixar Animation Studios

**12:15-1:15 PM**
**Poster Sessions**

**12:30-2 PM**
**BOF:** ACM SIGGRAPH Carto

**1-2:30 PM**
**BOF:** Simulating Humans and Animals

**1-3 PM**
**BOF:** COLLADA

**2-3:30 PM**
**BOF:** X3D Medical Working Group

**Art Gallery Reception**

**Computer Animation Festival –**
Animation Clinic

**Computer Animation Festival – Production Session**
The Visual Style of "How to Train Your Dragon"

**Talks:** Blowing $h!t Up

**Talks:** Visualization for Art & Design

**Technical Papers:** GPU Rendering

**Technical Papers:** Physics-Based Sound & Bubbles

**Technical Papers:** Planning & Terrain

**2-5:15 PM**
**Course:** An Introduction to 3D Spatial Interaction With Videogame Motion Controllers

**2:30-4 PM**
**BOF:** Animation Mentor Demo Reel Reviews

**3:30-5 PM**
**BOF:** X3D and HTML5

**3:45-5:15 PM**
**Art Papers:** Information Aesthetics

**Computer Animation Festival – Special Screenings**
Commercials and Cinematics

**Talks:** Pipelines and Asset Management

**Technical Papers:** Displays and Eyes

**3:45-5:30 PM**
**Technical Papers:** Geometry Algorithms & Sampling

**4-6 PM**
**BOF:** 3D & Multimedia Across Platforms and Devices Using JOGL

**BOF:** OpenCL

**4-6:30 PM**
**BOF:** ACCAD/OSU Alumni Gathering

**4:30-5:15 PM**
**Computer Animation Festival –** Animation Clinic

**4:30-6 PM**
**BOF:** RIT Alumni Reception at SIGGRAPH 2010

**5:30-6 PM**
**BOF:** Encontro dos Brasileiros

# Conference Schedule

**6-7:30 PM**
**SIGGRAPH Dailies!**

**6-8 PM**
**Computer Animation Festival –**
Electronic Theater

### Wednesday, 28 July

**9-10:30 AM**
**Computer Animation Festival –**
**Production Session**
"The Last Airbender" – Harnessing the Elements: Earth, Air, Water and Fire
**Game Papers:**
Biometrics and Physical Controllers
**Panel:** 20XX.EDU: Grand Challenges in Education (Part 1)
**Technical Papers:**
Boundaries, Edges & Gradients
**Technical Papers:** Collisions and Contact

**9 AM-12:15 PM**
**Course:** Advances in Real-Time Rendering in 3D Graphics and Games I
**Course:** Fundamentals of Visual Analytics
**Course:** Volumetric Methods in Visual Effects

**9 AM-5 PM**
**Exhibitor Session:** NVIDIA Corporation

**9 AM-6 PM**
**International Center**

**9:30 AM-6 PM**
**Exhibition**
**Exhibitor Tech Talks**
**Job Fair**

**10-11 AM**
**BOF:** OpenSceneGraph BOF

**10:30 AM-NOON**
**BOF:** Web3D CAD Working Group

**10:45 AM-12:15 PM**
**Computer Animation Festival –**
**Production Session**
The Making of "Day & Night"
**Game Papers:** The Player Experience
**Panel:** 20XX.EDU: Grand Challenges in Education (Part 2)
**Technical Papers:** Textures

**Technical Papers:** Video

**NOON-2 PM**
**BOF:** Systems Administration Standards in Studios

**12:15-1:15 PM**
**Poster Sessions**

**12:30-2 PM**
**BOF:** Girl Scout Games for Life Parents and Troop Leaders Meeting

**1-2 PM**
**BOF:** Field3D: An Open-Source Library for Storing Voxel Data

**1-3 PM**
**BOF:** Motion Graphics BOF

**2-3 PM**
**BOF:** Molecular Graphics

**2-3:30 PM**
**BOF:** Computer Graphics for Simulation
**Computer Animation Festival –**
Animation Clinic
**Computer Animation Festival –**
**Production Session**
"Alice in Wonderland":
Down the Rabbit Hole
**Disney Learning Challenge –**
**Ceremony**
**Research Challenge**
**Talks:** APIs for Rendering
**Technical Papers:**
Perception, Presence & Animation
**Technical Papers:**
Urban Reconstruction & Explanation

**2-5 PM**
**BOF:** The Future of 3D Printing

**2-5:15 PM**
**Course:** Advances in Real-Time Rendering in 3D Graphics and Games II
**Course:** Applications of Visual Analytics

**2:30-4 PM**
**BOF:** Friends of the Art Institutes

**3:30-4:30 PM**
**BOF:** 3D Printing for Art and Visualization

**3:45-5:15 PM**
**Computer Animation Festival –**
**Special Screenings**
Shorts and Long Shorts
**Course:** Gazing at Games: Using Eye Tracking to Control Virtual Characters
**Technical Papers:** Appearance Capture & Image Processing
**Technical Papers:** Understanding Shape

**4-6 PM**
**BOF:** California Educators

**4:30-5:15 PM**
**Computer Animation Festival –**
Live Real-Time Demo

**4:30-6 PM**
**BOF:** GPU Ray Tracing

**5:15-7:15 PM**
**BOF:** OpenGL

**6-7:30 PM**
**BOF:** Purdue University Reunion
**SIGGRAPH Dailies!**

**6-8 PM**
**Computer Animation Festival –**
Electronic Theater

**6-9 PM**
**BOF:**
Blacks in Animation & VFX & Gaming

**8-10 PM**
**Reception:** Westin Bonaventure Ballroom

# Conference Schedule

## Thursday, 29 July

**9-10:30 AM**

**BOF:** Undergraduate Research Alliance

**Computer Animation Festival – Production Session**
The Making of "God of War III"

**Panel:** Large Steps Toward Open Source

**Talks:** Motion & Emotion

**Talks:** Fun in Flatland

**Technical Papers:** 3D Modeling

**Technical Papers:** Cloth Animation

**9 AM-12:15 PM**

**Computer Animation Festival –**
Talks & Production Sessions

**Course:** Advanced Techniques in
Real-Time Hair Rendering and Simulation

**Course:** Beyond Programmable Shading I

**9 AM-3:30 PM**

**International Center**

**9:30 AM-3:30 PM**

**Exhibition**

**Exhibitor Tech Talks**

**Job Fair**

**10:45 AM-12:15 PM**

**Computer Animation Festival – Production Session**
The Making of "TRON: LEGACY"

**Talks:** Games & Real Time

**Talks:** Interaction Omelette

**Technical Papers:** Fluids II

**Technical Papers:** Meshing

**Technical Papers:**
Perceptual Rendering Methods

**1-3 PM**

**BOF:** Mobile API

**1:30-2:30 PM**

**BOF:** Web3D Consortium Member
Update Meeting

**2-2:30 PM**

**BOF:** Processing; The Solution to
Introducing Freshmen in a Fine Arts
Foundation Program to Digital Concepts

**2-3:30 PM**

**ACM Student Research Competition
Final Presentation**

**Computer Animation Festival –
Special Screenings**
Chinese Student Animation

**Game Papers:** Game Design

**Technical Papers:** Human Modeling

**Technical Papers:** Surface Fields

**2-5:15 PM**

**Course:** Beyond Programmable
Shading II

**Course:** Global Illumination Across
Industries

**3-5 PM**

**BOF:** Agile in Production

**3-6 PM**

**BOF:** Web3D Korea Chapter New
Proposals Discussion Meeting

**3:45-5:15 PM**

**Talks:** Fur, Feathers and Trees

**Talks:** Touchy-Feely

**Technical Papers:** Biped Control

**Technical Papers:** Image Enhancement

**4-6 PM**

**BOF:** WebGL

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### Co-Located Events

**Symposium on Applied Perception in
Graphics and Visualizaton (APGV)**
23-24 JULY

**Web3D 2010 Conference**
24-25 JULY

These symposia are being presented in cooperation with SIGGRAPH 2010 and are related to important aspects of computer graphics and interactive techniques.

For complete information on these symposia locations and schedules, visit: www.siggraph.org/s2010/for_attendees/co_located_events

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# Art Papers

■ **Full Conference Access**

**t** #siggraph #artpapers

**Art Papers present excellent ideas in accessible ways. They inform artistic disciplines, set standards, and stimulate future trends. In addition to the core topics of the digital arts and interactive techniques, Art Papers explore the theme of SIGGRAPH 2010's juried art gallery, TouchPoint: The Haptic Exchange Between Digits. The papers are published in a special issue of *Leonardo, The Journal of the International Society of the Arts, Sciences and Technology*. The issue also includes visual documentation of the works exhibited in TouchPoint: The Haptic Exchange Between Digits. Publication of this special issue coincides with SIGGRAPH 2010.**

## Design and Computation: Process, Product, Play

**TUESDAY, 27 JULY, 9-10:30 AM**

**SESSION CHAIR**
Tad Hirsch
Intel Corporation

### The Immediacy of the Artist's Mark in Shape Computation

This paper describes a computational system in the form of a curvilinear, parametric shape grammar. Based on an analysis of her traditionally hand-drawn sketchbook entries, the artist-author presents a first-person account of developing a grammar to synthesize drawings in the design language of her evolving style.

Jacquelyn Martino
IBM Watson Research Center

### Learning From Weaving for Digital Fabrication in Architecture

Using the weaver's perceptual experience to understand the structural mechanism of weaving, generate rules for performing both structural and aesthetic features of the woven surface in architectural design, and develop a novel, faster, and cheaper assembly system in brick and wooden construction.

Rizal Muslimin
Massachusetts Institute of Technology

### Glowing Pathfinder Bugs: A Natural Haptic 3D Interface for Interacting Intuitively With Virtual Environments

This paper describes and analyzes Glowing Pathfinder Bugs, a digital-art installation that uses sand as the only interface component. As users interact and communicate with virtual creatures, a simple form of animal husbandry evolves – a sense of controlling and caring for the bugs.

Anthony Rowe
Oslo School of Architecture and Design

Liam Birtles
Arts University College Bournemouth

## Information Aesthetics

**TUESDAY, 27 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
Victoria Szabo
Duke University

### Data Portraits

Data portraits evoke their subjects by depicting accumulated data rather than facial appearance. They are artworks that not only portray their subjects, but also raise questions about privacy, subjectivity, and control in our increasingly mediated and recorded world.

Judith Donath
Vivatropolis

Alex Dragulescu
Massachusetts Institute of Technology

Aaron Zinman
MIT Media Lab

Fernanda Viégas
IBM Research

Rebecca Xiong

Yannick Assogba
IBM

### Visual Anecdote

This paper introduces the visual anecdote, a rhetoric-design strategy found in many examples of data visualization. It argues that the narratives connected to visualizations constitute a central epistemological element that is usually ignored in information-visualization discourse.

Dietmar Offenhuber
MIT Senseable City Lab

### Touching Space: Using Motion Capture and Stereo Projection to Create a "Virtual Haptics" of Dance

This project presents a vision of interactive dance performance that "touches" space with the intentionality and agency of kinematics, and suggests the possibility of new kinds of human-computer interfaces that emphasize touch as embodied, nuanced agency rather than as task-based gestures such as pointing or clicking.

Kim Vincs
John McCormick
Deakin University

# Courses

Full Conference Access registration allows attendees access to all SIGGRAPH 2010 Courses. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Course you wish to attend.

■ **Full Conference Access**

 #siggraph #courses

**Learn from the experts in the field and gain inside knowledge that is critical to career advancement. Courses deliver unique learning opportunities, available only at SIGGRAPH 2010, in three levels of difficulty (introductory, intermediate, and advanced).**

## Image Statistics: From Data Collection to Applications in Graphics
**SUNDAY, 25 JULY, 2-3:30 PM**

Introductory

This course outlines collection, analysis, and practical use of image statistics, and explains several direct applications.

Erik Reinhard
Tania Pouli
University of Bristol

Douglas Cunningham
Brandenburgische Technische Universität

## Spectral Mesh Processing
**SUNDAY, 25 JULY, 2-5:15 PM**

Advanced

This course presents methods of generalizing the signal-processing mathematical toolbox to the context of 3D mesh models and demonstrates applications.

Bruno Levy
INRIA

Richard Zhang
Simon Fraser University

## Processing for Visual Artists and Designers
**SUNDAY, 25 JULY, 2-5:15 PM**

Introductory

How to use the free Processing language to create expressive and beautiful images, animations, and interactive graphics.

Andrew Glassner
Coyote Wind Studios

## Physically Based Shading Models in Film and Game Production
**SUNDAY, 25 JULY, 2-5:15 PM**

Intermediate

This course begins with a short explanation of the physics of light-matter interaction and how it is expressed in simple shading models. Then several speakers discuss specific examples of how shading models have been used in recent film and game production, how they enhance realism, their integration with image-based lighting, and their material robustness under changing lighting conditions.

Yoshiharu Gotanda
tri-Ace Inc.

Naty Hoffman
Activision

Adam Martinez
Sony Pictures Imageworks

Ben Snow
Industrial Light & Magic

## Perceptually Motivated Graphics, Visualization, and 3D Displays
**SUNDAY, 25 JULY, 2-5:15 PM**

Introductory

An exploration of current research on the role of perception in computer graphics, virtual environments, visualization, and 3D displays. Examples of up-to-the-minute research show how perceptual research can benefit the computer graphics community.

Ann McNamara
Texas A&M University

Katerina Mania
Technical University of Crete

Christopher Healey
North Carolina State University

Marty Banks
University of California, Berkeley

## Build Your Own 3D Display
**SUNDAY, 25 JULY, 3:45-5:15 PM**

Introductory

Using concrete examples, this course reviews the mathematics, software, and practical details necessary to build several homemade 3D displays using inexpensive off-the-shelf parts. Topics include: LCD shutter glasses, dual-layer LCDs, and lenticular-based auto-multiscopic displays.

Matthew Hirsch
MIT Media Lab

Douglas Lanman
Brown University

## Biomedical Applications: What You Need to Know
**MONDAY, 26 JULY, 9-10:30 AM**

Intermediate

This introduction to computer graphics research in the biomedical domain covers: how and what kinds of models are created from images, what kinds of measurements can be done both from the images themselves and from intermediate models, and common issues that arise when dealing with imaging data.

Cindy Grimm
Washington University in St. Louis

Rolf Müeller
Virginia Polytechnic Institute and State University

Stephen D. Larson
Neuroinformatics

# Courses

■ **Full Conference Access**

## Stylized Rendering in Games
MONDAY, 26 JULY, 9 AM-12:15 PM

Intermediate

Games like Prince of Persia and Battlefield Heroes deliver artistic visions beyond standard photo-realistic 3D. In this course, game developers review the challenges of creating distinctive visual styles for interactive environments and explain some of their own solutions. Topics include the art pipeline, rendering algorithms, and integrating visuals with game play.

Morgan McGuire
Williams College

Henrik Halén
Electronic Arts

Jean-Francois St-Amour
Ubisoft Entertainment

Deano Calver
Splash Damage

Aaron Thibault
Brian Martel
Gearbox Software

Chandana Ekanayake
Uber Entertainment

## Recent Advances in Real-Time Collision and Proximity Computations for Games and Simulations
MONDAY, 26 JULY, 2-5:15 PM

Intermediate

Recent academic and industrial developments on collision and proximity computations for interactive games and simulations.

Sung-eui Yoon
Korea Advanced Institute of Science and Technology

Dinesh Manocha
University of North Carolina, Chapel Hill

Erwin Coumans
Sony Computer Entertainment US R&D

Young J. Kim
Ewha Womans University

Richard Tonge
NVIDIA Corporation

## Importance Sampling for Production Rendering
TUESDAY, 27 JULY, 9-10:30 AM

Intermediate

Importance sampling provides a production-proven method for integrating diffuse and glossy surface reflections with arbitrary image-based environment or area lighting constructs. This course explains the theoretical foundations and describes how various visual effects studios integrated the method into their pipeline.

Mark Colbert
ImageMovers Digital

Simon Premoze

Guillaume Francois
Moving Picture Company

## Color Enhancement and Rendering in Film and Game Production
TUESDAY, 27 JULY, 9 AM-12:15 PM

Intermediate

In addition to its common computer graphics meaning, the term "rendering" also refers to transformation of scene-referred colors (light entering the camera) to display-referred colors (light exiting the display device). This course explains the theory behind this transformation and how it is used in film and game production.

Haarm-Pieter Duiker
Duiker Research

Dominic Glynn
Pixar Animation Studios

Joseph Goldstone
Lilliputian Pictures LLC

Yoshiharu Gotanda
tri-Ace Inc.

Naty Hoffman
Activision

Joshua Pines
Technicolor

Jeremy Selan
Sony Pictures Imageworks

Stefan Sonnenfeld
Company 3

## An Introduction to 3D Spatial Interaction With Videogame Motion Controllers
TUESDAY, 27 JULY, 2-5:15 PM

Introductory

With the proliferation of commercial videogame motion controllers, 3D spatial interfaces have the ability to revolutionize the way people play games. This course is an in-depth discussion of how to design and develop 3D spatial interfaces with these devices.

Joseph LaViola
University of Central Florida

Richard Marks
Sony Computer Entertainment America

## Volumetric Methods in Visual Effects
WEDNESDAY, 28 JULY, 9 AM-12:15 PM

Intermediate

A concise overview of the technology behind volumetric effects in movie production. The course explains the basics of a production-usable volumetrics pipeline, then focuses on problems that are unique and crucial to production needs: motion blur, shading languages, occlusions, artist workflow, and lighting methodology.

Nafees Bin Zafar
Digital Domain

Magnus Wrenninge
Sony Pictures Imageworks

Jerry Tessendorf
Rhythm & Hues Studios

Andrew Clinton
Side Effects Software Inc.

Devon Penny
PDI/DreamWorks

Jeff Clifford
Double Negative Visual Effects

Gavin Graham
Double Negative

# Courses

**■ Full Conference Access**

### Advances in Real-Time Rendering in 3D Graphics and Games I
**WEDNESDAY, 28 JULY, 9 AM-12:15 PM**

**Intermediate**

This course covers a series of topics on the best innovations and practical techniques in state-of-the-art rendering for several award-winning games. It also shows how advanced rendering research will be applied to the next generation of games.

Natalya Tatarchuk
Hao Chen
Bungie LLC

Alex Vlachos
Valve

Andrew Lauritzen
Marco Salvi
Intel Corporation

John Paul Ownby
Avalanche Software

Chris Hall
Disney Interactive

Rob Hall
Disney Interactive Avalanche Studio

Per Einarsson
EA DICE

Robert Kihl
DICE

Sam Martin
Geometrics

John Hable
Naughty Dog

Anton Kaplayan
Crytek

Jay McKee
Advanced Micro Devices, Inc.

### Fundamentals of Visual Analytics
**WEDNESDAY, 28 JULY, 9 AM-12:15 PM**

**Introductory**

This introduction to the fundamentals of visual analytics describes the core components and reviews the grand challenges.

David Ebert
Purdue University

Ross Maciejewski
Purdue University

Steffen Koch
Universität Stuttgart

Jim Thomas
Pacific Northwest National Laboratory

Daniel Keim
Universität Konstanz

Barbara Gans Tversky
Stanford University

### Applications of Visual Analytics
**WEDNESDAY, 28 JULY, 2-5:15 PM**

**Intermediate**

This course provides insight into novel visual analytics applications and demonstrates the breadth of visual analytics applications, including: scientific visualization, techniques for analyzing financial data, systems for healthcare monitoring and management, patent-application exploration, and many others.

Ross Maciejewski
David Ebert
Purdue University

Steffen Koch
Universität Stuttgart

Daniel Keim
Universität Konstanz

Jim Thomas
Pacific Northwest National Laboratory

### Advances in Real-Time Rendering in 3D Graphics and Games II
**WEDNESDAY, 28 JULY, 2-5:15 PM**

**Intermediate**

Continuation of the Wednesday morning course on the best innovations and practical techniques in state-of-the-art rendering for several award-winning games. The course also shows how advanced rendering research will be applied to the next generation of games.

Natalya Tatarchuk
Hao Chen
Bungie LLC

Alex Vlachos
Valve

Andrew Lauritzen
Marco Salvi
Intel Corporation

John Paul Ownby
Avalanche Software

Chris Hall
Disney Interactive

Rob Hall
Disney Interactive Avalanche Studio

Per Einarsson
EA DICE

Robert Kihl
DICE

Sam Martin
Geometrics

John Hable
Naughty Dog

Anton Kaplayan
Crytek

Jay McKee
Advanced Micro Devices, Inc.

# Courses

■ **Full Conference Access**

### Gazing at Games: Using Eye Tracking to Control Virtual Characters

**WEDNESDAY, 28 JULY, 3:45-5:15 PM**

**Intermediate**

Alternative input modalities, such as gaze control, have recently emerged as a means of interacting with computer games. This course explains how eye tracking can be used to create richer interaction and attention-aware behavior algorithms for characters in virtual environments.

Veronica Sundstedt
Trinity College Dublin

### Advanced Techniques in Real-Time Hair Rendering and Simulation

**THURSDAY, 29 JULY, 9 AM-12:15 PM**

**Intermediate**

A complete summary of rendering and simulating hair in real time, from basic data structures and handling to advanced techniques for high-quality, high-performance rendering and real-time simulation.

Cem Yuksel
Cyber Radiance LLC and Texas A&M University

Sarah Tariq
NVIDIA Corporation

### Beyond Programmable Shading I

**THURSDAY, 29 JULY, 9 AM-12:15 PM**

**Intermediate**

This course summarizes how to use emerging parallel programming techniques and architectures to create advanced interactive graphics algorithms that extend and integrate with the traditional OpenGL/DirectX rendering pipeline.

Aaron Lefohn
Intel Corporation

Michael Houston
Advanced Micro Devices, Inc.

Johan Andersson
DICE

Kayvon Fatahalian
Stanford University

David Luebke
NVIDIA Corporation

Chas. Boyd
Microsoft Corporation

### Global Illumination Across Industries

**THURSDAY, 29 JULY, 2-5:15 PM**

**Intermediate**

This course compares the techniques for global-illumination computation in various industries and analyzes why specific solutions are selected for different problems.

Jaroslav Krivanek
Cornell University

David Larsson
Illuminate Labs

Anton Kaplayan
Crytek GmbH

Michael Bunnell
Fantasy Lab, Inc.

Per Christensen
Pixar Animation Studios

Marcos Fajardo
Solid Angle SL

Eric Tabellion
PDI/DreamWorks

### Beyond Programmable Shading II

**THURSDAY, 29 JULY, 2-5:15 PM**

**Advanced**

Continuation of the Thursday morning course on how to use emerging parallel programming techniques and architectures to create advanced interactive graphics algorithms that extend and integrate with the traditional OpenGL/DirectX rendering pipeline.

Aaron Lefohn
Intel Corporation

Michael Houston
Advanced Micro Devices, Inc.

Kayvon Fatahalian
Stanford University

Jonathan Ragan-Kelley
Massachusetts Institute of Technology

Luca Fascione
Weta Digital Ltd.

Jacopo Pantaleoni
NVIDIA Corporation

Andrew Lauritzen
Intel Corporation

Kurt Akeley
Microsoft Research Silicon Valley

# Game Papers

**Game Papers present original work from creative and technical communities that design and develop commercial and non-commercial video games, and from academic research communities that study video games, game play, human-computer interaction, learning, and related technologies. Game Papers explore key issues in video games, inform and substantively advance our current state of knowledge and understanding, and foster new areas for investigation that will drive the next generation of player experience.**

## Biometrics and Physical Controllers
WEDNESDAY, 28 JULY, 9-10:30 AM

**SESSION CHAIR**
Chris Swain
University of Southern California
School of Cinema

### Exergames Effectiveness What the Numbers Can Tell Us

A sedentary lifestyle is linked to many diseases, including diabetes and heart disease, as well as ailments such as obesity, a major contributor to early death in most industrialized countries. This paper surveys a number of exergame studies and identifies elements that make exergames effective.

Anthony Whitehead
Hannah Johnston
Carleton University

Jo Welch
Nicole Nixon
Dalhousie University

### Jogging Over a Distance: The Influence of Design in Parallel Exertion Games

Jogging over a Distance allowed two joggers (one in Europe, one in Australia) to run together, using spatialized sound delivered over headphones. If one person ran faster, the audio for the other person appeared to come from the front, and when the runner slowed, the audio appeared to come from the back.

Florian Mueller
Distance Lab

Frank Vetere
Martin R. Gibbs
The University of Melbourne

Stefan Agamanolis
Distance Lab

Jennifer Sheridan
Knowledge Lab

### NeuroRehab + The "Fun" Factor

A game installation investigates how the "fun" factor can be integrated into neuro-rehabilitation.

Taeko Fukamoto
Parsons The New School for Design

### Vibraudio Pose: An Investigation of Non-Visual Feedback Roles for Body-Controlled Video Games

This paper describes a user study of the optimum use of vibration and audio feedback in video games where players use their entire bodies as input devices.

Emiko Charbonneau
Charles E. Hughes
Joseph J. Laviola, Jr.
University of Central Florida

# Game Papers

## The Player Experience

**WEDNESDAY, 28 JULY,
10:45 AM-12:15 PM**

**SESSION CHAIR**
Chris Swain, University of
Southern California School of Cinema

### PADS: Enhancing Gaming Experience Using Profile-Based Adaptive Difficulty System

This paper presents the profile-based adaptive difficulty system (PADS), which improves game experience by automatically adjusting difficulty levels throughout game play. The system uses gamer profiles and performance to improve the degree and duration of a game's entertaining experience.

Chang Yun
Philip Trevino
William Holtkamp
Zhigang Deng
University of Houston

### Design Patterns to Guide Player Movement in 3D Games

This paper presents five game-level design patterns to push and pull player movement through 3D environments. The patterns are: Collect, Path Target, Pursue AI, Path Movement, and Player Vulnerability. The patterns were developed based on interviews with game designers and analysis of game play, and validated via expert review and inter-rater agreement.

David Milam
SIAT, Simon Fraser University

### 3PI Experiment: Immersion in Third-Person View

This study evaluated the use of an immersive, third-person-view interface for digital games, using various methods of user-interface evaluation. Results show that the proposed interface caused no significant discomfort and was easy to learn, making it suitable for use in games.

Ricardo Nakamura
Lucas Lago
Alexandre Carneiro
Anderson Cunha
Fabio Ortega
João Bernardes, Jr.
Romero Tori
Universidade de São Paulo

## Game Design

**THURSDAY, 29 JULY, 2-3:30 PM**

**SESSION CHAIR**
Jeannie Novak
Kaleidospace, LLC

### Designing Entertaining Educational Games Using Procedural Rhetoric: A Case Study

Results of this real-world case study demonstrate that effective and engaging learning games can be developed with minimal effort, as long as sound game-design principles are used to maximize fun and learning.

Lars Doucet
Vinod Srinivasan
Texas A&M University

### Can "Gaming 2.0" Help Design "Serious Games"?

People without professional game-design skills, such as teachers, corporate trainers, therapists, and advertising professionals, request tools that could allow them to create "serious games". Can Gaming 2.0, which allows players to easily create videogame content, create "serious games"?

Damien Djaouti
Julian Alvarez
Jean-Pierre Jessel
Institut National Polytechnique de Toulous,
Université Paul Sabatier

### A Narrative-Driven Design Approach for Casual Games With Children

This paper proposes a practical, narrative-driven game-design methodology, based on informant design methods, to develop relevant and enjoyable casual games for children with children.

Henry Been-Lirn Duh
Sharon Lynn Chu Yew Yee
National University of Singapore

Vivian Hsueh-Hua Chen
Nanyang Technological University

Yuanxun Gu
National University of Singapore

### Using Semiotic Grammars for Rapid Design of Evolving Videogame Mechanics

Structural semiotic analysis in the form of semiotic grammars can be applied to videogame mechanics to foster game literacy and as a method for novel game creation.

Erik Vick
Rochester Institute of Technology

Rudy McDaniel
University of Central Florida

Stephen Jacobs
Rochester Institute of Technology

# Panels

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■ **Full Conference Access**

#siggraph #panels

**Informative, insightful, inspirational discussions by the leading experts in computer graphics and interactive techniques, who share experiences, opinions, insights, speculation, disagreement, and controversy with each other and the audience.**

## Future Directions in Graphics Research
SUNDAY, 25 JULY, 3:45-5:15 PM

This panel presents the results of a National Science Foundation workshop on defining broader, fundamental long-term research areas for potential funding opportunities in graphics research.

**PANELISTS**
Jessica Hodgins
Carnegie Mellon University

James Foley
Georgia Institute of Technology

Pat Hanrahan
Stanford University

Donald P. Greenberg
Cornell University

## From Data to Diagnosis: The Intersection of Biomedical Applications and Computer Graphics
MONDAY, 26 JULY, 2-3:30 PM

Researchers from various biomedical fields discuss current challenges in using 3D imaging data for both clinical and theoretical applications. What are the major stumbling blocks? What are researchers currently doing with this data, what would they like to do, and what's preventing them from doing it?

**PANELIST**
Cindy Grimm
Washington University in St. Louis

Dinesh K. Pai
The University of British Columbia

Michael McCool
Intel Corporation

Stephen D. Larson
Neuroinformatics

Tao Ju
Washington University in St. Louis

Rolf Müeller
Virginia Polytechnic Institute and State University

## CS 292: The Lost Lectures Computer Graphics People and Pixels in the Past 30 Years
MONDAY, 26 JULY, 3:45-5:15 PM

In 1980, the year that he started the group that became Pixar, Ed Catmull taught a course at Berkeley with Jim Blinn. Coincidentally that course inspired a student, Richard Chuang, to co-found PDI. This panel looks back at the evolution of the CG industry from that magical moment 30 years ago.

**PANELISTS**
Ed Catmull
Pixar Animation Studios

Richard Chuang
cloudpic

## 20XX.EDU: Grand Challenges in Education (Part 1)
WEDNESDAY, 28 JULY, 9-10:30 AM

A diverse group of outstanding researchers and artists, academy and industry professionals, educators, and government officials discusses the future of education in its broadest sense, encompassing both formal and informal learning. This panel is organized by the ACM SIGGRAPH Education Committee and Leonardo/ISAST.

**PANELISTS**
Marc Barr
Middle Tennessee State University

Roger Malina
Leonardo/ISAST

David T. Goldberg
HASTAC/University of California

Rebecca Allen
NOKIA Hollywood

Pamela Jennings
National Science Foundation

Sarah Cunningham
National Endowment for the Arts

Glenn Entis
VanEdge Capital

# Panels

■ **Full Conference Access**

## 20XX.EDU: Grand Challenges in Education (Part 2)
**WEDNESDAY, 28 JULY,
10:45 AM-12:15 PM**

This panel is a continuation of the conversation that begins in Part 1 among a diverse group of outstanding research-ers and artists, academy and industry professionals, educators, and government officials to discuss the future of education in its broadest sense, encompassing both formal and informal learning.

**PANELISTS**
Marc Barr
Middle Tennessee State University

Donna Cox
NSCA

James Foley
Georgia Institute of Technology

Andy van Dam
Brown University

Victoria Vesna
University of California, Los Angeles

Roger Malina
Leonardo/ISAST

## Large Steps Toward Open Source
**THURSDAY, 29 JULY, 9-10:30 AM**

Industry veterans and open-source pioneers discuss the recent surge of open-source projects sponsored by their organizations.  What are the motivations and driving forces behind this work? What are the challenges? What does it take to make open source a part of a studio's culture? Bring your questions and learn how to succeed with open source in your organization.

**PANELISTS**
Rob Bredow
Sony Pictures Imageworks

Andy Hendrickson
Walt Disney Animation Studios

Florian Kainz,
Industrial Light and Magic

Bill Polson
Pixar Animation Studios

# Talks

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■ **Full Conference Access**

**t** #siggraph #talks

**SIGGRAPH 2010 Talks provide a broad spectrum of presentations on recent achievements in all areas of computer graphics and interactive techniques, including art, design, animation, visual effects, interactivity, research, and engineering.**

Talks often highlight the latest developments before publication, present ideas that are still in progress, or showcase how computer graphics and interactive techniques are actually implemented and used, in graphics production or other fields. Talks can take you behind the scenes and into the minds of SIGGRAPH 2010 creators.

## Avatar in Depth

SUNDAY, 25 JULY

2-3:30 PM

**SESSION CHAIR**
Mk Haley
Carnegie Mellon University

### A Physically Based Approach to Virtual Character Deformations

Simon Clutterbuck
James Jacobs
Weta Digital Ltd.

### Rendering "Avatar": Spherical Harmonics in Production

Nick McKenzie
Martin Hill
Jon Allitt
Weta Digital Ltd.

### PantaRay: Directional Occlusion for Fast Cinematic Lighting of Massive Scenes

Jacopo Pantaleoni
NVIDIA Research

Luca Fascione
Weta Digital Ltd.

Timo Aila
NVIDIA Research

Martin Hill
Sebastian Sylwan
Weta Digital Ltd.

David Luebke
NVIDIA Corporation

## Elemental Training 101

SUNDAY, 25 JULY

3:45-5:15 PM

**SESSION CHAIR**
Dan Wexler
NVIDIA Corporation

### Bending Fire With Plume, a CUDA-Based 3d Fluid Solver and Volume Renderer

Olivier Maury
Dan Piponi
Florent Andorra
Craig Hammack
Industrial Light & Magic

### Creating Big Fire in "How to Train Your Dragon"

Andrew Hayes
Ron Henderson
Brett Miller
Stuart Tett
Tobin Jones
DreamWorks Animation

### Waterbending: Water Effects on "The Last Airbender"

Ian Sachs
Christopher D. Twigg
Lee Uren
Dan Pearson
Nick Rasmussen
Industrial Light & Magic

### GPU Fluids in Production: Accelerating the Pressure Projection

Dan Bailey
Double Negative Visual Effects

# Talks

■ **Full Conference Access**

## All About Avatar
MONDAY, 26 JULY
9-10:30 AM

**SESSION CHAIR**
Jim Hillin
Gradient Effects

**Virtual Production Stage**
Dejan Momcilovic
Weta Digital Ltd.

**Character and Environment Lighting Challenges on "Avatar"**
Kevin Smith
Weta Digital Ltd.

**Volume Rendering for "Avatar"**
Antoine Bouthors
Mark Davies
Weta Digital Ltd.

**Compositing "Avatar"**
Peter Hillman
Erik Winquist
Weta Digital Ltd.

Matthew Welford
The Moving Picture Company

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## Rendering Intangibles
MONDAY, 26 JULY
9-10:30 AM

**SESSION CHAIR**
Mike Bailey
Oregon State University

**The Filigree Effect in "Shrek Forever After": Making Art Dynamic From Sketch to 3D**
Andrew Kim
Alex Ongaro
DreamWorks Animation

**Lighting and Rendering "Alice In Wonderland"**
Adam Martinez
Terrance Tornberg
Sony Pictures Imageworks

**Fast Furry Ray Gathering**
Ivan Neulander
Rhythm & Hues Studios

**An Error-Estimation Framework for Photon Density Estimation**
Toshiya Hachisuka
University of California,
San Diego

Wojciech Jarosz
Disney Research Zürich

Henrik Jensen
University of California,
San Diego

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## Detailed Surfaces
MONDAY, 26 JULY
10:45 AM-12:15 PM

**SESSION CHAIR**
George ElKoura
Pixar Animation Studios

**An Accurate Method for Acquiring High-Resolution Skin-Displacement Maps**
Sebastian Sylwan
Gino Acevedo
Eugene D'Eon
Weta Digital Ltd.

**Sketch-Based 3D Shape Retrieval**
Mathias Eitz
Technische Universität Berlin

Tamy Boubekeur
École d'Ingénieurs Télécom
ParisTech

Kristian Hildebrand
Marc Alexa
Technische Universität Berlin

**Meshmixer: An Interface for Rapid Mesh Composition**
Ryan Schmidt
Karan Singh
University of Toronto

**Cyclic Twill-Woven Objects**
Ergun Akleman
Jianer Chen
Yen-Lin Chen
Qing Xing
Texas A&M University

# Talks

■ **Full Conference Access**

## Tissue & Medical Analysis

**MONDAY, 26 JULY**
**10:45 AM-12:15 PM**

**SESSION CHAIR**
Cindy Grimm
Washington University in
St. Louis

### Dynamic Hard-Soft Tissue Models for Orofacial Biomechanics

Ian Stavness
John Lloyd
The University of British
Columbia

Yohan Payan
TIMC-IMAG Lab, CNRS

Sidney Fels
The University of British
Columbia

### Distance Visualization of Ultrascale Data With Explorable Images

Kwan-Liu Ma
University of California, Davis

### Exploration of Bat-Wing Morphology Through A Strip Method and Visualization

Jian Chen
University of Southern
Mississippi

Daniel K. Riskin
Tatiana Y. Hubel
Brown University

David Willis
University of Massachusetts
Lowell

Arnold Song
Brown University

Hanyu Liu
University of Southern
Mississippi

Kenneth Breuer
Sharon M. Swartz
David H. Laidlaw
Brown University

## Volumes and Precipitation

**MONDAY, 26 JULY**
**2-3:30 PM**

**SESSION CHAIR**
Mark Carlson
DreamWorks Animation SKG

### Digital Water for "Avatar"

Allen Hemberger
Christoph Sprenger
Diego Trazzi
Sebastian Marino
Weta Digital, Ltd.

### Prep and Landing - Christmas in July: The Effects Snow Process

Ian Coony
Walt Disney Animation Studios

### I Love It When A Cloud Comes Together

Jerry Tessendorf
Jason Iversen
Sho Hasegawa
Hideki Okano
Rhythm & Hues Studios

### Single Scattering in Heterogeneous Participating Media

Cyril Delalandre
Pascal Gautron
Jean-Eudes Marvie
Technicolor Research &
Innovation Centers

Guillaume Francois
The Moving Picture Company

## Split Second Screen Space

**MONDAY, 26 JULY**
**2-3:30 PM**

**SESSION CHAIR**
Jerry Edsall
Relic Entertainment

### Screen Space Classification for Efficient Deferred Shading

Neil Hutchinson
Jeremy Moore
Balor Knight
Matthew Ritchie
George Parrish
Black Rock Studio,
The Walt Disney Company

### How to Get From 30 to 60 Frames Per Second in Video Games for "Free"

Dmitry Andreev
LucasArts

### Split-Second Motion Blur

Kenny Mitchell
Matt Ritchie
Greg Modern
Black Rock Studio,
The Walt Disney Company

### A Deferred-Shading Pipeline for Real-Time Indirect Illumination

Cyril Soler
Olivier Hoel
INRIA Rhone-Alpes

Frank Rochet
EDEN GAMES

# Talks

■ **Full Conference Access**

## Biomedical

**MONDAY, 26 JULY**

3:45-5:15 PM

**SESSION CHAIR**
Cindy Grimm
Washington University in St. Louis

### Estimating Subject-Specific Parameters for Modeling Hand Joints

Lillian Chang
Nancy Pollard
Carnegie Mellon University

### Multigrid Optical Flow for Medical Volume Registration

Ariel Bernal
Ashok Thirumurthi
Intel Corporation

Tyler Nowicki
Intel Corporation and University of Waterloo

Hans Pabst
Intel Corporation

Michael McCool
Intel of Canada Ltd.

### Sensorimotor Physiology: Modeling, Imaging, and Neural Control

Dinesh Pai
The University of British Columbia

## Simulation In Production

**TUESDAY, 27 JULY**

9-10:30 AM

**SESSION CHAIR**
David McAllister
NVIDIA Corporation

### Talking Trash: Technologies and Techniques for Simulating the Dump in "Toy Story 3"

David Ryu
Eric Froemling
Pixar Animation Studios

### Simulating Rapunzel's Hair in Disney's "Tangled"

Kelly Ward
Maryann Simmons
Andy Milne
Hidetaka Yosumi
Xinmin Zhao
Walt Disney Animation Studios

### Seamless Fracture in a Production Pipeline

Akash Garg
Kyle Maxwell
DreamWorks Animation

### Highly Detailed Fluid Simulations on the GPU

Mattias Lagergren
Fredrik Limsäter
Björn Rydahl
Fido Film AB

## Blowing $h!t Up

**TUESDAY, 27 JULY**

2-3:30 PM

**SESSION CHAIR**
Ken Museth
DreamWorks Animation

### "Avatar": Bending Rigid Bodies

Brice Criswell
Michael Lentine
Steve Sauers
Industrial Light & Magic

### "Transformers 2": Breaking Buildings

Brice Criswell
Jef Smith
David Deuber
Industrial Light & Magic

### Destroying LA for "2012"

Nafees Bin Zafar
DreamWorks Animation

David Stephens
Marten Larsson
Ryo Sakaguchi
Digital Domain

Michael Clive
DreamWorks Animation

Ramprasad Sampath
Digital Domain

Ken Museth
DreamWorks Animation

Dennis Blakey
Brian Gazdik
Robby Thomas
Digital Domain

# Talks

■ **Full Conference Access**

## Visualization for Art & Design
TUESDAY, 27 JULY
2-3:30 PM

**SESSION CHAIR**
Esther Lim
The Estuary, LLC

### Visualizing a Classic CPU in Action: The 6502
Gregory James
Industrial Light & Magic

Barry Silverman
Disus Inc.

Brian Silverman
Playful Invention Co.

### The Universe of Fonts, Charted by Machine
Joern Loviscach
Fachhochschule Bielefeld

### Synesthetic Color Scheme in "Fantasia"
DongSheng Cai
Syouiti Goto
Teruki Shinohara
University of Tsukuba

Noriko Nagata
Kwansei Gakuin University

Asako Fukumoto
Keio University

Jun Kurumisawa
Chiba University of Commerce

Nobuyoshi Asai
Aizu University

### SPLASH: Real or Virtual?
Mona Kim
Todd Palmer
Olga Subiros
Simon Taylor
PROGRAM COLLECTIVE

## Pipelines and Asset Management
TUESDAY, 27 JULY
3:45-5:15 PM

**SESSION CHAIR**
Erick Miller

### "Avatar": Modeling a Jungle, From Template to Film
Shawn Dunn
Marco Revelant
Weta Digital Ltd.

### Managing Thousands of Assets for the "Prince of Persia" City of Alamut
Greg Meeres-Young
Hannes Ricklefs
Robert Tovell
The Moving Picture Company

### Shared Perspectives in 2D and 3D, "Day & Night"
Michael Fu
Sandra Karpman
Sean Feeley
Pixar Animation Studios

### Prep and Landing: Set'm and Forget'm, A Motion Graphics Pipeline for Effects
Ian Coony
Walt Disney Animation Studios

### Example-Based Texture Synthesis in Disney's "Tangled"
Christian Eisenacher
Friedrich-Alexander-Universität
Erlangen-Nürnberg

Chuck Tappan
Brent Burley
Daniel Teece
Arthur Shek
Walt Disney Animation Studios

## APIs for Rendering
WEDNESDAY, 28 JULY
2-3:30 PM

**SESSION CHAIR**
Shalin Shodhan
Pixar Animation Studios

### Open Shading Language
Larry Gritz
Clifford Stein
Chris Kulla
Alejandro Conty
Sony Pictures Imageworks

### REYES Using DirectX 11
Andrei Tatarinov
NVIDIA Corporation

### WebGLot: High-Performance Visualization in the Browser
Dan Lecocq
Markus Hadwiger
Alyn Rockwood
King Abdullah University of Science and Technology

# Talks

■ **Full Conference Access**

## Fun In Flatland
**THURSDAY, 29 JULY**
9-10:30 AM

**SESSION CHAIR**
Edward Lam
Side Effects Software Inc.

### NPR Gabor Noise for Coherent Stylization
Pierre Benard
Grenoble Universités, CNRS, LJK, and INRIA Grenoble Rhone-Alpes

Ares Lagae
Katholieke Universiteit Leuven

Peter Vangorp
Sylvain Lefebvre
George Drettakis
INRIA

Joëlle Thollot
Université de Grenoble

### Project Gustav: Immersive Digital Painting
William Baxter
Nelson Chu
Naga Govindaraju
Microsoft Research

### Real-Time GPU-Based Video Upscaling From Local Self Examples
Gilad Freedman
Raanan Fattal
The Hebrew University of Jerusalem

### Browsing Large Image Databases
Ronald Richter
Mathias Eitz
Marc Alexa
Technische Universität Berlin

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## Motion & Emotion
**THURSDAY, 29 JULY**
9-10:30 AM

**SESSION CHAIR**
Bobby Bodenheimer
Vanderbilt University

### On-Site Real-Time 3D Match Move for MR-Based Previsualization With Relighting
Ryosuke Ichikari
Kaori Kikuchi
Wataru Toishita
Ryuhei Tenmoku
Fumihisa Shibata
Hideyuki Tamura
Ritsumeikan University

### Motion Regularization for Matting Motion-Blurred Objects
HaiTing Lin
National University of Singapore

Yu-Wing Tai
Korea Advanced Institute of Science and Technology

Michael Brown
National University of Singapore

### The Mimic Game: Real-Time Recognition and Imitation of Emotional Facial Expressions
Nicolas Stoiber
Olivier Aubault
Orange Labs

Renaud Seguier
Supélec

Gaspard Breton
Orange Labs

### Effective Animation of Sign Language With Prosodic Elements
Nicoletta Adamo-Villani
Purdue University

Kyle Hayward
Human Head Studios

Jason Lestina
Ronnie Wilbur
Purdue University

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## Games & Real Time
**THURSDAY, 29 JULY**
10:45 AM-12:15 PM

**SESSION CHAIR**
Chris Wyman
University of Iowa

### User-Generated Terrain in ModNation Racers
James Grieve
Clint Hanson
John (Liuguo) Zhang
Lucas Granito
Cody Snyder
United Front Games

### Irradiance Rigs
Hong Yuan
University of Massachusetts Amherst

Derek Nowrouzezahrai
University of Toronto

Peter-Pike Sloan
Disney Interactive Studios

### Practical Morphological Anti-Aliasing on the GPU
Venceslas Biri
Adrien Herubel
Université Paris-Est

Stephane Deverly
Duran Duboi Studio

### Curvature-Dependent Reflectance Function for Rendering Translucent Materials
Hiroyuki Kubo
Waseda University

Yoshinori Dobashi
Hokkaido University

Shigeo Morishima
Waseda University

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# Talks

■ **Full Conference Access**

## Interaction Omelette
**THURSDAY, 29 JULY**
10:45 AM-12:15 PM

**SESSION CHAIR**
Mashhuda Glencross
ARM Ltd.

### Head-Mounted Photometric Performance Capture

Andrew Jones
Graham Fyffe
Xueming Yu
Wan-Chun Ma
Jay Busch
Mark Bolas
Paul Debevec
University of Southern California, Institute for Creative Technologies

### Dynamic Luminance Correction for Colored Surfaces

Naoki Hashimoto
Akio Watanabe
The University of Electro-Communications

### A Laser-Based System for Through-the-Screen Collaboration

Ian Robinson
Kar-Han Tan
Ramin Samadani
Bruce Culbertson
John Apostolopoulos
HP Labs

### A Spatial Workbench for Physically Based Sound

Benjamin Schroeder
Richard Parent
Marc Ainger
The Ohio State University

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## Fur, Feathers and Trees
**THURSDAY, 29 JULY**
3:45-5:15 PM

**SESSION CHAIR**
Ann McNamara
Texas A&M University

### Ways to Skin a "Hairless" Cat: Building a Creepy Kitty Villain at Tippett Studio

Lori Petrini
Aharon Bourland
Scott Liedtka
Michael Farnsworth
Tippett Studio

### Furtility: Dynamic Grooming for "Wolfman"

Damien Fagnou
The Moving Picture Company

James Leaning
The Moving Picture Company

### Feathers for Mystical Creatures: Creating Pegasus for "Clash of the Titans"

James Leaning
Damien Fagnou
The Moving Picture Company

### Art-Directing Disney's Tangled Procedural Trees

Arthur Shek
Dylan Lacewell
Andrew Selle
Daniel Teece
Tom Thompson
Walt Disney Animation Studios

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## Touchy-Feely
**THURSDAY, 29 JULY**
3:45-5:15 PM

**SESSION CHAIR**
Dylan Moore
Apple Computer, Inc.

### Content-Adaptive Parallax Barriers for Automultiscopic 3D Display

Douglas Lanman
Brown University

Matthew Hirsch
Yun Hee Kim
Ramesh Raskar
MIT Media Lab

### NiCE Formular Editor

Jakob Leitner
Christian Rendl
Florian Perteneder
Adam Gokcezade
Thomas Seifried
Michael Haller
Media Interaction Lab

Robert Zeleznik
Andrew Bragdon
Brown University

### 3D Multitouch: When Tactile Tables Meet Immersive Visualization Technologies

Jean-Baptiste de la Rivière
Immersion SAS

### Z-touch: A Multi-Touch System That Detects Spatial Gesture Near the Tabletop

Yoshiki Takeoka
Takashi Miyaki
The University of Tokyo

Jun Rekimoto
The University of Tokyo, Sony Computer Science Laboratory

# Technical Papers

Full Conference registration allows access to all SIGGRAPH 2010 Technical Papers. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Technical Papers sessions you wish to attend.

■ **Full Conference Access**

#siggraph #technicalpapers

**SIGGRAPH Technical Papers is the premier international forum for disseminating new scholarly work in computer graphics and interactive techniques. At the conference, paper authors provide brief overviews of their work in the Technical Papers Fast Forward event.**

Technical Papers are published as a special issue of *ACM Transactions on Graphics*. In addition to papers selected by the SIGGRAPH 2010 Technical Papers Jury, the conference presents papers that have been published in *ACM Transactions on Graphics* during the past year.

## Technical Papers Fast Forward
### SUNDAY, 25 JULY, 6-8 PM

#siggraph #technicalpapers

The world's leading experts in computer graphics and interactive techniques preview their latest work in provocative, sometimes hilarious summaries of the field's evolution.

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## Computational Photography
### MONDAY, 26 JULY, 9-10:30 AM

**SESSION CHAIR**
Rob Fergus
New York University

### The Frankencamera: An Experimental Platform for Computational Photography

Andrew Adams
Eino-Ville Talvala
Sung Hee Park
David E. Jacobs
Stanford University

Boris Ajdin
Universität Ulm

Natasha Gelfand
Nokia Research Center Palo Alto

Jennifer Dolson
Stanford University

Daniel Vaquero
University of California, Santa Barbara

Jongmin Baek
Stanford University

Marius Tico
Nokia Research Center Palo Alto

Hendrik P. A. Lensch
Universität Ulm

Wojciech Matusik
Disney Research Zürich

Kari Pulli
Nokia Research Center Palo Alto

Mark Horowitz
Marc Levoy
Stanford University

### Image Deblurring Using Inertial Measurement Sensors

Neel Joshi
Sing Bing Kang
C. Lawrence Zitnick
Richard Szeliski
Microsoft Corporation

### Diffusion-Coded Photography for Extended Depth of Field

Oliver Cossairt
Changyin Zhou
Shree Nayar
Columbia University

### Coded Aperture Projection

Max Grosse
Bauhaus-Universität Weimar

Gordon Wetzstein
The University of British Columbia

Anselm Grundhöfer
Bauhaus-Universität Weimar

Oliver Bimber
Johannes Kepler Universität Linz

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# Technical Papers

■ **Full Conference Access**

## Editing Motion
**MONDAY, 26 JULY, 9-10:30 AM**

**SESSION CHAIR**
Robert Sumner
Disney Research Zürich

### Example-Based Facial Rigging
Hao Li
ETH Zürich

Thibaut Weise
Mark Pauly
Ecole Polytechnique Federale de
Lausanne

### Interactive Generation of Human Animation With Deformable Motion Models
Jianyuan Min
Yen-Lin Chen
Jinxiang Chai
Texas A&M University

### Spatial Relationship Preserving Character Motion Adaptation
Edmond S.L. Ho
Taku Komura
University of Edinburgh

Chiew-Lan Tai
Hong Kong University of Science and
Technology

### Face Poser:  Interactive Modeling of 3D Facial Expressions Using Facial Priors
Manfred Lau
Carnegie Mellon University

Jinxiang Chai
Texas A&M University

Ying-Qing Xu
Heung-Yeung Shum
Microsoft Research Asia

## Lighting & Material Design
**MONDAY, 26 JULY, 9-10:30 AM**

**SESSION CHAIR**
Peter-Pike Sloan
Disney Interactive Studios

### envyLight: An Interface for Editing Natural Illumination
Fabio Pellacini
Dartmouth College

### Toward Evaluating Material Design Interface Paradigms for Novice Users
William B. Kerr
Fabio Pellacini
Dartmouth College

### Interactive On-Surface Signal Deformation
Tobias Ritschel
Thorsten Thormählen
Max-Planck-Institut für Informatik

Carsten Dachsbacher
Universität Stuttgart

Jan Kautz
University College London

Hans-Peter Seidel
Max-Planck-Institut für Informatik

### PantaRay: Fast Ray-Traced Occlusion Caching
Jacopo Pantaleoni
NVIDIA Research

Luca Fascione
Martin Hill
Weta Digital Ltd.

Timo Aila
NVIDIA Corporation

# Technical Papers

■ **Full Conference Access**

## Elastic Models
**MONDAY, 26 JULY, 2-3:30 PM**

**SESSION CHAIR**
Doug James
Cornell University

### A Simple Geometric Model for Elastic Deformations
Isaac Chao
California Institute of Technology

Ulrich Pinkall
Technische Universität Berlin

Patrick Sanan
Peter Schröder
California Institute of Technology

### Unified Simulation of Elastic Rods, Shells, and Solids
Sebastian Martin
Peter Kaufmann
ETH Zürich

Mario Botsch
Universität Bielefeld

Eitan Grinspun
Columbia University

Markus Gross
ETH Zürich, Disney Research Zürich

### An Efficient Multigrid Method for the Simulation of High-Resolution Elastic Solids
Yongning Zhu
University of California, Los Angeles

Eftychios Sifakis
Joseph Teran
University of California Los Angeles and Walt Disney Animation Studios

Achi Brandt
Weizmann Institute of Science

### A Simple Approach to Nonlinear Tensile Stiffness for Accurate Cloth Simulation
Pascal Volino
Nadia Magnenat-Thalmann
MIRALab, University of Geneva

François Faure
LJK, INRIA, Université de Grenoble

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## Faces & Capture
**MONDAY, 26 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
Hanspeter Pfister
Harvard University

### High-Quality Single-Shot Capture of Facial Geometry
Thabo Beeler
ETH Zürich, Disney Research Zürich

Bernd Bickel
Paul Beardsley
Bob Sumner
Disney Research Zürich

Markus Gross
ETH Zürich, Disney Research Zürich

### High-Resolution Passive Facial Performance Capture
Derek Bradley
Wolfgang Heidrich
Tiberiu Popa
Alla Sheffer
The University of British Columbia

### Temporal Upsampling of Performance Geometry Using Photometric Alignment
Cyrus A. Wilson
Abhijeet Ghosh
Pieter Peers
Jen-Yuan Chiang
Jay Busch
Paul Debevec
University of Southern California, Institute for Creative Technologies

### VideoMocap: Modeling Physically Realistic Human Motion From Monocular Video Sequences
Xiaolin Wei
Jinxiang Chai
Texas A&M University

# Technical Papers

■ **Full Conference Access**

## Architectural Patterns
**MONDAY, 26 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
John Snyder
Microsoft Research

### Geodesic Patterns

Helmut Pottmann
King Abdullah University of Science and
Technology, Technische Universität Wien

Qixing Huang
Stanford University

Alexander Schiftner
Evolute GmbH,
Technische Universität Wien

Bailin Deng
Technische Universität Wien

Martin Kilian
Evolute GmbH, Technische Universität
Wien

Leonidas Guibas
Stanford University

Johannes Wallner
Technische Universität Graz

### K-set Tilable Surfaces

Chi-Wing Fu
Chi-Fu Lai
Ying He
Nanyang Technological University

Daniel Cohen-Or
Tel Aviv University

### Paneling Architectural Freeform Surfaces

Michael Eigensatz
ETH Zürich, Ecole Polytechnique Federale
de Lausanne

Martin Kilian
Alexnder Schiftner
Evolute GmbH, Technische Universität
Wien

Niloy J. Mitra
Indian Institute of Technology Delhi,
King Abdullah University of Science and
Technology

Helmut Pottmann
King Abdullah University of Science and
Technology, Technische Universität Wien

Mark Pauly
Ecole Polytechnique Federale de
Lausanne

### Triangle Surfaces With Discrete Equivalence Classes

Mayank Singh
Scott Schaefer
Texas A&M University

## Fluids I
**TUESDAY, 27 JULY, 9-10:30 AM**

**SESSION CHAIR**
Miguel Otaduy
Universidad Rey Juan Carlos, Madrid

### Matching Fluid Simulation Elements to Surface Geometry and Topology

Tyson Brochu
Christopher Batty
Robert Bridson
The University of British Columbia

### A Multiscale Approach to Mesh-Based Surface Tension Flows

Nils Thürey
ETH Zürich

Chris Wojtan
Georgia Institute of Technology

Markus Gross
ETH Zürich

Greg Turk
Georgia Institute of Technology

### Dynamic Local Remeshing for Elastoplastic Simulation

Martin Wicke
Daniel Ritchie
Bryan M. Klingner
Sebastian Burke
Jonathan R. Shewchuk
James F. O'Brien
University of California, Berkeley

### Physics-Inspired Topology Changes for Thin Fluid Features

Chris Wojtan
Georgia Institute of Technology

Nils Thuerey
Markus Gross
ETH Zürich

Greg Turk
Georgia Institute of Technology

# Technical Papers

■ **Full Conference Access**

## Stylized Rendering & Illusions
**TUESDAY, 27 JULY, 9-10:30 AM**

**SESSION CHAIR**
Maneesh Agrawala
University of California, Berkeley

### Modeling and Rendering of Impossible Figures
Tai-Pang Wu
The Chinese University of Hong Kong

Chi-Wing Fu
Nanyang Technological University

Sai-Kit Yeung
The Hong Kong University of Science and Technology

Jiaya Jia
The Chinese University of Hong Kong

Chi-Keung Tang
The Hong Kong University of Science and Technology

### Camouflage Images
Hung-Kuo Chu
Wei-Hsin Hsu
National Cheng Kung University

Niloy J. Mitra
Indian Institute of Technology Delhi

Daniel Cohen-Or
Tel Aviv University

Tien-Tsin Wong
The Chinese University of Hong Kong

Tong-Yee Lee
National Cheng Kung University

### Structure-Based ASCII Art
Xuemiao Xu
Linling Zhang
Tien-Tsin Wong
The Chinese University of Hong Kong

### From Image Parsing to Painterly Rendering
Kun Zeng
Lotus Hill Institute

Mingtian Zhao
Lotus Hill Institute and
University of California, Los Angeles

Caiming Xiong
Lotus Hill Institute

Song-Chun Zhu
Lotus Hill Institute and
University of California, Los Angeles

## Rendering Hair & Scattering
**TUESDAY, 27 JULY, 9-10:30 AM**

**SESSION CHAIR**
Tao Ju
Washington University in St. Louis

### A Radiative Transfer Framework for Rendering Materials With Anisotropic Structure
Wenzel Jakob
Adam Arbree
Jonathan T. Moon
Kavita Bala
Steve Marschner
Cornell University

### Line-Space Gathering for Single Scattering in Large Scenes
Xin Sun
Microsoft Research Asia

Kun Zhou
Zhejiang University

Stephen Lin
Baining Guo
Microsoft Research Asia

### Interactive Hair Rendering Under Environment Lighting
Zhong Ren
Microsoft Research Asia

Kun Zhou
Tengfei Li
Wei Hua
Zhejiang University

Baining Guo
Microsoft Research Asia

### An Artist-Friendly Hair Shading System
Iman Sadeghi
University of California, San Diego,
Walt Disney Animation Studios

Heather Pritchett
Walt Disney Animation Studios

Henrik Wann Jensen
University of California, San Diego

Rasmus Tamstorf
Walt Disney Animation Studios

# Technical Papers

■ **Full Conference Access**

## Expressive Rendering & Illustrations
**TUESDAY, 27 JULY, 10:45 AM-12:15 PM**

**SESSION CHAIR**
Adam Finkelstein
Princeton University

### Programmable Motion Effects
Johannes Schmid
ETH Zürich

Robert W. Sumner
Huw Bowles
Disney Research Zürich

Markus Gross
ETH Zürich, Disney Research Zürich

### Illustrating How Mechanical Assemblies Work
Niloy J. Mitra
Yong-Liang Yang
King Abdullah University of Science and Technology

Dong-Ming Yan
The University of Hong Kong

Wilmot Li
Adobe Systems Incorporated

Maneesh Agrawala
University of California, Berkeley

### Programmable Rendering of Line Drawing From 3D Scenes
Stephane Grabli
University of Grenoble and INRIA

Emmanuel Turquin
University of Grenoble

Frédo Durand
Massachusetts Institute of Technology

François X. Sillion
INRIA and University of Grenoble

### 2.5D Cartoon Models
Alec Rivers
Massachusetts Institute of Technology

Takeo Igarashi
The University of Tokyo

Frédo Durand
Massachusetts Institute of Technology

## Fabrication
**TUESDAY, 27 JULY, 10:45 AM-12:15 PM**

**SESSION CHAIR**
Tim Weyrich
University College London

### Reliefs as Images
Marc Alexa
Technische Universität Berlin

Wojciech Matusik
Disney Research Zürich

### Physical Reproduction of Materials With Specified Subsurface Scattering
Milos Hasan
Harvard University

Martin Fuchs
Princeton University

Wojciech Matusik
Disney Research

Hanspeter Pfister
Harvard University

Szymon Rusinkiewicz
Princeton University

### Fabricating Spatially Varying Subsurface Scattering
Yue Dong
Tsinghua University

Jiaping Wang
Microsoft Research Asia

Fabio Pellacini
Dartmouth College

Xin Tong
Baining Guo
Microsoft Research Asia

### Design and Fabrication of Materials With Desired Deformation Behavior
Bernd Bickel
ETH Zürich, Disney Research Zürich

Moritz Bächer
Harvard University

Miguel Otaduy
Universidad Rey Juan Carlos

Hyunho Richard Lee
Hanspeter Pfister
Harvard University

Markus Gross
ETH Zürich, Disney Research Zürich

Wojciech Matusik
Disney Research Zürich

# Technical Papers

■ **Full Conference Access**

## GPU Rendering
**TUESDAY, 27 JULY, 2-3:30 PM**

**SESSION CHAIR**
Sylvain Lefebvre
REVES/INRIA Sophie-Antipolis

### Micropolygon Ray Tracing With Defocus and Motion Blur

Qiming Hou
Tsinghua University

Hao Qin
Wenyao Li
Zhejiang University

Baining Guo
Microsoft Research Asia

Kun Zhou
Zhejiang University

### Real-Time Lens-Blur Effects and Focus Control

Sungkil Lee
Max-Planck-Institut für Informatik

Elmar Eisemann
Max-Planck-Institut für Informatik,
Universität des Saarlandes

Hans-Peter Seidel
Max-Planck-Institut für Informatik

### OptiX: A General Purpose Ray Tracing Engine

Steven G. Parker
James Bigler
Andreas Dietrich
Heiko Friedrich
Jared Hoberock
David Luebke
David McAllister
Morgan McGuire
Keith Morley
Austin Robison
Martin Stich
NVIDIA Corporation

### Reducing Shading on GPUs Using Quad-Fragment Merging

Kayvon Fatahalian
Solomon Boulos
James Hegarty
Stanford University

Kurt Akeley
Microsoft Research

William R. Mark
Intel Corporation

Henry Moreton
NVIDIA Corporation

Pat Hanrahan
Stanford University

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## Physics-Based Sound & Bubbles
**TUESDAY, 27 JULY, 2-3:30 PM**

**SESSION CHAIR**
George Drettakis
REVES/INRIA Sophia-Antipolis

### Precomputed Wave Simulation for Real-Time Sound Propagation of Dynamic Sources in Complex Scenes

Nikunj Raghuvanshi
Microsoft Corporation
University of North Carolina at Chapel Hill

John Snyder
Microsoft Corporation

Ravish Mehra
Ming Lin
University of North Carolina at Chapel Hill

Naga Govindaraju
Microsoft Corporation

### Rigid-Body Fracture Sound With Precomputed Soundbanks

Changxi Zheng
Doug L. James
Cornell University

### Sounding Liquids:  Automatic Sound Synthesis From Fluid Simulation

William Moss
Hengchin Yeh
University of North Carolina at Chapel Hill

Jeong-Mo Hong
Dongguk University

Ming C. Lin
Dinesh Manocha
University of North Carolina at Chapel Hill

### A Practical Simulation of Dispersed Bubble Flow

Doyub Kim
Seoul National University

Oy-young Song
Sejong University

Hyeong-Seok Ko
Seoul National University

# Technical Papers

■ **Full Conference Access**

## Planning & Terrain
**TUESDAY, 27 JULY, 2-3:30 PM**

**SESSION CHAIR**
Michiel van de Panne
University of British Columbia

### Robust Physics-Based Locomotion Using Low-Dimensional Planning

Igor Mordatch
Martin de Lasa
Aaron Hertzmann
University of Toronto

### Terrain-Adaptive Bipedal Locomotion Control

Jia-chi Wu
Zoran Popović
University of Washington

### Optimizing Walking Controllers for Uncertain Inputs and Environments

Jack M. Wang
David J. Fleet
Aaron Hertzmann
University of Toronto

### Optimal Feedback Control for Character Animation Using an Abstract Model

Yuting Ye
C. Karen Liu
Georgia Institute of Technology

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## Displays and Eyes
**TUESDAY, 27 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
Marc Levoy
Stanford University

### Nonlinear Disparity Mapping for Stereoscopic 3D

Manuel Lang
Alexander Hornung
Oliver Wang
Disney Research Zürich

Steven Poulakos
Disney Research Zürich, ETH Zürich

Aljoscha Smolic
Disney Research Zürich

Markus Gross
Disney Research Zürich, ETH Zürich

### A Multi-Layered Display With Water Drops

Peter Barnum
Srinivasa G. Narasimhan
Takeo Kanade
Carnegie Mellon University

### Netra: Interactive Display for Estimating Refractive Errors and Focal Range

Vitor F. Pamplona
Ankit Mohan
Manuel M. Oliveira
Ramesh Raskar
MIT Media Lab

### Photorealistic Models for Pupil-Light Reflex and Iridal Pattern Deformation

Vitor F. Pamplona
Manuel M. Oliveira
Universidade Federal do Rio Grande do Sul

Gladimir V. G. Baranoski
University of Waterloo

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## Geometry Algorithms & Sampling
**TUESDAY, 27 JULY, 3:45-5:30 PM**

**SESSION CHAIR**
Pedro Sander
The Hong Kong University
of Science and Technology

### Improving Chen & Han's Algorithm on the Discrete Geodesic Problem

Shi-Qing Xin
Guo-jin Wang
Zhejiang University

### Feature-Preserving Triangular Geometry Images for Level-of-Detail Representation of Static and Skinned Meshes

Wei-Wen Feng
Byung-Uck Kim
Yizhou Yu
University of Illinois at Urbana-Champaign

Liang Peng
Intel Corporation

John Hart
University of Illinois at Urbana-Champaign

### Controllable Conformal Maps for Shape Deformation and Interpolation

Ofir Weber
Craig Gotsman
Technion - Israel Institute of Technology

### Accurate Multidimensional Poisson-disk Sampling

Manuel N. Gamito
Lightwork Design Ltd

Steve C. Maddock
The University of Sheffield

### Multi-Class Blue Noise Sampling

Li-Yi Wei
Microsoft Research

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# Technical Papers

■ **Full Conference Access**

## Collisions and Contact
**WEDNESDAY, 28 JULY, 9-10:30 AM**

**SESSION CHAIR**
Joseph Teran
University of California, Los Angeles

### Star Contours for Efficient Hierarchical Self-Collision Detection

Sara C. Schvartzman
Alvaro G. Pérez
Miguel A. Otaduy
Universidad Rey Juan Carlos

### Subspace Self-Collision Culling

Jernej Barbič
University of Southern California

Doug L. James
Cornell University

### Volume Contact Constraints at Arbitrary Resolution

Jérémie Allard
INRIA

François Faure
Université Joseph Fourier - Grenoble I

Florent Falipou
Christian Duriez
INRIA

Paul G. Kry
McGill University

### Collision-Free Construction of Animated Feathers Using Implicit Constraint Surfaces

Andrew J. Weber
Galen Gornowicz
DreamWorks Animation

## Boundaries, Edges & Gradients
**WEDNESDAY, 28 JULY, 9-10:30 AM**

**SESSION CHAIR**
Sylvain Paris
Adobe Systems Incorporated

### RepFinder: Finding Approximately Repeated Scene Elements for Image Editing

Ming-Ming Cheng
Fang-Lue Zhang
Tsinghua University

Niloy J. Mitra
Indian Institute of Technology Delhi,
King Abdullah University of Science and
Technology

Xiaolei Huang
Lehigh University

Shi-Min Hu
Tsinghua University

### Edge-Based Image Coarsening

Raanan Fattal
Hebrew University

Robert Carroll
Maneesh Agrawala
University of California, Berkeley

### GradientShop: A Gradient-Domain Optimization Framework for Image and Video Filtering

Pravin Bhat
Weta Digital

C. Lawrence Zitnick
Michael F. Cohen
Microsoft Research

Brian Curless
University of Washington

### Distributed Gradient-Domain Processing of Planar and Spherical Images

Michael Kazhdan
Johns Hopkins University

Dinoj Surendran
Microsoft Corporation

Hugues Hoppe
Microsoft Research

# Technical Papers

■ **Full Conference Access**

## Textures

**WEDNESDAY, 28 JULY,**
**10:45 AM-12:15 PM**

**SESSION CHAIR**
Greg Turk
Georgia Institute of Technology

### By-Example Synthesis of Architectural Textures

Sylvain Lefebvre
REVES/INRIA Sophia-Antipolis, ALICE/INRIA Nancy

Samuel Hornus
ALICE/INRIA Nancy, GEOMETRICA/INRIA Sophia-Antipolis

Anass Lasram
ALICE/INRIA Nancy

### Synthesizing Structured Image Hybrids

Eric Risser
Trinity College Dublin

Charles Han
Columbia University

Rozenn Dahyot
Trinity College Dublin

Eitan Grinspun
Columbia University

### Vector Solid Textures

Lvdi Wang
Tsinghua University

Kun Zhou
Zhejiang University

Yizhou Yu
University of Illinois at Urbana-Champaign

Baining Guo
Microsoft Research Asia

### Mesh Colors

Cem Yuksel
John Keyser
Texas A&M University

Donald H. House
Clemson University

## Video

**WEDNESDAY, 28 JULY,**
**10:45 AM-12:15 PM**

**SESSION CHAIR**
Rick Szeliski
Microsoft Research

### Unstructured Video-Based Rendering: Interactive Exploration of Casually Captured Videos

Luca Ballan
ETH Zürich

Gabriel J. Brostow
University College London

Jens Puwein
Marc Pollefeys
ETH Zürich

### Dynamic Video Narratives

Carlos D. Correa
Kwan-Liu Ma
University of California, Davis

### Video Tapestries With Continuous Temporal Zoom

Connelly Barnes
Princeton University

Dan B. Goldman
Eli Shechtman
Adobe Systems Incorporated

Adam Finkelstein
Princeton University

### Motion-Based Video Retargeting With Optimized Crop-and-Warp

Yu-Shuen Wang
Hui-Chih Lin
National Cheng Kung University

Olga Sorkine
New York University

Tong-Yee Lee
National Cheng Kung University

# Technical Papers

■ **Full Conference Access**

## Perception, Presence & Animation
**WEDNESDAY, 28 JULY, 2-3:30 PM**

**SESSION CHAIR**
John C. Hart
University of Illinois

### Fool Me Twice: Exploring and Exploiting Error Tolerance in Physics-Based Animation

Thomas Y. Yeh
IEnteractive Research and Technology

Glenn Reinman
University of California, Los Angeles

Sanjay J. Patel
University of Illinois at Urbana-Champaign

Petros Faloutsos
University of California, Los Angeles

### Seeing is Believing: Body Motion Dominates in Multisensory Conversations

Cathy Ennis
Rachel McDonnell
Carol O' Sullivan
Trinity College Dublin

### Simulating Virtual Environments Within Virtual Environments as the Basis for a Psychophysics of Presence

Mel Slater
Bernhard Spanlang
David Corominas
Universitat de Barcelona

### Using Blur to Affect Perceived Distance and Size

Robert T. Held
University of California, San Francisco and University of California, Berkeley

Emily A. Cooper
James F. O'Brien
Martin S. Banks
University of California, Berkeley

## Urban Reconstruction & Explanation
**WEDNESDAY, 28 JULY, 2-3:30 PM**

**SESSION CHAIR**
Brian Curless
University of Washington

### SmartBoxes for Interactive Urban Reconstruction

Liangliang Nan
Andrei Sharf
Shenzhen Institute of Advanced Technology

Hao Zhang
Simon Fraser University

Daniel Cohen-Or
Tel-Aviv University

Baoquan Chen
Shenzhen Institute of Advanced Technology

### Non-Local Scan Consolidation for 3D Urban Scenes

Qian Zheng
Andrei Sharf
Guowei Wan
Yangyan Li
Shenzhen Institute of Advanced Technology

Niloy J. Mitra
Indian Institute of Technology Delhi

Daniel Cohen-Or
Tel-Aviv University

Baoquan Chen
Shenzhen Institute of Advanced Technology

### Ambient Point Clouds for View Interpolation

Michael Goesele
Jens Ackermann
Simon Fuhrmann
Carsten Haubold
Ronny Klowsky
Technische Universität Darmstadt

Drew Steedly
Microsoft Corporation

Richard Szeliski
Microsoft Research

### Street Slide: Browsing Street-Level Imagery

Johannes Kopf
Microsoft Research Redmond

Billy Chen
Microsoft Corporation

Richard Szeliski
Michael F. Cohen
Microsoft Research

# Technical Papers

■ **Full Conference Access**

## Appearance Capture & Image Processing

WEDNESDAY, 28 JULY, 3:45-5:15 PM

**SESSION CHAIR**
Steve Marschner
Cornell University

### Acquisition and Analysis of Bispectral Bidirectional Reflectance and Reradiation Distribution Functions

Matthias B. Hullin
Max-Planck-Institut für Informatik

Johannes Hanika
Boris Ajdin
Universität Ulm

Hans-Peter Seidel
Max-Planck-Institut für Informatik

Jan Kautz
University College London

Hendrik P. A. Lensch
Universität Ulm

### Manifold Bootstrapping for SVBRDF Capture

Yue Dong
Tsinghua University

Jiaping Wang
Xin Tong
Microsoft Research Asia

John Snyder
Microsoft Research

Yanxiang Lan
Tsinghua University

Moshe Ben-Ezra
Microsoft Research Asia

Baining Guo
Microsoft Research Asia

### A Coaxial Optical Scanner for Synchronous Acquisition of 3D Geometry and Surface Reflectance

Michael Holroyd
Jason Lawrence
University of Virginia

Todd Zickler
Harvard University

### Smoothed Local Histogram Filters

Michael Kass
Pixar Animation Studios

Justin Solomon
Pixar Animation Studios,
Stanford University

## Understanding Shape

WEDNESDAY, 28 JULY, 3:45-5:15 PM

**SESSION CHAIR**
Misha Kazhdan
John Hopkins University

### Discrete-Scale Axis Representations for 3D Geometry

Balint Miklos
ETH Zürich

Joachim Giesen
Friedrich-Schiller-Universität Jena

Mark Pauly
Ecole Polytechnique Federale de Lausanne

### Learning 3D Mesh Segmentation and Labeling

Evangelos Kalogerakis
Aaron Hertzmann
Karan Singh
University of Toronto

### Symmetry-Factored Embedding and Distance

Yaron Lipman
Xiaobai Chen
Ingrid Daubechies
Thomas Funkhouser
Princeton University

### A Connection Between Partial Symmetry and Inverse Procedural Modeling

Martin Bokeloh
Max-Planck-Institut für Informatik

Michael Wand
Universität des Saarlandes and
Max-Planck-Institut für Informatik

Hans-Peter Seidel
Max-Planck-Institut für Informatik

# Technical Papers

■ **Full Conference Access**

## Cloth Animation
**THURSDAY, 29 JULY, 9-10:30 AM**

**SESSION CHAIR**
Mario Botsch
Bielefeld University

### Efficient Yarn-Based Cloth With Adaptive Contact Linearization

Jonathan M. Kaldor
Doug L. James
Steve Marschner
Cornell University

### Stable Spaces for Real-Time Clothing

Edilson de Aguiar
Leonid Sigal
Disney Research Pittsburgh

Adrien Treuille
Carnegie Mellon University

Jessica K. Hodgins
Disney Research Pittsburgh

### Example-Based Wrinkle Synthesis for Clothing Animation

Huamin Wang
Florian Hecht
Ravi Ramamoorthi
James O'Brien
University of California, Berkeley

### A Deformation Transformer for Real-Time Cloth Animation

Wei-Wen Feng
Yizhou Yu
Byung-Uck Kim
University of Illinois at Urbana-Champaign

## 3D Modeling
**THURSDAY, 29 JULY, 9-10:30 AM**

**SESSION CHAIR**
Peter Wonka
Arizona State University

### A Framework for Modeling 3D Scenes Using Pose-Free Equations

Daniel G. Aliaga
Ji Zhang
Mireille Boutin
Purdue University

### 3D Modeling With Silhouettes

Alec Rivers
Frédo Durand
Massachusetts Institute of Technology

Takeo Igarashi
The University of Tokyo

### Apparent Layer Operations for Manipulation of Deformable Objects

Takeo Igarashi
The University of Tokyo

Jun Mitani
University of Tsukuba

### Popup: Automatic Paper Architectures From 3D Models

Xian-Ying Li
Chao-Hui Shen
Shi-Sheng Huang
Tsinghua University

Tao Ju
Washington University in St. Louis

Shi-Min Hu
Tsinghua University

# Technical Papers

■ **Full Conference Access**

## Perceptual Rendering Methods
THURSDAY, 29 JULY, 10:45 AM-12:15 PM

**SESSION CHAIR**
Adam Finkelstein
Princeton University

### Toward a Perceptual Space for Gloss
Josh Wills
University of California, San Diego

Sameer Agarwal
Google

David Kriegman
Serge Belongie
University of California, San Diego

### Effects of Global Illumination Approximations on Material Appearance
Jaroslav Krivanek
Cornell University

James A. Ferwerda
Rochester Institute of Technology

Kavita Bala
Cornell University

### Subtle Gaze Direction
Reynold Bailey
Rochester Institute of Technology

Ann McNamara
Texas A&M University

Nisha Sudarsanam
Mindjet Corporation

Cindy Grimm
Washington University in St. Louis

### Apparent Display Resolution Enhancement for Moving Images
Piotr Didyk
Max-Planck-Institut für Informatik

Elmar Eisemann
L'école Télécom ParisTech,
CNRS-LTIC, Universität des Saarlandes,
Max-Planck-Institut für Informatik

Tobias Ritschel
Karol Myszkowski
Hans-Peter Seidel
Max-Planck-Institut für Informatik

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## Fluids II
THURSDAY, 29 JULY, 10:45 AM- 12:15 PM

**SESSION CHAIR**
Michael Kass
Pixar Animation Studios

### A Novel Algorithm for Incompressible Flow Using Only a Coarse Grid Projection
Michael Lentine
Wen Zheng
Ronald Fedkiw
Stanford University

### Filament-Based Smoke With Vortex Shedding and Variational Reconnection
Steffen Weissmann
Ulrich Pinkall
Technische Universität Berlin

### Underwater Cloth Simulation With Fractional Derivatives
Oktar Ozgen
Marcelo Kallmann
Lynnette E. S. Ramirez
Carlos F. M. Coimbra
University of California, Merced

### Discrete Viscous Threads
Miklos Bergou
Columbia University

Basile Audoly
Université Pierre et Marie Curie -
Paris 6, Centre national de la recherche
scientifique

Etienne Vouga
Columbia University

Max Wardetzky
Universität Göttingen

Eitan Grinspun
Columbia University

# Technical Papers

■ **Full Conference Access**

## Meshing
**THURSDAY, 29 JULY, 10:45 AM-12:15 PM**

**SESSION CHAIR**
Mark Meyer
Pixar Animation Studios

### Feature-Aligned T-Meshes
Ashish Myles
New York University

Nico Pietroni
Istituto di Scienza e Tecnologie
dell'Informazione

Denis Kovacs
Denis Zorin
New York University

### A Wave-Based Anisotropic Quadrangulation Method
Muyang Zhang
Jin Huang
Xinguo Liu
Hujun Bao
Zhejiang University

### On Centroidal Voronoi Tessellation – Energy Smoothness and Fast Computation
Yang Liu
LORIA/INRIA and
The University of Hong Kong

Wenping Wang
The University of Hong Kong
Bruno Levy
LORIA/INRIA

Feng Sun
Dong-Ming Yan
Lin Lu
The University of Hong Kong

Chenglei Yang
Shandong University

### Lp Centroidal Voronoi Tessellation and its Applications
Bruno Levy
Yang Liu
INRIA

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## Surface Fields
**THURSDAY, 29 JULY, 2-3:30 PM**

**SESSION CHAIR**
Charles Loop
Microsoft Research

### Parameterizing Subdivision Surfaces
Lei He
Scott Schaefer
Texas A&M University

Kai Hormann
Università della Svizzera italiana

### Topology- and Error-Driven Extension of Scalar Functions From Surfaces to Volumes
Giuseppe Patane'
Michela Spagnuolo
Bianca Falcidieno
CNR-IMATI

### A Multi-Resolution Approach to Heat Kernels on Discrete Surfaces
Amir Vaxman
Technion - Israel Institute of Technology

Mirela Ben-Chen
Stanford University

Craig Gotsman
Technion - Israel Institute of Technology

### Geometry-Aware Direction Field Processing
Nicolas Ray
Bruno Vallet
Laurent Alonso
Bruno Levy
INRIA

# Technical Papers

■ **Full Conference Access**

## Human Modeling
**THURSDAY, 29 JULY, 2-3:30 PM**

**SESSION CHAIR**
Jessica Hodgins
Carnegie Mellon University

### Learning Behavior Styles With Inverse Reinforcement Learning

Seong Jae Lee
Zoran Popović
University of Washington

### A Synthetic-Vision-Based Steering Approach for Crowd Simulation

Jan Ondrej
Julien Pettre
Anne-Helene Olivier
Stephane Donikian
INRIA Rennes

### Comprehensive Biomechanical Modeling and Simulation of the Upper Body

Sung-Hee Lee
Eftychios Sifakis
Demetri Terzopoulos
University of California, Los Angeles

### Gesture Controllers

Sergey Levine
Philipp Krähenbühl
Sebastian Thrun
Vladlen Koltun
Stanford University

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## Image Enhancement
**THURSDAY, 29 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
Dan Goldman
Adobe Systems Incorporated

### Multi-Scale Image Harmonization

Kalyan Sunkavalli
Harvard University

Micah K. Johnson
Massachusetts Institute of Technology

Wojciech Matusik
Disney Research

Hanspeter Pfister
Harvard University

### Personal Photo Enhancement Using Example Images

Neel Joshi
Microsoft Corporation

Wojciech Matusik
Disney Research

Edward H. Adelson
Massachusetts Institute of Technology, CSAIL

David J. Kriegman
University of California, San Diego

### Parametric Reshaping of Human Bodies in Images

Shizhe Zhou
Zhejiang University

Hongbo Fu
City University of Hong Kong

Ligang Liu
Zhejiang University

Daniel Cohen-Or
Tel-Aviv University

Xiaoguang Han
Zhejiang University

### Image Warps for Artistic Perspective Manipulation

Robert Carroll
University of California, Berkeley

Aseem Agarwala
Adobe Systems Incorporated

Maneesh Agrawala
University of California, Berkeley

# Technical Papers

■ **Full Conference Access**

## Biped Control
**THURSDAY, 29 JULY, 3:45-5:15 PM**

**SESSION CHAIR**
Cindy Grimm
Washington University in St. Louis

### Sampling-Based Contact-Rich Motion Control

Libin Liu
Tsinghua University

KangKang Yin
Microsoft Research Asia

Michiel van de Panne
The University of British Columbia

Tianjia Shao
Tsinghua Univeristy

Weiwei Xu
Microsoft Research Asia

### Data-Driven Biped Control

Yoonsang Lee
Sungeun Kim
Jehee Lee
Seoul National University

### Generalized Biped Walking Control

Stelian Coros
Philippe Beaudoin
Michiel van de Panne
The University of British Columbia

### Feature-Based Locomotion Controllers

Martin de Lasa
Igor Mordatch
Aaron Hertzmann
University of Toronto

# Exhibitor Tech Talks

■ **Full Conference Access**
● **Basic Conference Pass**
▲ **Computer Animation Festival**

t #siggraph #techtalks

**Comprehensive summaries of the latest technologies in computer graphics and interactive Techniques. SIGGRAPH 2010 exhibitors demonstrate software, hardware, and systems; answer questions; and host one-on-one conversations about how their applications improve professional and technical performance.**

## AMD
TUESDAY, 27 JULY, 11:15 AM-12:15 PM

WEDNESDAY, 28 JULY, 11:15 AM-12:15 PM

## CCT International
WEDNESDAY, 28 JULY, 2:15-3:15 PM

### C3D: 5D and Beyond

CCT (the software arm of CCC International, a major EPC Contractor) is a leader in the field of 5D construction. As a 3D-based visual framework for visualizing and controlling a construction-project life cycle, C3D is widely used on large construction projects to provide custom solutions for site engineers, project managers, control managers, and project owners.

In this talk, CCT introduces the concept of 5D construction and its applications to the construction market. The talk includes a demonstration of CCT's 5D generic framework and massive model-visualization engine featuring the highly interoperable HyperModel (US Patent 12/578,521), where solution providers and end users can create project semantics and workflows with dynamic links to the 3D model. Other module demonstration s include: the semantic-based InfoVis Engine, the massive Model Rendering Engine, the reporting engine, and the system-integration engine. The talk concludes with case studies and live demos.

## Web3D Consortium
WEDNESDAY, 28 JULY, 3:45-4:40 PM

### X3D: Delivering New Dimensions on the Web

X3D is the only open-standard (ISO), royalty-free file format and run-time player specification for 4D virtual environments. It remains the most robust and versatile open standard for implementation of high-integrity and highly capable 4D multimedia information spaces. With multiple encodings and API bindings, it is compatible with many web and industry technologies. The data-integration capacities and the rich set of componentized features are rapidly expanding X3D's value across applications, from mobile to AR, CAD, and medical.

This talk reviews the current state of the innovative X3D community of content and application developers, and their work to ensure interoperability, longevity, and ownership of your content. See the latest real-world interactive 3D applications and find out how you can build and protect your content investment in this ever-changing competitive market.

Presented by Virginia Polytechnic Institute and State University, Bitmanagement, Fraunhofer Heinrich-Hertz-Institut, the Naval Postgraduate School, and others.

## NVIDIA Corporation
WEDNESDAY, 28 JULY, 9 AM-5 PM

### Technical Sessions

NVIDIA hosts a series of six technical deep dives on rendering, performance analysis, and visual effects. The presentations focus on how to take advantage of the latest hardware and tools from NVIDIA and discuss how NVIDIA supports the latest standards, such as OpenGL 4.0.

Contact: David Weller, dweller@nvidia.com

# Exhibitor List
*as of 26 May, 2010*

**Age Requirement**
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.

■ **Full Conference Access**
● **Basic Conference Pass**
▲ **Computer Animation Festival**

#siggraph #exhibits

3Dconnexion, a Logitech Company
3D Consortium
3dMD a 3Q company
The3DShop.com
3DTotal.com
3DVIA, Dassault Systemes
3D World magazine
A K Peters, Ltd.
Aberdeen LLC
Academy of Art University
Addison-Wesley
Allegorithmic
AMAX Engineering Corp.
AMD
American Paper Optics, Inc.
Andersson Technologies LLC
Animation Magazine Inc.
Anthro Corporation
ASC-American Cinematographer
Autodesk, Inc.
Axceleon Inc.
Ballistic Media Pty. Ltd.
Bell Computer
BLICK CORPORATION
Blue Sky Studios, Inc.
BlueArc Corporation
Cap Digital Paris Region
Carnegie Mellon Entertainment
    Technology Center
Caustic Graphics, Inc.
CCT International
CEA-LIST
cebas Visual Technology Inc.
CG Wave
CGAL-The Computational Geometry
    Algorithms Library
Chaos Software Ltd.
Cogswell Polytechnical College
Computer Graphics World
    (COP Communications, Inc.)
Conservatoire National des
    Arts et Métiers (CNAM)
Craft Animations and Entertainment AB
Cubix Corporation
CyberGlove Systems LLC
DAZ 3D
DigiPen Institute of Technology
Dimensional Imaging Ltd.
Dux Soft Pvt. Ltd.
EEFX.COM - Chroma Key Screens
    & Supplies
EnvisionTEC
e-on software, inc.
Exact Metrology, Inc.
FileCatalyst
Focal Press
The Foreign Trade Corporation of
    Costa Rica-Procomer

Fusion-io
Google
GNWC
Golaem
Hansoft AB
HD3D
HTW Berlin
IdN magazine
IEEE Computer Society
ImageMovers Digital
Imagineer Systems Ltd.
IntegrityWare, Inc.
Intel Corporation
Intelligraphics Inc.
iPi Soft
Isilon Systems, Inc.
iStockphoto LP
It's Art
Joe Alter, Inc.
JourneyEd.com
Khronos Group
King Abdullah University of Science
    and Technology
L'Etude et la Supervision des
    Trucages (EST)
Lightspeed Design, Inc.
LightWork Design Ltd.
Louisiana State University, Center for
    Computation & Technology
Lumiscaphe
MAXON Computer Inc.
Measurand Inc.
MelroseMAC
Mercenaries Engineering
Mikros Image
Mines ParisTech
Motion Analysis Corporation
NaturalPoint Inc.
Neomis Animation
NETDIMENSION CORPORATION
New York University - CADA
NewTek, Inc.
Nexstar
NextEngine Inc.
Next Limit Technologies
Nickelodeon Animation Studios
Nokia, Qt Development Frameworks
NorPix Inc.
NVIDIA Corporation
Objet Geometries Ltd.
OC3 Entertainment, Inc.
OCALI Inc.
Okino Computer Graphics, Inc.
Organic Motion, Inc.
PILGWAY
PipelineFx, LLC
Pixar Animation Studios

PixelActive
The Pixel Farm
Pixologic, Inc.
Planar Systems, Inc.
PNY Technologies
Point Grey Research  Inc.
Polhemus
Prime Focus
Proexport USA - Colombian
    Government Trade Bureau
Purdue University, Department of
    Computer Graphics Technology
Rhythm & Hues Studios
Ringling College of Art and Design
Robert McNeel & Associates
Rochester Institute of Technology
Rocketbox Studios GmbH
Savannah College of Art and Design
Scaleform Corporation
Shapeways
Shotgun Software, Inc.
Side Effects Software
Smith Micro
Sony Pictures Imageworks
SpeedTree
SpheronVR AG
Springer
Stash Media Inc.
Stratasys 3D Printers &
    Production Systems
TechViz
Thales
THQ Inc.
threeRivers 3D, Inc.
Tobii Technology AB
Trinity3D.com
Tweak Software
Universcience
University of Central Florida -
    Florida Interactive Entertainment
    Academy
Vancouver Film School
Vicon
Wacom Technology Corporation
Web3D Consortium
Wiley Publishing
Wolfram Research, Inc.
WorldViz
Xerox Corporation
Xsens Technologies B.V.
Zygote Media Group, Inc.

# General Information

## Airport Shuttle Discounts

SIGGRAPH 2010 has partnered with Super Shuttle to offer transportation to and from Los Angeles International Airport (LAX). SIGGRAPH 2010 attendees receive a $3 discount on a one-way ticket when they book service through Super Shuttle. These discounts are valid from 20 July until 3 August 2010. For more information on how to access the Super Shuttle coupon visit: www.siggraph.org/s2010

## Bookstore

BreakPoint Books offers the latest and greatest books, CDs, and DVDs on computer animation, graphic design, gaming, 3D graphics, modeling, and digital artistry. The bookstore features recent books by SIGGRAPH 2010 speakers and award winners. To suggest books, CDs, or DVDs that should be available in the bookstore, contact:

Breakpoint Books
dave@breakpointbooks.com

## Camera and Recording Policies

No cameras or recording devices are permitted at SIGGRAPH 2010. Abuse of this policy will result in the loss of the individual's registration credentials.

SIGGRAPH 2010 employs a professional photographer and reserves the right to use all images that this photographer takes during the conference for publication and promotion of future ACM SIGGRAPH events.

## Los Angeles Convention Center

### Accessibility

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

### Airline Check-in

Airline check-in is available on Wednesday, 28 July and Thursday, 29 July for domestic flights from LAX on Air Tran, Alaska Airlines, American Airlines, Continental Airlines, Delta Airlines, JetBlue, Northwest Airlines, and United Airlines. With this service, attendees can avoid airport check-in lines and receive their boarding documents and luggage tags at the convention center. For more information: www.siggraph.org/s2010

### Business Center

A self-service business center is located in the Concourse Hallway area of the convention center.  Attendees can make black-and-white copies and use the center's computers to check email and print documents (payment requires a credit or debit card: AMEX, MasterCard, Visa.)

### Food Services

Several restaurants, concessions, and food carts are available throughout the convention center for the convenience of SIGGRAPH 2010 attendees.

### Internet Access

Free wireless access will be available for SIGGRAPH 2010 in limited areas in the Los Angeles Convention Center. SIGGRAPH 2010 will not provide public workstations for internet access.

### Luggage and Coat Check

Luggage and coat-check services ($2 for small items and $3 for large items) are available at the Los Angeles Convention Center from Sunday, 25 July through Thursday, 29 July.

### Parking

SIGGRAPH 2010 attendees can park at the Los Angeles Convention Center parking lot for $12 per day. There are no in/out privileges.

## Shuttle Bus Service

SIGGRAPH 2010 provides complimentary shuttle service between many conference hotels and the Los Angeles Convention Center.

IMPORTANT NOTICE
Attendees who use the SIGGRAPH 2010 hotel reservation system to make reservations at hotels served by the SIGGRAPH 2010 shuttle buses will receive a shuttle wristband when they check in. Attendees who do not book through the SIGGRAPH 2010 reservation system and wish to use the shuttle service can purchase wristbands at the SIGGRAPH Store. Attendees without wristbands will not be allowed to use the shuttle service.

## Special Policies

Lost badges cannot be replaced. If you lose your badge, you must purchase a new registration. Technical materials included with your registration must be picked up at the SIGGRAPH 2010 Merchandise Pickup Center. Lost merchandise vouchers will not be replaced.

Access: To be admitted to the Reception, you must have a ticket (your badge does not provide access). Computer Animation Festival access comes with a Full Conference badge, or a Festival Pass.

## Travel & Housing

Visit the SIGGRAPH 2010 web site to access the easy-to-use online hotel reservation system, which includes complete information on housing policies, procedures, and rates: www.siggraph.org/s2010

Or contact:
onPeak
SIGGRAPH 2010 Travel Partner
siggraph2010@onPeakevents.com

SIGGRAPH 2010 has negotiated discount rates for hotels in Los Angeles. These discounts are available to SIGGRAPH 2010 attendees only. Please make your hotel reservation by 25 June 2010. Reservations made after 25 June will be based on availability only, and rates may increase.

# Included With Your Registration

## Registration Categories

■ **Full Conference Access**
● **Basic Conference Pass**
▲ **Computer Animation Festival**

| | |
|---|---|
| ■ ● | **Art Gallery** |
| ■ ● ▲ | **Award Presentations** |
| ■ ● | **Award Talks** |
| ■ ● ▲ | **Birds of a Feather** |
| ■ ▲ | **Computer Animation Festival** |
| ■ | **Courses** |
| ■ ● | **Emerging Technologies** |
| ■ ● ▲ | **Exhibition** |
| ■ ● ▲ | **Exhibitor Tech Talks** |
| ■ | **Geek Bar** |
| ■ ● | **International Resources** |
| ■ ● ▲ | **Job Fair** |
| ■ ● ▲ | **Keynote Speakers** |
| ■ | **Panels** |
| ■ | **Papers: Technical, Art, Games, and Transactions on Graphics** |
| ■ ● | **Posters** |
| ■ | **Reception** |
| ■ ● | **Research Challenge** |
| ■ ● ▲ | **SIGGRAPH Dailies!** |
| ■ ● ▲ | **Technical Papers Fast Forward** |
| ■ ● | **The Sandbox** |
| ■ ● | **The Studio** |
| ■ | **Talks** |

## Technical Materials

The printed *ACM Transactions on Graphics* (Conference Proceedings Special Issue), which contains the Technical Papers and the ACM SIGGRAPH awards is NOT included with any registration category. The Proceedings is available for purchase at SIGGRAPH 2010.

### ■ Full Conference DVD-ROM

This digital publication contains the electronic version of the Technical Papers and Game Papers, including images and auxiliary material; all of the course and tutorial notes, including auxiliary material (movies, source code, HTML presentations); and the permanent record of the Courses, Emerging Technologies, Panels, Posters, SIGGRAPH Dailies!, Talks, and the permanent record of the Art Gallery and the Computer Animation Festival.

The DVD is included with all Full Conference registrations, and it is available for purchase at SIGGRAPH 2010. The content of the printed version of the *ACM Transactions on Graphics* (Conference Proceedings Special Issue) is included on the Full Conference DVD-ROM.

Basic Conference registration does not include any technical materials.

NOTE:
Full Conference registrants must pick up the Full Conference DVD-ROM included with registration at SIGGRAPH 2010 at the Merchandise Pickup Center located in South Lobby.

**Technical Materials are also available after the conference, contact:**
ACM, Member Services
800.342.6626 (Continental US and Canada)
+1.212.626.0500 (International and New York Metro area)
+1.212.944.1318 fax
orders@acm.org

# Registration Fees & Information

The printed *ACM Transactions on Graphics* (Conference Proceedings Special Issue) is not included in your registration and may be purchased separately.

*Member rates refer to ACM SIGGRAPH membership.*

**Conference Registration Categories**

■ **Full Conference Access**
● **Basic Conference Pass**
▲ **Computer Animation Festival**

## ■ Full Conference Access

| | ON OR BEFORE 4 JUNE | ON OR BEFORE 2 JULY | AT SIGGRAPH 2010 |
| --- | --- | --- | --- |
| ACM SIGGRAPH Member | $895 | $1,070 | $1,170 |
| Non-Member | $945 | $1,095 | $1,220 |
| Student Member | $395 | $445 | $495 |

Includes admission to ALL conference programs and events, including the Exhibition (Tuesday-Thursday), Computer Animation Festival, Full Conference DVD-ROM, and reception ticket.

## ■ Full Conference One-Day Pass

| | ON OR BEFORE 4 JUNE | ON OR BEFORE 2 JULY | AT SIGGRAPH 2010 |
| --- | --- | --- | --- |
| ACM SIGGRAPH Member | $325 | $375 | $425 |
| Non-Member | $375 | $425 | $475 |
| Student Member | $175 | $200 | $225 |

Includes admission to ALL conference programs and events, Computer Animation Festival for day(s) attending, and Exhibition (Tuesday-Thursday). A Computer Animation Festival Full Festival Pass for ALL days can be added at the time of registration, at a discounted fee of $100.

Note: Does NOT include reception ticket or Full Conference DVD-ROM.

## ● Basic Conference Access

| | ON OR BEFORE 4 JUNE | ON OR BEFORE 2 JULY | AT SIGGRAPH 2010 |
| --- | --- | --- | --- |
| ACM SIGGRAPH Member | $95 | $125 | $150 |
| Non-Member | $125 | $150 | $175 |

Includes admission to Art Gallery, Birds of a Feather, Exhibitor Tech Talks, Emerging Technologies, Keynote Speakers, International Resources, Job Fair, Posters, The Sandbox, SIGGRAPH Dailies!, The Studio, and Exhibition (Tuesday-Thursday).

A Computer Animation Festival Full Festival Pass for ALL days can be added at the time of registration, at a discounted fee of $175.

## ● Basic Conference One-Day Pass

| PURCHASED BEFORE OR AT SIGGRAPH 2010 |
| --- |
| $45 |

Includes admission to Art Gallery, Birds of a Feather, Exhibitor Tech Talks, Emerging Technologies, Keynote Speakers, International Resources, Job Fair, Posters, The Sandbox, SIGGRAPH Dailies!, The Studio for day(s) attending, and Exhibition (Tuesday-Thursday).

## ▲ Computer Animation Festival

| | FULL FESTIVAL PASS | ONE-DAY PASS |
| --- | --- | --- |
| ACM SIGGRAPH Member | $175 | $50 |
| Non-Member | $200 | $50 |
| Student Member | $150 | $50 |
| Additional Guest | $200 | $50 |

Full Festival Pass includes admission to the Computer Animation Festival for the full week, and Exhibition (Tuesday-Thursday).
The One-Day Pass includes admission to the Computer Animation Festival for the day(s) attending, and Exhibition (Tuesday-Thursday).

# SIGGRAPH 2010 Committee

**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.**

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