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Updated 25 July
## Conference at a Glance

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<tr>
<th>Event</th>
<th>Sun 7 August</th>
<th>Mon 8 August</th>
<th>Tues 9 August</th>
<th>Wed 10 August</th>
<th>Thu 11 August</th>
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<tbody>
<tr>
<td>Registration/Merchandise Pickup Center</td>
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<td>8:30 am–6:00 pm</td>
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<tr>
<td>SIGGRAPH Store</td>
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<td>ACM SIGGRAPH Award Talks</td>
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<td>ACM Student Research Competition</td>
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<td>Art Gallery</td>
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<td>Art Papers</td>
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<td>Birds of a Feather</td>
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<td>Courses</td>
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<td>Emerging Technologies</td>
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<td>Exhibitor Tech Talks</td>
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<td>Gamer Papers</td>
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<td>International Center</td>
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<td>Keynote Speaker (Includes ACM SIGGRAPH Awards Presentations)</td>
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<td>Posters</td>
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<td>Poster Sessions</td>
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<tr>
<td>Reception</td>
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<td>The Sandbox</td>
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<td>SIGGRAPH Dailies!</td>
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<tr>
<td>SIGGRAPH Symposium: The Business Think Tank (additional fee required)</td>
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<td>Technical Papers</td>
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<td>Technical Papers Fast Forward</td>
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<tr>
<td>Computer Animation Festival</td>
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<td>Electronic Theater</td>
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<tr>
<td>Festival Screenings</td>
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<tr>
<td>Production Sessions</td>
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<td>Real-Time Live!</td>
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www.siggraph.org/s2011
THE TOP 10 REASONS TO ATTEND SIGGRAPH 2011

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 2011’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 2011’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 four intense, rewarding days. At SIGGRAPH 2011, you’ll gain knowledge, contacts, and skills that could take more than a year to acquire elsewhere.

4. Customization
Design the conference experience that delivers the best value for you and your organization. SIGGRAPH 2011 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 coming home in Vancouver for SIGGRAPH 2011.

6. Connections
Join your friends and colleagues from around the world, and make invaluable new connections. SIGGRAPH 2011 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 2011 Exhibition features hardware, software, and services from the leading companies who also consider SIGGRAPH Home.

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 four days of screenings, talks, panels, and live demos.

9. Vancouver
Enjoy this magical, entrepreneurial city where exploration, innovation, and experimentation merge on every corner, while soaking up the creativity, advanced technology, and business innovation that have made SIGGRAPH the world capital of digital media.

10. Inspiration
Leave Vancouver 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.
Conference Overview

See, meet, and interact with the creators of the next wave of 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 in Vancouver; one of the most beautiful and cosmopolitan cities in the world.

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.

Keynote Speaker

Cory Doctorow
21st-century thinker, co-editor of Boing Boing

#siggraph #keynote

Monday, 8 August, 11 am–1 pm

Cory Doctorow is a contributor to The Guardian, The New York Times, Publishers Weekly, and Wired, and co-editor of the popular blog Boing Boing. He was formerly director of European affairs for the Electronic Frontier Foundation, a non-profit civil liberties group that defends freedom in technology law, policy, standards, and treaties. He is a visiting senior lecturer at Open University (UK) and previously served as the Fulbright chair at the Annenberg Center for Public Diplomacy at the University of Southern California.

Reception

Vancouver Convention Centre
Monday, 8 August, 9–11 pm

The international SIGGRAPH community’s highest-energy, best-attended social event of the year. Drink a toast to your colleagues’ achievements, and your own. Share dessert and a convivial evening with people you haven’t seen since SIGGRAPH 2010. And meet the people you need to know for another year of professional success and adventure.

The Art Gallery, Emerging Technologies, The Sandbox and The Studio will be open during the reception.
ACM SIGGRAPH

Awards Presentations
(Included with Keynote Speaker)

#siggraph #awards

ACM SIGGRAPH Award Talks

#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.

Steven Anson Coons Award
The Steven Anson Coons Award for Outstanding Creative Contributions to Computer Graphics
This award, presented during odd-numbered years, recognizes long-term creative impact on the field of computer graphics through a personal commitment over an extended period of time.

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 Student Research Competition

#siggraph #awards

Twenty-five student posters are selected for judging at SIGGRAPH 2011. 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

Tracing Home
Experience exceptional digital and technologically mediated artworks that explore issues related to the concept of home in the networked age.

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 from the experts in the field and gain inside knowledge that is critical to career advancement. Courses range from an introduction to the foundations of computer graphics and interactive techniques for those new to the field to advanced instruction on the most current techniques and topics.
Emerging Technologies

Interact with the latest discoveries before they become hot topics in mainstream media and blogs. Explore this year’s innovative technologies and applications from displays and input devices to collaborative environments and robotics, and technologies that apply to film and game production.

Exhibition

Get up-close and hands-on with the newest hardware systems, software tools, and creative services from hundreds of companies. Explore the products, systems, techniques, ideas, and inspiration that are creating the next generation of computer graphics and interactive techniques.

Exhibitor Tech Talks

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 2011 exhibitors.

International Resources

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

Job Fair

Looking for opportunity? Interested in meeting with some inspiring companies? The Job Fair is where SIGGRAPH 2011 attendees connect with employers before, during, and after the conference via the CreativeHeads.net job board and candidate profiling system. Discover what your future could hold.

Panels

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

Papers

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

Technical Papers

Immerse yourself in the premier international forum for disseminating new scholarly work in computer graphics and interactive techniques.

Art Papers

Hear academic artists explain the changing roles of artists and the methods of art-making.

Game Papers

Monitor current and future issues in game development and player experience.
**Conference Overview**

### Posters

*#siggraph #posters*

Take in 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.

### The Sandbox

*#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!

*#siggraph #dailies*

Catch up on state-of-the-art—and craft—computer graphics. Be astounded by sheer excellence in modeling, shading, animation, lighting, effects, and more.

### The Studio

*#siggraph #studio*

Collaborate in a hands-on learning lab, where experts, attendees, and the latest technologies are brought together to create new works, experiment, and share. The Studio features Studio Workshops, Digital Artistry Sessions, and Studio Talks.

### Talks

*#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

*#siggraph #techpapers*

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.

### SIGGRAPH Symposium: The Business Think Tank

*#siggraph #symposium*

Sunday, 7 August, 9 am–6 pm

This one-day event brings together the leaders who have contributed to the direction, production, and evolution of the computer graphics community, a powerful global presence whose members are interconnected and interrelated. Join us for a full day of frank and honest conversations, featured speakers, and interactive sessions designed to elucidate the elements of finance, strategy, culture, and creativity.

In an intimate setting that will accommodate up to only 200, the Business Think Tank is designed for people in the business of the business, leaders of our global community, the visionaries who define the direction of our industry.

**The Business Think Tank requires a separate admission fee, and is not included in any other SIGGRAPH 2011 registration categories.**

See page 64 for The Business Think Tank pricing information.
The leading annual festival for the world’s most innovative, accomplished, and amazing digital film and video creators. An internationally recognized jury receives hundreds of submissions and presents the best work of the year in daily Festival Screenings and the Electronic Theater. Selections include outstanding achievements in time-based art, scientific visualization, visual effects, real-time graphics, and narrative shorts.

The Computer Animation Festival is recognized by the Academy of Motion Picture Arts and Sciences as a qualifying festival. Since 1999, several works originally presented in the SIGGRAPH Computer Animation Festival have been nominated for or have received a “Best Animated Short” Academy Award.

### PRODUCTION SESSIONS

**Explore Key Scenes in “The Smurfs”, “Kung Fu Panda 2”, “Rango”, and More**

**Fire & Water: The Yin and Yang of Creating the Final Battle in “Kung Fu Panda 2”**

The climax of “Kung Fu Panda 2” is an epic battle featuring hundreds of characters in a very complex environment in a single shot. This talk summarizes the making of a CG-animated movie that goes beyond the traditional idealized pipeline concept.

**Getting Dirty: Bringing “Rango” to Life**

This in-depth discussion focuses on production of Industrial Light & Magic’s first animated feature, “Rango”. The presenters review all aspects, from initial asset development through animation, simulation, lighting, and compositing.

**New Solutions for New Challenges**


### REAL-TIME LIVE!

Immerse yourself in the world’s most innovative and stimulating interactive real-time animation and graphics. As part of the Computer Animation Festival, Real-Time Live! is the premiere showcase for the latest trends and techniques for pushing the boundaries of interactive visuals. Selected projects are also available to try in The Sandbox.
CONFERENCE SCHEDULE

Table of Contents

Registration

SUNDAY, 7 AUGUST
9 am–6 pm
SIGGRAPH Symposium:
The Business Think Tank
(NOT included with SIGGRAPH conference registration packages. This is an additional cost. See page 66.)

International Center
11 am–Noon
BOF: IVRC (International Collegiate Virtual Reality Contest)

Noon–1:45 pm
The Studio Talk:
Scan-Model-Print: A Roundtable Chat

12:30–1:45 pm
The Studio Digital Artistry:
Bringing ZBrush to Life: Advanced Visualization Techniques

2–2:30 pm
The Studio Talk: SandCanvas: New Possibilities in Sand Animation

2–3 pm
International Resources Event:
Overview of SIGGRAPH 2011 (with Japanese interpreter)

2–3:30 pm
Talks: Pushing Production Data

The Studio Digital Artistry:
Animation and Rigging in Blender

The Studio Workshop:
Introduction to Python Scripting

2–4 pm
BOF: Blender Foundation:
Community Meeting

2–5:15 pm
Course: 3D Spatial Interaction:
Applications for Art, Design, and Science

Course: Destruction and Dynamics for Film and Game Production

Course: Introduction to Modern OpenGL Programming

Course: Liquid Simulation With Mesh-Based Surface Tracking

3–3:30 pm
International Resources Event:
The IGDA Presents Game Jam!

The Studio Talk: A Unified Dynamics Pipeline for Hair, Cloth, and Flesh in Rango

3:30–4 pm
International Resources Event:
ACM SIGGRAPH Chapters Present Local Animation Festivals

3:45–4:15 pm
The Studio Talk: SolidState Drives in Developer and Artist Workstations

3:45–5 pm
The Studio Digital Artistry:
Phase One Digital Tools

3:45–5:15 pm
Panel: Successful Creative Collaboration Across Time and Space

Talks: Facing Hairy Production Problems

The Studio Workshop: Using the GigaPan Imaging System

4–6 pm
BOF: SIGGRAPH Digital Arts Community

BOF: Blender Foundation:
Artist Showcase

International Resources Event:
SIGGRAPH Digital Arts Community

4:30–5 pm
The Studio Talk: Standards in 3D Modeling: Case Study and Applications From Stock 3D

5–5:30 pm
The Studio Talk: Creating a Compelling Character Performance

6–8 pm
Technical Papers Fast Forward

8:30–11 pm
BOF: Taipei ACM SIGGRAPH Chapter Reunion

Art Gallery, Emerging Technologies, Posters, The Sandbox, The Studio

Sunday, 7 August
2–5:30 pm
[The Studio and The Sandbox open at noon]

Monday, 8 August
9 am–5:30 pm

Tuesday, 9 August
9 am–5:30 pm

Wednesday, 10 August
9 am–5:30 pm

Thursday, 11 August
9 am–1 pm

Registration

Sunday, 7 August
8 am–6 pm

Monday, 8 August
8:30 am–6 pm

Tuesday, 9 August
8:30 am–6 pm

Wednesday, 10 August
8:30 am–6 pm

Thursday, 11 August
8:30 am–3:30 pm
### Conference Schedule

**Monday, 8 August**

**9–9:30 am**

**The Studio Talk:**
New and Used Cars

**9–10 am**

**NVIDIA Exhibitor Session:**
Advanced Rendering Solutions

**9–10:30 am**

**Course:** Build Your Own Glasses-Free 3D Display

**Technical Papers:**
Drawing, Painting & Stylization

**Technical Papers:**
Capturing & Modeling Humans

**The Studio Digital Artistry:**
3D Motion Graphics With Photoshop and After Effects

**The Studio Workshop:**
Getting Started in Maya

**9 am–12:15 pm**

**Course:** PhysBAM:
Physically Based Simulation

**Course:** Advances in Real-Time Rendering in Games: Part I

**9 am–6 pm**

**International Center**

**9:30–10:30 am**

**The Studio Talk:**
The Spirit of Rango: Dissection of Character Animation and Rigging

**10–10:30 am**

**International Resources Event:**
Vancouver ACM SIGGRAPH: We Make it Home

**10 am–12:10 pm**

**The Studio Workshop:**
Creating a Multi-Platform Real-Time Portfolio for Your Artwork Using Unity

**10:15–11:15 am**

**NVIDIA Exhibitor Session:**
OpenGL & CUDA Based Tessellation

**10:30–11 am**

**The Studio Talk:**
Digital Clothing: A New Paradigm for Fashion

**10:40 am–12:10 pm**

**The Studio Workshop:**
Creating a Multi-Platform Real-Time Portfolio for Your Artwork Using Unity

**10:45 am–12:15 pm**

**The Studio Digital Artistry:**
Digital Abstract Art With Real Flow and Maya

**11 am–Noon**

**The Studio Talk:**
What’s New in Rhinoceros 5.0?

**11 am–1 pm**

**ACM SIGGRAPH Award Presentations**

**Keynote Speaker:**
Cory Doctorow, 21st-century thinker, co-editor of Boing Boing

**11:30 am–12:30 pm**

**NVIDIA Exhibitor Session:**
Parallel Nsight 2.0 and CUDA 4.0 For The Win!

**Noon–1 pm**

**The Studio Talk:**
Creating Cool Games Without a Programmer

**12:15–1:45 pm**

**The Studio Workshop:**
Creation of Your Own Digital Fashion Show

**12:30–1:45 pm**

**The Studio Digital Artistry:**
The Beauty of Black and White

**12:45–1:30 pm**

**NVIDIA Exhibitor Session:**
Using the GPU to Create a Seamless Display From Multiple Projectors

**1–1:30 pm**

**Art Gallery:**
Daily Tours

**1:15–1:45 pm**

**The Studio Talk:**
The Technology–Creativity Ratio

**1:45–3 pm**

**NVIDIA Exhibitor Session:**
VFX Trendspotting: Unlocking GPU Performance

**2–2:30 pm**

**The Studio Talk:**
MakerBot

**2–3:30 pm**

**ACM SIGGRAPH Award Talks**

**BOF:** Cortex Open-Source Framework

**Course:** Storytelling With Color

**Talks:** Tiles and Textures and Faces Oh My!

**Talks:** Eye on the Road

**Technical Papers:**
Understanding Shapes

**The Studio Digital Artistry:**
Dynamic 3D & Photoshop Integration

**The Studio Workshop:**
From Concept to Creation

**2:30–3:30 pm**

**BOF:** 2020 3D Media Ongoing Research

**Technical Papers:**
Understanding Shapes

**The Studio Digital Artistry:**
Dynamic 3D & Photoshop Integration

**The Studio Workshop:**
From Concept to Creation

**2:30–3:30 pm**

**BOF:** 2020 3D Media Ongoing Research
CONFERENCE SCHEDULE

MONDAY, 8 AUGUST

2:30–4:30 pm
BOF: French Animation Showcase–Session 1

3–3:30 pm
The Studio Talk: Embroidery, Modeling and Rendering in Real Time

3:15–4:15 pm
NVIDIA Exhibitor Session: Tools for Mobile Photography and Vision

3:45–4:15 pm
The Studio Talk: Rapid Solutions to 3D Scanning

3:45–5 pm
The Studio Digital Artistry: Cross-Platform Concept Illustration

3:45–5:15 pm
Panel: The Need for Standardization Within Global Visual Effects Productions Through Open Source and Open Standards

Talks: Changing Dimension

Technical Papers: Tone Editing

The Studio Workshop: How to Write Fast iPhone and Android Shaders in Unity

3:45–5:35 pm
Technical Papers: Contact & Constraints

4–4:30 pm
International Resources Event: Developing a Computer Graphics Community: Communication, Conference and Industry Representation in Austria

4–5 pm
Art Gallery: Informal Art Talks

4:30–5 pm
The Studio Talk: Per-Face Texture Mapping for Real-time Rendering

4:30–5:30 pm
NVIDIA Exhibitor Session: GPU Ray Tracing

4:30–6:30 pm
BOF: ACCAD/Ohio State University Alumni Gathering

5–5:30 pm
The Studio Talk: Blending of Transforms with Non-Uniform Parent Scale

5–6 pm
BOF: Encontro dos Brasileiros 2011

5:30–7 pm
NVIDIA Exhibitor Session: GPU Ray Tracing

4:30–6:30 pm
BOF: ACCAD/Ohio State University Alumni Gathering

TUESDAY, 9 AUGUST

9–9:30 am
International Resources Event: Computer Graphics in the Washington DC Area

The Studio Talk: Prop Building for VFX

9:30 am–6 pm
Exhibition

9:30 am–10:30 am
The Studio Talk: GigaPan Time Machine: Explorable, Gigapixel-Scale Time-Lapse Imagery Authoring

9:30 am–12:15 pm
Course: Beyond Programmable Shading I

9 am–6 pm
International Center

9:30–10:30 am
The Studio Talk: GigaPan Time Machine: Explorable, Gigapixel-Scale Time-Lapse Imagery Authoring

9:30 am–6 pm
Exhibition

10–11:30 am
International Resources Event: Costa Rica’s CGI Business: Beyond the Rainforest and the Beach!

10:30–11:30 am
The Studio Talk: Special Effects With Depth

10:40 am–12:10 pm
The Studio Workshop: The XVJ (Xpressive Video-Jockey)
### Conference Schedule

**Tuesday, 9 August**

<table>
<thead>
<tr>
<th>Time</th>
<th>Events and Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 am–12:15 pm</td>
<td>Talks: Building Blocks</td>
</tr>
<tr>
<td></td>
<td>Talks: Walk the Line</td>
</tr>
<tr>
<td>Technical Papers: Geometry Acquisition</td>
<td></td>
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<tr>
<td>Technical Papers: Stochastic Rendering &amp; Visibility</td>
<td></td>
</tr>
<tr>
<td>The Studio Digital Artistry: 3D Workflows in Photoshop CS5 Extended</td>
<td></td>
</tr>
<tr>
<td>11:15 am–12:15 pm</td>
<td>Exhibitor Tech Talks: AMD–Video Processing With AMD FirePro Solutions</td>
</tr>
<tr>
<td>11:30 am–Noon</td>
<td>The Studio Talk: Ornate Screens</td>
</tr>
<tr>
<td>Noon–1 pm</td>
<td>The Studio Talk: Revolution Evolution–Forging Industrial-Academic Collaboration</td>
</tr>
<tr>
<td>Noon–1:30 pm</td>
<td>International Resources Event: ISEA International Foundation–Open Forum</td>
</tr>
<tr>
<td>12:15–1:15 pm</td>
<td>Poster Session</td>
</tr>
<tr>
<td>12:15–1:45 pm</td>
<td>The Studio Workshop: Creation of Your Own Digital Fashion Show</td>
</tr>
<tr>
<td>12:30–1:45 pm</td>
<td>The Studio Digital Artistry: The Power of the (Wacom) Pen</td>
</tr>
<tr>
<td>12:30–2:30 pm</td>
<td>BOF: ACM SIGGRAPH Carto BOF</td>
</tr>
<tr>
<td>1–1:30 pm</td>
<td>Art Gallery: Daily Tours</td>
</tr>
<tr>
<td>1–2 pm</td>
<td>BOF: 3D Medical Visualization Using X3D</td>
</tr>
<tr>
<td>1–3 pm</td>
<td>BOF: StudioSysAdmins</td>
</tr>
<tr>
<td>1:15–1:45 pm</td>
<td>The Studio Talk: UV Layout</td>
</tr>
<tr>
<td>2–2:30 pm</td>
<td>The Studio Talk: StereoFX: Survey of the Main Stereo Film-Making Techniques</td>
</tr>
<tr>
<td>2–3 pm</td>
<td>International Resource Event: CG in Latino Countries</td>
</tr>
<tr>
<td>2–3:30 pm</td>
<td>BOF: Web3D Consortium–Declarative 3D for the Web</td>
</tr>
<tr>
<td>Computer Animation Festival Production Session: DreamWorks Animation: The Yin and Yang of Creating the Final Battle in “Kung Fu Panda 2”</td>
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<tr>
<td>Reception: Leonardo, Art Papers, and Art Gallery</td>
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<tr>
<td>Talks: 1000 Points of Light</td>
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<tr>
<td>Technical Papers: Volumes &amp; Photons</td>
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<tr>
<td>Technical Papers: Geometry Processing</td>
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<tr>
<td>The Studio Digital Artistry: Fine Art Printmaking Workflow</td>
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<tr>
<td>The Studio Workshop: Advanced Creation of Your Own Digital Fashion Show</td>
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<tr>
<td>2–4 pm</td>
<td>BOF: Call for Contributions for the IEEE Computer Graphics and Applications’ New Education Department</td>
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<tr>
<td>2–5:15 pm</td>
<td>Course: Advances in New Interfaces for Musical Expression</td>
</tr>
<tr>
<td>2–5:15 pm</td>
<td>Course: Beyond Programmable Shading II</td>
</tr>
<tr>
<td>2–5:15 pm</td>
<td>Course: Modeling 3D Urban Spaces Using Procedural and Simulation-Based Techniques</td>
</tr>
<tr>
<td>2:15–3:15 pm</td>
<td>The Studio Workshop: Advanced Creation of Your Own Digital Fashion Show</td>
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<tr>
<td>2:15–3:15 pm</td>
<td>Exhibitor Tech Talks: DigiPen Institute of Technology–The Academic Infrastructure of Innovative and Successful Videogames</td>
</tr>
<tr>
<td>2:30–3:30 pm</td>
<td>BOF: OpenColorIO Meetup</td>
</tr>
<tr>
<td>2:30–4:30 pm</td>
<td>BOF: French Animation Showcase–Session 2</td>
</tr>
<tr>
<td>2:30–4:30 pm</td>
<td>BOF: JogAmp: 2D/3D &amp; Multimedia Across Devices</td>
</tr>
<tr>
<td>3–3:30 pm</td>
<td>The Studio Talk: What’s New in Rhinoceros 5.0?</td>
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<tr>
<td>3–4 pm</td>
<td>BOF: In-Formation San Francisco ACM SIGGRAPH</td>
</tr>
<tr>
<td>3–4:30 pm</td>
<td>International Resources Event: CG in Asia</td>
</tr>
<tr>
<td>3–5 pm</td>
<td>BOF: Motion Graphics</td>
</tr>
<tr>
<td>3:45–4:15 pm</td>
<td>The Studio Talk: Let There Be Hair</td>
</tr>
</tbody>
</table>
### Conference Schedule

#### Tuesday, 9 August

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:45–4:40 pm</td>
<td><strong>Exhibitor Tech Talks:</strong> The Bakery–Bakery Relight™ – Interactive Lighting, Shading &amp; Rendering for Pros</td>
</tr>
<tr>
<td>3:45–5 pm</td>
<td><strong>The Studio Digital Artistry:</strong> Digital Painting With ArtRage</td>
</tr>
<tr>
<td>3:45–5:15 pm</td>
<td><strong>Technical Papers:</strong> By-Example Image Synthesis</td>
</tr>
<tr>
<td>3:45–5:35 pm</td>
<td><strong>Technical Papers:</strong> Call Animal Control!</td>
</tr>
<tr>
<td>4–5 pm</td>
<td><strong>Art Gallery:</strong> Informal Art Talks</td>
</tr>
<tr>
<td>4:30–5 pm</td>
<td><strong>The Studio Talk:</strong> Tokyo Race Lighting for Cars 2</td>
</tr>
<tr>
<td>4:30–5:15 pm</td>
<td><strong>Technical Papers:</strong> Colorful</td>
</tr>
<tr>
<td>4:30–5:15 pm</td>
<td><strong>The Studio Talk:</strong> Animated Lines</td>
</tr>
<tr>
<td>5–5:30 pm</td>
<td><strong>BOF:</strong> Global Pipelines v2</td>
</tr>
<tr>
<td>5–6 pm</td>
<td><strong>BOF:</strong> OpenSG</td>
</tr>
<tr>
<td>5:30–7 pm</td>
<td><strong>BOF:</strong> Dynamic Simulation in Production</td>
</tr>
<tr>
<td>6–8 pm</td>
<td><strong>ACM SIGGRAPH Pioneer Reception (Invitation Only)</strong></td>
</tr>
<tr>
<td>6–8 pm</td>
<td><strong>Computer Animation Festival–Electronic Theater</strong></td>
</tr>
<tr>
<td>7–9 pm</td>
<td><strong>BOF:</strong> SIGGIG: Gays In Graphics</td>
</tr>
</tbody>
</table>

#### Wednesday, 10 August

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>9–9:30 am</td>
<td><strong>The Studio Talk:</strong> Developing a Fab Lab for 3D Data Capture, Modeling and Prototyping</td>
</tr>
<tr>
<td>9–10 am</td>
<td><strong>BOF:</strong> What Industry Needs Graduates and New Hires to Know</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>International Resources Event:</strong> ACM SIGGRAPH Chapters Business Meeting</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Computer Animation Festival Production Session:</strong> Industrial Light &amp; Magic Presents: Getting Dirty: Bringing the Digital Feature “Rango” to Life</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Course:</strong> Cinematography: The Visual &amp; the Story</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Game Papers:</strong> Analyzing Player Behavior and Experience</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Talks:</strong> Mixed Grill</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Technical Papers:</strong> Colorful</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>Technical Papers:</strong> Surfaces</td>
</tr>
<tr>
<td>9–10:30 am</td>
<td><strong>The Studio Digital Artistry:</strong> Zbrush Life Sculpting and Portraiture</td>
</tr>
<tr>
<td>9–12:15 pm</td>
<td><strong>Course:</strong> Stereoscopy From XY to Z</td>
</tr>
<tr>
<td>9–12:15 pm</td>
<td><strong>International Center</strong></td>
</tr>
<tr>
<td>9:30–10:30 am</td>
<td><strong>The Studio Talk:</strong> The Explorable Microscopy Project: Enabling New Science + Exploration Through Gigapixel Imaging at the Microscopic Level</td>
</tr>
</tbody>
</table>
**WEDNESDAY, 10 AUGUST**

10:45 am–12:15 pm  
**Technical Papers:** Image Processing

The Studio Digital Artistry: Dynamic 3D & Photoshop Integration

11 am–Noon  
**The Studio Talk:** The Newest Features of ZBrush

11:15 am–12:15 pm  
**Exhibitor Tech Talks:** AMD - OpenCL and OpenGL/DirectX Interoperability

11:30 am–Noon  
**The Studio Talk:** DIY LIL CNC

11:30 am–12:30 pm  
**International Resources Event:** CG in Europe

12:15–1:15 pm  
**Poster Session**

12:15–1:45 pm  
**The Studio Workshop:** GigaPan Time Machine: Authoring and Exploring Gigapixel-Scale, Time-Lapse Imagery

12:30–1:30 pm  
**International Resources Event:** Professional and Student ACM SIGGRAPH Chapters Start-Up Meeting

12:30–1:45 pm  
**The Studio Digital Artistry:** Real World Camera-Rig Creation

12:45–1:45 pm  
**Exhibitor Tech Talks:** Autodesk-Multi-Thread 2D Renderer Design

1–1:30 pm  
**Art Gallery:** Daily Tours

1–2:30 pm  
**BOF:** Industry International Skills and Job Force Placement

1:15–1:45 pm  
**The Studio Talk:** Map Design + Social and Environmental Issues: Graphic Design Education at its Best

1:30–3 pm  
**BOF:** The New Media and the Industry in China

1:30–3:30 pm  
**BOF:** OpenCL

2–3 pm  
**BOF:** Computer Graphics for Simulation

2–3:30 pm  
**BOF:** GPU Ray Tracing

**Computer Animation Festival Production Session:** Imageworks: The Smurfl-alution: A Half-Century of Character Development

**Course:** Applying Color Theory to Digital Media and Visualization

**Talks:** Directing Destruction

**Technical Papers:** Facial Animation

**Technical Papers:** Mapping & Warping Shapes

**The Studio Digital Artistry:** Anatomy of a Dragon–2D to 3D

**The Studio Workshop:** An introduction Into After Effects for Motion Graphics

1:45–2:15 pm  
**The Studio Talk:** Rhinoceros 5.0: A Look at the UDT Commands

2–5:15 pm  
**Course:** Character Rigging, Deformations, and Simulations in Film and Game Production

**Course:** Production Volume Rendering 2

**The Studio Workshop:** An Introduction Into After Effects for Motion Graphics

2:15–3:15 pm  
**Exhibitor Tech Talks:** Xsens—How Much Animation Can You Do in a Day?

2:45–4:15 pm  
**BOF:** Using Processing and G-Speak as Tools Within a Foundations Program at a School of Art and Design

2:45–4:15 pm  
**BOF:** Managing Creative Projects

**BOF:** X3D and HTML5/X3DOM

3:15–4:30 pm  
**BOF:** X3D and HTML5/X3DOM

3:15–4:30 pm  
**BOF:** Computer Graphics for Simulation

3:45–4:15 pm  
**The Studio Talk:** Bridging Synthetic and Organic Materiality: Graded Transitions in Material Connections

3:45–4:40 pm  
**Exhibitor Tech Talks:** organic Motion–Organic Motion Unveils the Latest Developments in Next Generation Computer Vision

3:45–5 pm  
**The Studio Digital Artistry:** Sensor Calibration

3:45–5:15 pm  
**Talks:** Crowds

3:45–5:15 pm  
**Talks:** Show Me the Pixels
CONFERECE OVERVIEW

WEDNESDAY, 10 AUGUST
3:45–5:35 pm
Technical Papers: Fluid Simulation
Technical Papers: Procedural & Interactive Modeling

4–5 pm
BOF: Educators Meet and Greet
Art Gallery: Informal Art Talks

4–6 pm
BOF: OpenGL

4:30–5:15 pm
Real-Time Live!

4:30–5:30 pm
The Studio Talk: The Visual Style of “Legend of the Guardians: The Owls of Ga’Hoole”

5–6 pm
BOF: Undergraduate Research Alliance

5–7 pm
BOF: Ringling College Alumni Reception

6–7:30 pm
SIGGRAPH Dailies!

6–8 pm
Computer Animation Festival–Electronic Theater

6:30–8:30 pm
BOF: Purdue University Alumni Reception
BOF: Blacks in Animation & VFX

THURSDAY, 11 AUGUST
9–9:30 am
The Studio Talk: Photochromic Sculpture Volumetric Color-Forming Pixel

9–10:30 am
Talks: Hiding Complexity
Technical Papers: Fast Simulation
Technical Papers: Video Resizing & Stabilization

The Studio Workshop: Vignette Correction in GigaPan Stitch

9 am–Noon
BOF: The New Media and the Academy in China

9 am–2:15 pm
Course: Compiler Techniques for Rendering

9 am–3:30 pm
International Center

9:30–10:30 am
The Studio Talk: Rhinoceros 5.0 Workflow Improvements

9:30 am–3:30 pm
Exhibition
Job Fair

10 am–Noon
BOF: Mobile APIs

10:30 am–Noon
BOF: Concepts Artists the Road to the Emmy Award

10:40 am–12:15 pm
The Studio Workshop:
KeyShot: Amazing Rendering and Animation in Real Time

10:45 am–12:15 pm
Computer Animation Festival Production Session: Industrial Light & Magic: New Solutions for New Challenges
Panel: Designing Curriculum for 3D Computer Animation: Innovation and Experimentation for an Evolving Discipline
Talks: Volumes and Rendering
Talks: Smokin’ Fluids

Technical Papers: Fun With Shapes
Technical Papers: Stereo & Disparity

The Studio Talk: Lighting Worlds in Unity

Noon–1 pm
The Studio Talk: Dynamic 3D Integration in CS5 Extended

1–2 pm
BOF: Augmented and Mixed Reality

2–3:30 pm
ACM Student Research Competition Final Presentation
Computer Animation Festival Production Session: Guerilla: The Creation of Killzone 3–Game Production Session
Talks: Heads or Tails
Talks: Speed of Light

Technical Papers: Discrete Differential Geometry
Technical Papers: Interactive Image Editing

2–4 pm
BOF: COLLADA

2–5 pm
BOF: Web3D Korea Chapter Meeting
CONFERENCE OVERVIEW

THURSDAY, 11 AUGUST

2–5:15 pm
Course: Filtering Approaches for Real-Time Anti-Aliasing

3:45–5:15 pm
Talks: Light My Fire
Talks: Capture and Construction
Technical Papers: Real-Time Rendering Hardware
ART PAPERS

SIGGRAPH 2011, in collaboration with Leonardo/ISAST, features not only artists and artwork, but also the processes and theoretical frameworks for making art and contextualizing its place in society.

Art Papers:
- Explore the changing roles of artists and the methods of art-making in our increasingly networked and computationally mediated world.
- Present excellent ideas in accessible ways.
- Inform artistic disciplines, set standards, and stimulate future trends.

The Art Papers are published in a special issue of Leonardo, The Journal of the International Society of the Arts, Sciences and Technology, along with visual documentation of the works exhibited in the Art Gallery.

Publication of this third special issue coincides with SIGGRAPH 2011.

RECEPTION:
Leonardo, Art Papers, and Art Gallery
Tuesday, 9 August, 2–3:30 pm

Experience “home” in the networked age. Talk with the artists, designers, and Art Papers authors about their work. And meet the members of the SIGGRAPH 2011 committee who organized this year’s Art Gallery.

Intervals: Media Time, Space, and Language
Tuesday, 9 August, 9–10:30 am

SESSION CHAIR
Teri Rueb
University at Buffalo

Conserving Digital Art for Deep Time

Displaying digital art in the late 20th and early 21st centuries can be challenging. Exhibiting this same art in the distant future may be impossible, unless today’s artists, conservators, and curators adopt new thinking and practices. Established software engineering methods for dealing with aging systems can provide a new model for conservation of digital art and a foundation for enhancement of art history scholarship.

Francis Marchese
Pace University
Shadow Awareness: Enhancing Theater Space Through the Mutual Projection of Images on a Connective Slit Screen

This study presents media technology that enables improvisational and continuous creation of performers’ physical expression as they are inspired by the imagery evoked from the audience. To realize this, the authors focus on “shadow media”, a system that promotes continuous creation of imagery through “bodily awareness”. The system projects shadows of the performers, which are then transformed into various shapes and colors. The shadows are connected to the performers’ feet and projected on a “passable” slit screen set up between the stage and the audience. The result demonstrates that interactive and mutual creation of imagery from performers and audience can form an “empathetic” stage. To demonstrate its validity, the system was applied to a dance performance at Festival della Scienza in Genoa, Italy.

Yoshiyuki Miwa
Shiroh Itai
Takabumi Watanabe
Waseda University

Hiroko Nishi
Toyo Eiwa University

Collaboration With the Future: An Infrastructure for Art+Technology at the San José International Airport

This paper summarizes development and implementation of a three-part infrastructure for the ongoing program of technology-based public artwork at Silicon Valley’s newly expanded airport. The physical, technological, and human infrastructure provides flexibility and opportunities for future artists and future technologies while providing a robust framework for ongoing maintenance and evolution of the program, and mediating between the needs of artists and the constraints of an airport.

Matt Gorbet
Susan Gorbet
Gorbet Design, Inc.

Banny Banerjee
Stanford University

Art and Code: The Aesthetic Legacy of Aldo Giorgini

Working extensively as both artist and scientist, Aldo Giorgini was one of the first computer artists to combine software writing with early printing technologies. His innovative process consisted of producing pen-plotted drawings embellished by painting, drawing, and screen-printing. In 1975, he developed a FORTRAN program called FIELDS, a numerical visual laboratory devoted entirely to art production.

This paper, the product of a multi-year study of Giorgini’s primary source materials provided by his estate, examines the methods he used during the 1970s to create computer-aided art. It is an attempt to ensure that future generations of digital artists, technologists, and scientists can learn about Giorgini’s aesthetic legacy and its contribution to the history of digital art.

Esteban Garcia
David Whittinghill
Purdue University

The Readers Project: Procedural Agents and Literary Vectors

The Readers Project is an aesthetically oriented system of software entities designed to explore the culture of human reading. These entities, or “readers”, navigate texts according to specific reading strategies based on linguistic feature analysis and real-time probability models harvested from search engines. They function as autonomous text generators, writing machines that become visible within and beyond the typographic dimension of the texts on which they operate. The system has been deployed in a number of interactive art installations where the aggregate behavior of the readers can be viewed on a large screen, and viewers can subscribe, via mobile devices, to individual reader outputs. As the structures on which these readers operate are culturally and aesthetically implicated, they shed critical light on a range of institutional practices, particularly those of reading and writing, and explore what it means to engage with literary components in digital media.

Daniel Howe
John Cayley
Brown University
### Full Conference Access

Full Conference Access registration allows attendees access to all SIGGRAPH 2011 Courses. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Course you wish to attend.

Learn from the experts in the field and gain inside knowledge that is critical to career advancement. Courses are structured sessions that often include elements of interactive demonstration, performance, or other imaginative approaches to teaching.

<table>
<thead>
<tr>
<th>Course</th>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td>3D Spatial Interaction: Applications for Art, Design, and Science</td>
<td>Sunday, 7 August</td>
<td>2–5:15 pm</td>
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<tr>
<td>Introductory</td>
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<tr>
<td>This introduction to 3D spatial interfaces demystifies the workings of modern videogame motion controllers and provides an overview of how it is used to create 3D interfaces for tasks such as 2D and 3D navigation, object selection and manipulation, and gesture-based application control.</td>
<td></td>
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<tr>
<td>Joseph LaViola</td>
<td></td>
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<tr>
<td>University of Central Florida</td>
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<td>Daniel Keefe</td>
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<tr>
<td>University of Minnesota</td>
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| Destruction and Dynamics for Film and Game Production                | Sunday, 7 August | 2–5:15 pm      |
| Intermediate                                                        |               |                 |
| This course focuses on rigid-body and particle simulation and collision techniques used in breaking objects and large-scale destruction. Following a brief introduction to the basic theory, the course continues with examples from specific films and games, and highlights commonalities and differences between film and game practice. Topics include production aspects such as authoring tools, game-engine integration, and computational and algorithmic issues. |               |                 |
| ORGANIZER                                                           |               |                 |
| Erwin Coumans                                                        |               |                 |
| Advanced Micro Devices, Inc.                                         |               |                 |

| LECTURERS                                                           |               |                 |
| Takahiro Harada                                                     |               |                 |
| Advanced Micro Devices, Inc.                                        |               |                 |
| Nafees Bin Zafar                                                    |               |                 |
| Mark Carlson                                                        |               |                 |
| DreamWorks Animation                                                |               |                 |
| Brice Criswell                                                      |               |                 |
| Industrial Light & Magic                                            |               |                 |
| Michael Baker                                                       |               |                 |
| Erin Catto                                                          |               |                 |
| Activision Blizzard, Inc.                                           |               |                 |
Introduction to Modern OpenGL Programming
Sunday, 7 August, 2–5:15 pm

Introductory

This course is an accelerated introduction to programming OpenGL, emphasizing the most modern methods for using the library. In recent years, OpenGL has evolved and fundamentally changed how programmers interact with the API. The course reviews each of the shader stages in OpenGL, how to specify data for rendering with OpenGL, and how OpenGL’s wealth of new functionality and features enables creation of ever-richer content.

Edward Angel
University of New Mexico

Dave Shreiner
ARM, Inc.

Liquid Simulation With Mesh-Based Surface Tracking
Sunday, 7 August, 2–5:15 pm

Advanced

This course begins with an overview of several existing liquid-surface-tracking techniques and the pros and cons of each method. Then it explains how to embed a triangle mesh into a finite-difference-based fluid simulator and describes several methods for allowing the liquid surface to merge together or break apart. The final section showcases the benefits and further applications of a mesh-based liquid surface, highlighting state-of-the-art methods for tracking colors and textures, maintaining liquid volume, preserving small surface features, and simulating realistic surface-tension waves.

Chris Wojtan
Institute of Science and Technology Austria

Matthias Müller-Fischer
NVIDIA Corporation

Tyson Brochu
The University of British Columbia

Build Your Own Glasses-Free 3D Display
Monday, 8 August, 9–10:30 am

Intermediate

This follow-up course to SIGGRAPH 2010, the Build Your Own 3D Display course, focuses more narrowly on glasses-free displays, describing in greater detail the practical aspects of real-time, OpenGL-based encoding for such multi-view, spatially multiplexed displays. It summarizes state-of-the-art methods and areas of active research, and it provides a step-by-step tutorial on how to construct a lenticular display.

Douglas Lanman
Matthew Hirsch
MIT Media Lab

Advances in Real-Time Rendering in Games: Part I
Monday, 8 August, 9 am–12:15 pm

Intermediate

This course links the game-development community and state-of-the-art 3D graphics research, encouraging cross-pollination for future games and other interactive applications. As the next installment in the now-established series of SIGGRAPH courses on real-time rendering, it surveys the best of graphics practices and research from the game-development community and provides practical, production-proven algorithms. The first part of the course includes speakers from several award-winning game companies, such as Bungie, Media Molecule, Crytek, and DICE.

Natalya Tatarchuk
Bungie, Inc.
PhysBAM: Physically Based Simulation  
Monday, 8 August, 9 am–12:15 pm  
Intermediate

This course is an introduction to the PhysBAM simulation library developed at Stanford University and used in both academic and industrial settings. The course contains information on the release of PhysBAM as well as information on how to obtain the source code, set up the library, and use it to run example smoke and water simulations. It also summarizes a visualization tool and a rendering tool included in the release of the library.

Craig Schroeder  
Stanford University

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Storytelling With Color  
Monday, 8 August, 2–3:30 pm  
Intermediate

This course discusses storytelling choices in fine art, illustration, and films (animated and live action), and how color selection supports the story. Topics include color rules, when and how to break them, and the differences between the analog and digital palettes. The course includes plenty of visuals and is appropriate for everyone interested in color.

Kathy Altiere  
Dave Walvoord  
DreamWorks Animation

---

Advances in Real-Time Rendering in Games: Part 2  
Monday, 8 August, 2–5:15 pm  
Intermediate

The focus of this course, the next installment in the now-established series of SIGGRAPH courses on real-time rendering, is on bridging the game-development community and state-of-the-art 3D graphics research to encourage cross-pollination of knowledge for future games and other interactive applications. Presenters review the best of graphics practices and research from the game-development community and provide practical and production-proven algorithms.

Natalya Tatarchuk  
Bungie, Inc.

John White  
Electronic Arts Black Box

Colin Barré-Brisebois  
Electronic Arts Montréal

Dimitar Lazarov  
Treyarch

Vassily Fillipov  
Sony Santa Monica

Hugh Malan  
CCP Games

Christopher Hall  
Robert Hall  
David Edwards  
Avalanche Software

Eric Penner  
Electronic Arts Vancouver
Beyond Programmable Shading I  
Tuesday, 9 August, 9 am–12:15 pm

Intermediate

There are strong indications that the future of interactive graphics programming is a more flexible model than today’s OpenGL/Direct3D pipelines. Graphics developers need to have a basic understanding of how to combine emerging parallel programming techniques and more flexible graphics processors with the traditional interactive-rendering pipeline. As the first in a series, this course introduces trends and directions in this emerging field.

Michael Houston  
Advanced Micro Devices, Inc.

Aaron Lefohn  
Intel Corporation

Beyond Programmable Shading II  
Tuesday, 9 August, 2–5:15 pm

Intermediate

There are strong indications that the future of interactive graphics programming is a more flexible model than today’s OpenGL/Direct3D pipelines. Graphics developers need to have a basic understanding of how to combine emerging parallel programming techniques and more flexible graphics processors with the traditional interactive-rendering pipeline. As the second in a series, this course introduces trends and directions in this emerging field.

Michael Houston  
Advanced Micro Devices, Inc.

Aaron Lefohn  
Intel Corporation

Marco Salvi  
Intel Corporation

Steven G. Parker  
NVIDIA Corporation

Chris Wyman  
University of Iowa

Advances in New Interfaces for Musical Expression  
Tuesday, 9 August, 2–5:15 pm

Introductory

This course summarizes what has been learned at NIME. Topics include the theory and practice of new musical-interface design, mapping from human action to musical output, control intimacy, tools for creating musical interfaces, sensors and microcontrollers, audio synthesis techniques, and communication protocols such as Open Sound Control (and MIDI).

Michael Lyons  
Ritsumeikan University

Sidney Fels  
The University of British Columbia
Modeling 3D Urban Spaces Using Procedural and Simulation-Based Techniques
Tuesday, 9 August, 2–5:15 pm
Intermediate

This course explains new modeling techniques for urban environments as an important complement to traditional modeling software. It explains how to use procedural, image-based, and simulation-based techniques to efficiently create highly detailed three-dimensional urban models for computer games, movies, architecture, and urban planning.

Peter Wonka
Arizona State University
Daniel Aliaga
Carlos Vanegas
Purdue University
Pascal Mueller
Procedural Inc.
Michael Frederickson
Pixar Animation Studios

Stereoscopy From XY to Z
Wednesday, 10 August, 9 am–12:15 pm
Intermediate

This comprehensive course summarizes standard stereo-projection techniques, audience depth perception and comfort factors, recommended uses of depth as a storytelling tool, how stereo is used in gaming and real-time applications, details on conversion of 2D content to 3D, guidance on new creative choices, and using depth in an aesthetic way.

Samuel Gateau
NVIDIA Corporation
Robert Neuman
Walt Disney Animation Studios
Marc Salvati
OLM Digital, Inc.

Cinematography: The Visuals & the Story
Wednesday, 10 August, 9–10:30 am
Introductory

The virtual or actual camera, its placement in a scene, the choice of lens, the camera’s movement, the lighting, color, and exposure all contribute to visual communication between the storytelling cinematographer and the audience. A story has structure. The visuals must have structure, too.

Bruce Block
University of Southern California

Production Volume Rendering 1
Wednesday, 10 August, 10:45 am–12:15 pm
Intermediate

This course begins with an introduction to generating and rendering volumes, then presents a production-usable volumetrics toolkit, focusing on the feature set and why those features are desirable. Special emphasis is focused on the approaches taken in tackling efficient data structures, shading approaches, multi-threading/parallelization, holdouts, and motion blurring.

Magnus Wrenninge
Sony Pictures Imageworks
Nafees Bin Zafar
DreamWorks Animation

Applying Color Theory to Digital Media and Visualization
Wednesday, 10 August, 2–3:30 pm
Introductory

This course highlights the visual impact of specific color combinations, provides practical suggestions on color mixing, and includes a hands-on session that teaches how to build and evaluate color schemes for digital media visualization.

Theresa-Marie Rhyne
Consultant
Character Rigging, Deformations, and Simulations in Film and Game Production  
Wednesday, 10 August, 2–5:15 pm  
Intermediate  
This course focuses on rigging, deformations, dynamics, and production practices in animation, visual effects, and game development. Topics include analysis of performance requirements, motion system set-up, procedural rigging for secondary animation, and efficient extension of techniques over a wide range of primary and secondary characters.  

Tim McLaughlin  
Texas A&M University  
Larry Cutler  
DreamWorks Animation  
David Coleman  
Electronic Arts Inc.  

Production Volume Rendering 2  
Wednesday, 10 August, 2–5:15 pm  
Advanced  
Computer-generated volumetric elements such as clouds, fire, and whitewater are becoming commonplace visual effects. This course provides a behind-the-scenes look at the techniques used and how they are implemented. It demonstrates tools and workflows that are not typically covered in production talks but are integral to successful completion of many effects.  

Magnus Wrenninge  
Sony Pictures Imageworks  
Andrew Clinton  
Side Effects Software Inc.  
Ollie Harding  
Gavin Graham  
Double Negative Visual Effects  
Jerry Tessendorf  
Clemson University  
Victor Grant  
Rhythm & Hues Studios  
Antoine Bouthors  
Weta Digital Ltd.  

Compiler Techniques for Rendering  
Thursday, 11 August, 9 am–12:15 pm  
Intermediate  
This course summarizes five cutting-edge projects that apply compiler technology to improve the performance and functionality of renderers and shading systems. Topics include: customizing shading languages for global illumination and other advanced rendering, analysis of shaders so that renderers may perform physically based light transport in correct units, automatic differentiation, and use of LLVM and dynamic code generation for improved shader performance.  

Larry Gritz  
Sony Pictures Imageworks  
Mark Leone  
Weta Digital Ltd.  
Steven Parker  
NVIDIA Corporation  
Philipp Slusallek  
Deutsches Forschungszentrum für Künstliche Intelligenz GmbH  
Bruce Walter  
Cornell University
Filtering Approaches for Real-Time Anti-Aliasing
Thursday, 11 August, 2–5:15 pm

Intermediate

This course includes an overview of both research and industry filter-based, anti-aliasing techniques in games for all modern platforms (AMD and NVIDIA GPUs, PlayStation 3, and Xbox 360), low-level insight to ease adoption of these techniques and give attendees a complete concept-to-implementation roadmap, and deep quality, performance, and ease-of-integration comparisons of each technique.

Jorge Jimenez
Diego Gutierrez
Universidad de Zaragoza

Jason Yang
Advanced Micro Devices, Inc.

Alexander Reshetov
Intel Labs

Pete Demoreuille
Double Fine Productions, Inc.

Tobias Berghoff
Cedric Perthuis
Sony Computer Entertainment

Henry Yu
Kalloc Studios

Morgan McGuire
NVIDIA Corporation and Williams College

Timothy Lottes
NVIDIA Corporation

Hugh Malan
CCP hf.

Emil Persson
Avalanche Studios

Dmitry Andreev
Lucas Arts

Tiago Sousa
Crytek
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 design and player experience.

Accepted papers are published in Sandbox 2011: ACM SIGGRAPH Video Game Proceedings as a part of the ACM SIGGRAPH 2011 Full Conference DVD-ROM publication.

## Analyzing Player Behavior and Experience
Wednesday, 10 August, 9–10:30 am

**SESSION CHAIR:**
Drew Davidson
Carnegie Mellon University

### Evaluating Enjoyment Within Alternate-Reality Games
This paper on understanding enjoyment within alternate-reality games discusses the unique demands of the genre and why pre-existing enjoyment models are not applicable.

Andrew Macvean
Heriot-Watt University

Mark Riedl
Georgia Institute of Technology

### Visualizing and Understanding Players’ Behavior in Video Games: Discovering Patterns and Supporting Aggregation and Comparison
There is a growing need for procedures that can support analysis and understanding of players’ behaviors within game environments. This paper proposes a system that allows analysts to build and compare visualizations of clusters of players to better understand the causes and effects of players’ actions.

Dinara Moura
Magy Seif el-Nasr
Christopher D. Shaw
Simon Fraser University

### Evaluating Gesture-Based Games With Older Adults on a Large-Screen Display
This work reports on design and evaluation of three novel gesture-based games with healthy, older adults. It describes key features in the physical and social engagement, and general usability of the games, to determine their applicability to the target audience.

Mark Rice
Marcus Wan
Min-Hui Foo
Jamie Ng
Zyndie Wai
Janell Kwok
Samuel Lee
Linda Teo
Institute for Infocomm Research

### The Impact of Negative Game Reviews and User Comments on Player Experience
This study of how game reviews and user comments influence player experience found that players who read negative reviews rated the game lower than those who read either positive reviews or no reviews at all.

Ian Livingston
Lennart Nacke
Regan Mandryk
University of Saskatchewan
Players and Game Worlds  
Wednesday, 10 August, 10:45 am–12:15 pm

SESSION CHAIR  
Drew Davidson  
Carnegie Mellon University

All in a Day’s Work: A Study of World of Warcraft NPCs Comparing Gender to Professions  
This study explores whether non-player characters within World of Warcraft reinforce stereotypical assumptions surrounding gender and work. Even though all professions are represented (albeit not equally) by male and female NPCs, there seem to be subtle hierarchies within the distribution of “work” in this game world.

Kelly Bergstrom  
Victoria McArthur  
Jennifer Jenson  
Tamara Peyton  
York University

Beyond Player Types: Gaming Achievement Goals  
Educational psychology studies use motivational constructs called achievement goals to predict learning success. This paper examines whether gaming achievement goals influence game play in similar ways. Gaming achievement goals could help determine whether people will play and which players are more likely to learn from educational games.

Carrie Heeter  
Yu-Hao Lee  
Michigan State University  
Ben Medler  
Brian Magerko  
Georgia Institute of Technology

Designing Stories: Narrative Practices in 3D Computer Games  
Drawing on theories from game, film, and theater studies, this paper explores two primary ways in which 3D computer games deal with stories.

Teun Dubbelman  
Universiteit Utrecht

Modeling Play: Re-Casting Expertise in MMOGs  
Studies of expertise in massively multiplayer online games (MMOGs) involve either small-scale ethnographic accounts of elite players or large-scale accounts relying on one-dimensional measures of expert play. This paper presents a quantifiable model of expertise in MMOGs that is generated through qualitative analyses of both novices and experts.

Nicholas Taylor  
York University  
Suzanne de Castell  
Simon Fraser University  
Jennifer Jenson  
York University  
Megan Humphrey  
Simon Fraser University
Full Conference Access registration allows attendees access to all SIGGRAPH 2011 Panels. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Panel you wish to attend.

A forum for the community to share experiences, opinions, insights, speculation, disagreement, controversy, and audience interaction with the leading experts in computer graphics and interactive techniques.

**Successful Creative Collaboration Across Time and Space**  
**Sunday, 7 August, 3:45–5:15 pm**

This panel discusses issues surrounding globally distributed projects in animation, games, and visual effects. Success in these ventures depends on unique production structures, review processes, universal tool sets, and adaptation of artists and engineers to technology-mediated communication. Topics include speculation on possible future work environments and how the rising generation of artists and engineers will influence the collaboration process. Each panelist brings a specific area of expertise to the general topic and represents an organization recognized for successfully advancing industry capability with distributed projects.

Tim McLaughlin  
Texas A&M University

Tim Fields  
Certain Affinity, Inc.

Jonathan Gibbs  
DreamWorks Animation

David A. Parrish  
Reel FX Creative Studios

Steve Sullivan  
Industrial Light & Magic

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**The Need for Standardization Within Global Visual Effects Productions Through Open Source and Open Standards**  
**Monday, 8 August, 3:45–5:15 pm**

This panel highlights some of the open-source projects that are helping visual-effects companies share data worldwide and explore areas for future improvement. In most cases, production companies need to set up a hub to ingest data from sets and/or locations during principal photography, and then send and receive data from the various visual-effects vendors during post production. Because there is not much standardization in this area, a standard framework for information exchange could provide huge efficiencies for both production companies and vendors. The panel explores options for sharing assets such as plates, models, and textures as well as new issues related to stereo conversion.

**MODERATOR**  
Sam Richards  
Sony Pictures Imageworks

**PANELISTS**  
Hannes Ricklefs  
The Moving Picture Company

Ray Feeney  
RFX Inc.

Rob Bredow  
Sony Pictures Imageworks

Steve Cronan  
5th Kind

Ryan Mayeda  
Digital Domain

Tommy Burnette  
Lucasfilm Singapore
Designing Curriculum for 3D Computer Animation: Innovation and Experimentation for an Evolving Discipline

Thursday, 11 August, 10:45 am–12:15 pm

What makes an undergraduate or graduate program in 3D computer animation successful? Why do some schools seem to be so much better than others? How are they different, in philosophy, educational strategies, proposed projects, curriculum grid, industry relationships, and resources? This panel brings together leaders and thinkers from some of the top animation schools in the world to present, discuss, and share their specific approaches and educational philosophies.

An outreach expert from DreamWorks Animation and a talent-development director from Walt Disney Animation Studios present the industry point of view.

MODERATOR
Raquel Coelho
San José State University

PANELISTS
Eric Riewer
Gobelins, l’école de l’image

Maija Burnett
California Institute of the Arts

Thomas Haegele
Filmakademie Baden-Württemberg

Jim McCampbell
Ringling College of Art + Design

Tim McLaughlin
Texas A&M University

Marilyn Friedman
DreamWorks Animation

Dawn Rivera-Emster
Walt Disney Animation Studios
Full Conference registration allows access to all SIGGRAPH 2011 Talks. Seating is on a first-come, first-served basis. Please be sure to arrive early for the Talk sessions you wish to attend.

SIGGRAPH 2011 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 take you behind the scenes and into the minds of SIGGRAPH 2011 creators.

**Pushing Production Data**
Sunday, 7 August, 2–3:30 pm

**SESSION CHAIR:**
Tamy Boubekeur
Telecom ParisTech-CNRS

Coherent Out-of-Core, Point-Based Global Illumination
Janne Kontkanen
Google, Inc.

Eric Tabellion
Ryan S. Overbeck
PDI/DreamWorks

Destroying Metro City: An Art-Directable Demolition System for “Megamind”
David Lipton
EliBocek-Rivele
Greg Gladstone
Fangwei Lee
Mark Carlson
DreamWorks Animation

**Facing Hairy Production Problems**
Sunday, 7 August, 3:45–5:15 pm

**SESSION CHAIR:**
Daniel Wexler

Kami Geometry Instancer:
Putting the Smurfy in Smurf Village
Francois Chardavoine
Armin Bruderlin
Sony Pictures Imageworks

Making Faces: Eve Online’s New Portrait Rendering
Bert Peers
CCP Games

SpeedFur–A GPU-Based Procedural Hair and Fur Modeling System
Vilhelm Hedberg
Mattias Lagergren
Fredrik Limsäter
Fido VFX

GPU Fluids in Production:
A Compiler Approach to Parallelism
Dan Bailey
Ian Masters
Matt Warner
Double Negative Visual Effects

**PhotoSpace: A Vision-Based Approach for Digiziting Props**
Pravin Bhat
Sebastian Burke
Weta Digital Ltd.

**Artistic Rendering of Feathers for Animated Films**
Feng Xie
DreamWorks Animation
## Tiles and Textures and Faces Oh My!

**Monday, 8 August, 2–3:30 pm**

**SESSION CHAIR:**
David McAllister  
NVIDIA Corporation

- **Procedural Mosaic Arrangement In “Rio”**  
  Rhett Collier  
  Josh Smeltzer  
  Blue Sky Studios

- **Generating Displacement From Normal Map for Use in 3D Games**  
  Kirill Dmitriev  
  Evgeny Makarov  
  NVIDIA Corporation

- **Per-Face Texture Mapping for Real-Time Rendering**  
  John McDonald  
  NVIDIA Corporation  
  Brent Burley  
  Walt Disney Animation Studios

- **Spherical Skinning With Dual Quaternions and QTangents**  
  Ivo Zoltan Frey  
  Ivo Herzeg  
  Crytek

## Eye on the Road

**Monday, 8 August, 2–3:30 pm**

**SESSION CHAIR:**
Mike Bailey  
Oregon State University

- **MotorStorm Apocalypse: Creating Urban Off Road Racing**  
  Alex Perkins  
  Dan Hawson  
  Evolution Studios, Sony Computer Entertainment Europe

- **Interactive Hybrid Simulation of Large-Scale Traffic**  
  Jason Sewall  
  Intel Corporation  
  David Wilkie  
  Ming Lin  
  University of North Carolina at Chapel Hill

- **Impact of Subtle Gaze Direction on Short-Term, Spatial, Information Recall**  
  Reynold Bailey  
  Rochester Institute of Technology  
  Ann McNamara  
  Texas A&M  
  Aaron Costello  
  Rochester Institute of Technology  
  Cindy Grimm  
  Washington University in St. Louis

- **Facial Cartography: Interactive High-Resolution Scan Correspondence**  
  Cyrus Wilson  
  Oleg Alexander  
  Borom Tunwattanapong  
  USC Institute for Creative Technologies  
  Pieter Peers  
  College of William and Mary  
  Abhijeet Ghosh  
  Jay Busch  
  Arno Hartholt  
  Paul Debevec  
  USC Institute for Creative Technologies
# Talks

## Changing Dimension

**Monday, 8 August, 3:45–5:15 pm**

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

### Design and Realization of Stereoscopic 3D for Disney Classics

Evan Goldberg  
Robert Neuman  
Matthew Schnittker  
Dale Mayeda  
Olun Riley  
Kevin Koneval  
Katie Tucker-Fico  
Wait Disney Animation Studios

### StereoFX: Survey of the Main Stereo Film-Making Techniques

Damien Fagnou  
The Moving Picture Company

### Developing Tools for 2D/3D Conversion of Japanese Animations

Marc Salvati  
Yosuke Katsura  
Tatsuo Yotsukura  
Miki Kinoshita  
Ken Aniyo  
Hiroshi Uchibori  
OLM Digital Inc.

### Processing.js: Sketching With Canvas

Andor Salga  
Daniel Hodgin  
Anna Sobiepanek  
Scott Downe  
Mickael Medel  
Catherine Leung  
Seneca College of Applied Arts and Technology

## Let There Be Light

**Tuesday, 9 August, 9–10:30 am**

**SESSION CHAIR:**
Kenny Mitchell  
Black Rock Studio, The Walt Disney Company

### “Rango”: A Case of Lighting and Compositing a CG-Animated Feature in an FX-Oriented Facility

Leandro Estebeecorena  
Nelson Sepulveda  
Greg Grusby  
Industrial Light & Magic

### Ocean Mission on “Cars 2”

Alexis Angelidis  
Josh Anon  
Gary Bruins  
Jon Reisch  
Esdras Varagnolo  
Pixar Animation Studios

### Untangling Hair Rendering at Disney

Lewis Siegel  
Walt Disney Animation Studios  
Ramon Montoya-Vozmediano  
DreamWorks Animation  
Michelle Robinson  
Mitchell Snary  
Ryan Duncan  
Chris Springfield  
Walt Disney Animation Studios
**Out of Core**  
**Tuesday, 9 August, 9–10:30 am**

**SESSION CHAIR:**  
Paul Strauss  
Google, Inc.

**Google Body: 3D Human Anatomy in the Browser**  
Arthur Blume  
Won Chun  
David Kogan  
Vangelis Kokkevis  
Nico Weber  
Rachel Weinstein Petterson  
Roni Zeiger  
Google, Inc.

**Interactive Indirect Illumination Using Voxel Cone Tracing: An Insight**  
Cyril Crassin  
INRIA Rhone-Alpes  
Fabrice Neyret  
CNRS/LJK/INRIA  
Miguel Sainz  
Simon Green  
NVIDIA Corporation  
Elmar Eisemann  
École d’Ingénieurs Télécom ParisTech

**Rendering the Interactive Dynamic Natural World of the Game: From Dust**  
Ronan Bel  
Benoît Vimont  
Ubisoft Montpellier Studio

**Out-of-Core GPU Ray Tracing of Complex Scenes**  
Kirill Garanzha  
Keldysh Institute of Applied Mathematics (Russian Academy of Sciences)  
Simon Premoze  
Alexander Bely  
CentiLeo

**Walk the Line**  
**Tuesday, August 9, 10:45 am-12:15 pm**

**SESSION CHAIR:**  
Mehmet Atkin  
29 Ironworks

**Motion Comics: Browsing and Searching for Human Motion Data**  
Myung Geol Choi  
JST ERATO Igarashi Design Interface Project  
Jehee Lee  
Seoul National University  
Takeo Igarashi  
Jun Mitani  
JST ERATO Igarashi Design Interface Project  
Kyungyong Yang  
Seoul National University

**Parameterizing Animated Lines for Stylized Rendering**  
Bert Buchholz  
Tarny Boubekeur  
Noura Faraj  
Elmar Eisemann  
École d’Ingénieurs Télécom ParisTech  
Sylvain Paris  
Adobe Systems Incorporated

**Multiperspective Rendering for Anime-Like Exaggeration of Joint Models**  
Kei Utsugi  
Hitach, Ltd.  
Takeshi Naemura  
The University of Tokyo  
Takafumi Koike  
Michio Oikawa  
Hitachi Ltd.

**Learning to Classify Human Object Sketches**  
Mathias Eitz  
Technischen Universität Berlin  
James Hays  
Brown University
TALKS

Building Blocks
Tuesday, August 9, 10:45 am–12:15 pm

SESSION CHAIR:
Tamy Boubekeur
École d’Ingénieurs Télécom ParisTech

KinectFusion : Real-Time Interactions With Dynamic 3D Surface Reconstructions
Shahram Izadi
Microsoft Research Cambridge
Richard Newcombe
Imperial College London
David Kim
Otmar Hilliges
David Molyneaux
Pushmeet Kohli
Jamie Shotton
Steven Hodges
Microsoft Research Cambridge
Andrew Davison
Imperial College London
Andrew Fitzgibbon
Microsoft Research Cambridge

SBL Mesh Filter: Fast Separable Approximation of Bilateral Mesh Filtering
Guillaume Vialaneix
Tamy Boubekeur
École d’Ingénieurs Télécom ParisTech

Band Decomposition of 2-Manifold Meshes for Physical Construction of Large Structures
Ergun Akleman
Qing Xing
Gabriel Esquivel
Jianer Chen
Texas A&M University
Jonathan Gross
Columbia University

Pattern Mapping With Quad-Pattern-Coverable Quad-Meshes
Shiyu Hu
Qing Xing
Ergun Akleman
Jianer Chen
Texas A&M University
Jonathan Gross
Columbia University

1000 Points of Light
Tuesday, 9 August, 2–3:30 pm

SESSION CHAIR:
Peter-Pike Sloan
Disney Interactive Studios

Lighting Tokyo for Pixar’s “Cars 2”
Mitchell Kopelman
Pixar Animation Studios

“Megamind”–Lighting Metro City at Night
Jimmy Maidens
Philippe Denis
Gianni Aliotti
DreamWorks Animation

Deferred Shading Technique Using Frostbite in Battlefield 3 and Need for Speed The Run
Alex Ferrier
Electronic Arts
Christina Coffin
DICE (Electronic Arts)
Fur and Feathers  
Tuesday, 9 August, 3:45–5:15 pm

SESSION CHAIR:  
Nafees Bin Zafar  
DreamWorks Animation

Quill: Birds of a Feather Tool  
Daniel Heckenberg  
Damien Gray  
Bryan Smith  
Jonathan Wills  
Chris Bone  
Animal Logic

Dynamic, Penetration-Free Feathers in “Rango”  
Stephen Bowline  
Zoran Kacic-Alesic  
Industrial Light & Magic

Accurate Contact Resolution for Interpolated Hairs  
Rony Goldenthal  
Industrial Light & Magic

Mixed Grill  
Wednesday, 10 August, 9–10:30 am

SESSION CHAIR:  
Chris Klug  
Carnegie Mellon University

Aidan Sarsfield  
Eoin Murphy  
Animal Logic

Animation Workflow in Killzone 3: A Fast Facial Retargeting System for Game Characters  
Andrea Arghinenti  
Guerrilla Games

Adaptive Importance Sampling for Multi-Ray Gathering  
Ivan Neulander  
Rhythm & Hues Studios

High-Resolution Relightable Buildings From Photographs  
Francho Melendez  
The University of Manchester  
Mashhuda Glencross  
Loughborough University  
Gregory, J. Ward  
Dolby Canada  
Roger J. Hubbold  
The University of Manchester
TALKS

From the Ground Up
Wednesday, 10 August, 10:45 am–12:15 pm

SESSION CHAIR:
Shalin Shodhan
Pixar Animation Studios

We Built This City: Big City Design and Implementation in “Kung Fu Panda 2”
Wes Burian
DreamWorks Animation

The Visual Style of “Legend of the Guardians: The Owls of Ga’Hoole”
Grant Freckelton
Craig Welsh
Ben Gunsberger
Animal Logic

Clouds in the Skies of Rio
Andrew Schneider
Trevor Thomson
Mathew Wilson
Blue Sky Studios

Directing Destruction
Wednesday, 10 August, 2–3:30 pm

SESSION CHAIR:
Olivier Maury
Industrial Light & Magic

End of Line: Character Destruction in “Tron: Legacy”
Atsushi Ikarashi
Edmond Smith
Ryo Sakaguchi
Brian Gazdik
Digital Domain

Kali: High-Quality FEM Destruction in Zack Snyder’s “Sucker Punch”
Ben Cole
The Moving Picture Company

Directing Hair Motion on “Tangled”
Maryann Simmons
Kelly Ward
Hidetaka Yosumi
Hubert Leo
Xinmin Zhao
Walt Disney Animation Studios

Choreographing Destruction: Art Directing a Dam Break in “Tangled”
Michael Kaschalk
Brett Boggs
Andrew Selle
Lawrence Chai
Walt Disney Animation Studios
Crowds
Wednesday, 10 August, 3:45–5:15 pm

SESSION CHAIR:
Anastasio Garcia Rodriguez
Sony Pictures Imagework

Crowds on “Cars 2”
Robert Moyer
Michael Lorenzen
J.D. Northrup
Trent Crow
Stephen Gustafson
Jake Merrell
Pixar Animation Studios

Synthesizing Complexity for Characters and Landscapes in “Rio”
Sean Palmer
Eric Maurer
Blue Sky Studios

Staging Carnival: Ray Tracing Crowds in “Rio”
Hugo Ayala
Matthew Simmons
Christopher Moore
Blue Sky Studios

Show Me the Pixels
Wednesday, 10 August, 3:45–5:15 pm

SESSION CHAIR:
Robert Kooima
Louisiana State University

Slow Art With a Trillion Frames Per Second Camera
Andreas Velten
Ramesh Raskar
MIT Media Lab
Moungi Bawendi
MIT Department of Chemistry

Display Pixel Caching
Clemens Birklbauer
Oliver Bimber
Tianlun Liu
Johannes Kepler Universität Linz
Max Grosse
Bauhaus-Universität Weimar
Anselm Grundhöfer
Disney Research

Device-Independent Imaging System for High-Fidelity Colors
Akiko Yoshida
Kazunari Tomizawa
Makoto Hasegawa
Yasuhiro Yoshida
SHARP Corporation
Yoshifumi Shimodaira
Shizuoka University

Who Do You Think You Really Are?
Ailsa Barry
The Natural History Museum
Mark Jacobs
BBC
Hiding Complexity
Thursday, 11 August, 9–10:45 am

SESSION CHAIR:
Theodore Kim
University of Saskatchewan

Occlusion Culling in Alan Wake
Ari Silvennoinen
Teppo Soininen
Umbra Software Ltd
Markus Mäki
Olli Tervo
Remedy Entertainment, Ltd.

Increasing Scene Complexity:
Distributed Vectorized View Culling
Andrew Routledge
Electronic Arts: Blackbox

Practical Occlusion Culling in Killzone 3
Michal Valient
Guerrilla

High-Quality Previewing of Shading and Lighting for Killzone 3
Francesco Giordana
Guerrilla Games

Volumes and Rendering
Thursday, 11 August, 10:45 am–12:15 pm

SESSION CHAIR:
Chris Wyman
University of Iowa

Gaussian Quadrature for Photon Beams in “Tangled”
Jared Johnson
University of Central Florida
Wojciech Jarosz
Disney Research Zürich
Dylan Lacewell
DreamWorks Animation

Importance Sampling of Area Lights in Participating Media
Christopher Kulla
Sony Pictures Imageworks
Marcos Fajardo
Solid Angle SL

Decoupled Ray Marching of Heterogeneous Participating Media
Christopher Kulla
Sony Pictures Imageworks

Demand-Driven Volume Rendering of Terascale EM Data
Johanna Beyer
Markus Hadwiger
King Abdullah University of Science and Technology
Won-Ki Jeong
Hanspeter Pfister
Harvard University
### Smokin’ Fluids
**Thursday, 11 August, 10:45 am–12:15 pm**

**SESSION CHAIR:**
Mark Carlson  
DreamWorks Animation SKG

**DB+Grid: A Novel Dynamic Blocked Grid for Sparse High-Resolution Volumes and Level Sets**  
Ken Museth  
DreamWorks Animation

**Capturing Thin Features in Smoke Simulations**  
Magnus Wrenninge  
Chris Allen  
Henrik Fält  
Stephen Marshall  
Sony Pictures Imageworks

**Implicit FEM and Fluid Coupling on GPU for Interactive Multiphysics Simulation**  
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Jehee Lee
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Fangwei Lee
PDI/DreamWorks
Alex Ongaro
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Full Conference registration allows access to all SIGGRAPH 2011 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.

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 session.

Technical Papers are published as a special issue of ACM Transactions on Graphics. In addition to papers selected by the SIGGRAPH 2011 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, 7 August, 6–8 pm
#siggraph #techpapers
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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Georgia Institute of Technology

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Carsten Stoll
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Olga Sorkine
New York University and ETH Zürich

Tong-Yee Lee
National Cheng Kung University

Subspace Video Stabilization
Feng Liu
Portland State University

Michael Gleicher
University of Wisconsin-Madison

Jue Wang
Hailin Jin
Aseem Agarwala
Adobe Systems Incorporated

Tonal Stabilization of Video
Zeev Farbman
Dani Lischinski
The Hebrew University
Fun With Shapes
Thursday, 11 August, 10:45 am–12:15 pm

SESSION CHAIR:
Eitan Grinspun
Columbia University

Making Burr Puzzles From 3D Models
Shiqing Xin
Chi-Fu Lai
Chi-Wing Fu
Nanyang Technological University
Tien-Tsin Wong
Chinese University of Hong Kong
Ying He
Nanyang Technological University
Daniel Cohen-Or
Tel Aviv University

A Geometric Study of V-Style Pop-Ups: Theories and Algorithms
Xianying Li
Yan Gu
Shimin Hu
Tsinghua University
Tao Ju
Washington University in St. Louis
Yan Gu
Shi-min Hu
Tsinghua University

Depixelizing Pixel Art
Johannes Kopf
Microsoft Research Redmond
Dani Lischinski
The Hebrew University

Digital Micrography
Ron Maharik
Mikhail Bessmeltsev
The University of British Columbia
Alla Sheffer
The University of British Columbia and INRIA Rhône-Alpes
Ariel Shamir
Interdisciplinary Center (IDC) Herzliya
Nathan Carr
Adobe Systems Incorporated
Stereo & Disparity
Thursday, 11 August, 10:45 am–12:15 pm

SESSION CHAIR:
Kari Pulli
Nokia Research Center

Computational Stereo Camera System
With Programmable Control Loop
Simon Heinzle
Disney Research Zürich
Pierre Greisen
Disney Research Zürich and ETH Zürich
David Gallup
University of North Carolina
Christine Chen
Daniel Saner
ETH Zürich
Aljoscha Smolic
Disney Research Zürich
Andreas Peter Burg
ETH Zürich
Wojciech Matusik
Disney Research Zürich
Markus Gross
ETH Zürich and Disney Research Zürich

Layered 3D: Tomographic Image Synthesis for
Attenuation-Based Light Field and High Dynamic
Range Displays
Gordon Wetzstein
The University of British Columbia
Douglas Lanman
MIT Media Lab
Wolfgang Heidrich
The University of British Columbia
Ramesh Raskar
MIT Media Lab

Highlighted Depth-of-Field Photography:
Shining Light on Focus
Jaewon Kim
MIT Media Lab and Korea Institute of
Science and Technology
Roarke Horstmeyer
MIT Media Lab
Ig-Jae Kim
MIT Media Lab and Korea Institute of Science
and Technology
Ramesh Raskar
MIT Media Lab

A Perceptual Model for Disparity
Piotr Didyk
Max-Planck-Institut für Informatik
Tobias Ritschel
Elmar Eisemann
École d’Ingénieurs Télécom ParisTech,
and Intel Visual Computing Lab
Karol Myszkowski
Hans-Peter Seidel
Max-Planck-Institut für Informatik
Technical Papers

Discrete Differential Geometry
Thursday, 11 August, 2–3:30 pm

SESSION CHAIR:
Yaron Lipman
Princeton University

Circular Arc Structures
Pengbo Bo
University of Hong Kong and
Technische Universität Wien

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

Martin Kilian
Evolute and Technische Universität Wien

Wenping Wang
University of Hong Kong

Johannes Wallner
Technische Universität Graz and Technische Universität Wien

Discrete Laplacians on General Polygonal Meshes
Marc Alexa
Technischen Universität Berlin

Max Wardetzky
Univeristät Göttingen

HOT: Hodge-Optimized Triangulations
Patrick Mullen
Pooran Memari
Fernando De Goes
Mathieu Desbrun
California Institute of Technology

Spin Transformations of Discrete Surfaces
Keenan Crane
California Institute of Technology

Ulrich Pinkall
Technischen Universität Berlin

Peter Schröder
California Institute of Technology

Interactive Image Editing
Thursday, 11 August, 2–3:30 pm

SESSION CHAIR:
Ariel Shamir
Interdisciplinary Center (IDC) Herzliya

Interactive Editing of Massive Imagery Made Simple: Turning Atlanta Into Atlantis
Brian Summa
Giorgio Scorzelli
University of Utah

Ming Jiang
Peer-Timo Bremer
University of Utah and
Lawrence Livermore National Laboratory

Valerio Pascucci
University of Utah

Geodesic Image and Video Editing
Antonio Criminisi
Toby Sharp
Carsten Rother
Microsoft Research Cambridge

Patrick Perez
Technicolor Paris Research Center

Andrew Fitzgibbon
Microsoft Research Cambridge

Matting and Compositing of Transparent and Refractive Objects
Sai-Kit Yeung
University of California, Los Angeles and Hong Kong University of Science and Technology

Chi-Keung Tang
Hong Kong University of Science and Technology

Michael Brown
National University of Singapore

Sing Bing Kang
Microsoft Research

Nonlinear Revision Control for Images
Hsiang-Ting Chen
National Tsing Hua University

Li-Yi Wei
Microsoft Research

Chun-Fa Chang
National Taiwan Normal University
Real-Time Rendering Hardware
Thursday, 11 August, 3:45–5:15 pm

SESSION CHAIR:
Bill Mark
Intel Corporation

Clipless Dual-Space Bounds for Faster Stochastic Rasterization
Samuli Laine
Timo Aila
Tero Karras
Jaakko Lehtinen
NVIDIA Research

Decoupled Sampling for Graphics Pipelines
Jonathan Ragan-Kelley
Jaakko Lehtinen
Jiawen Chen
MIT CSAIL

Michael Doggett
Lunds universitet

Frédo Durand
MIT CSAIL

Spark: Modular, Composable Shaders for Graphics Hardware
Tim Foley
Intel Corporation and Stanford University

Pat Hanrahan
Stanford University

Physically Based, Real-Time Lens Flare Rendering
Matthias Hullin
Max-Planck-Institut für Informatik

Elmar Eisemann
École d’Ingénieurs Télécom ParisTech

Hans-Peter Seidel
Max-Planck-Institut für Informatik

Sungkil Lee
Sungkyunkwan University
EXHIBITOR TECH TALKS

Comprehensive summaries of the latest technologies in computer graphics and interactive techniques. SIGGRAPH 2011 exhibitors demonstrate software, hardware, and systems; answer questions; and host one-on-one conversations about how their applications improve professional and technical performance.

NVIDIA’S EXHIBITOR SESSIONS

NVIDIA Corporation
Monday, 8 August, 9 am–5:30 pm  West Building, Room 220

Explore the impact of GPUs on state-of-the-art CG and interactive design in NVIDIA’s engaging panel discussions and technical deep dives into everything from advanced ray tracing and rendering to tessellation. Get an insider’s view of today’s most exciting applications, and a glimpse into the next generation of ground-breaking advancements.

TUESDAY, 9 AUGUST

Advanced Micro Devices, Inc.
Tuesday, 9 August, 11:15 am–12:15 pm

Video Processing With AMD FirePro Solutions
PC architecture and graphics-processing units have become ubiquitous in broadcast and post-production workflows. This talk reviews the types of processing and rendering that the GPU excels at and illuminates some of the emerging trends for tightening GPU integration into these workflows.

Alexis Mather
Senior Product Marketing Manager
AMD Professional Graphics

DigiPen Institute of Technology
Tuesday, 9 August, 2:15–3:15 pm

The Academic Infrastructure of Innovative and Successful Video Games
A detailed look at the academic infrastructure of interactive media technologies and the special emphasis placed on incorporating innovative game design and gameplay mechanics to make video games highly successful and marketable.

Ben Ellinger
DigiPen Institute of Technology

The Bakery
Tuesday, 9 August, 3:45–4:40 pm

Bakery Relight: Interactive Lighting, Shading, and Rendering for Pros
Designed for the high-end feature film, television, industrial, automotive, and architectural design industries, Bakery Relight is the first interactive, all-in-one lighting, shading, and rendering solution. Born out of years of hands-on experience on top-grossing feature films, Relight supports the lighters’ and shaders’ iterative process with full-resolution feedback in seconds.

www.bakery3d.com
Liz Tjostolvsen
The Bakery

www.siggraph.org/s2011
**OPTIS**  
Wednesday, 10 August, 9:45–10:45 am  
**Physics-Based Virtual Reality**  
Thanks to their unique physics-based approach, OPTIS light-simulation specialists provide real-time, predictive visualization solutions based on measured physical properties of surfaces and materials. OPTIS solutions are used by engineers, ergonomists, and designers to optimize perceived quality and the visual ergonomics of HMIs.

**Advanced Micro Devices, Inc.**  
Wednesday, 10 August, 11:15 am–12:15 pm  
**OpenCL and OpenGL/DirectX Interoperability**  
The computing power of GPUs is now accessible to improve the interactivity of 3D graphics. Leveraging this capability requires optimum interoperability between compute (OpenCL) and graphics APIs (OpenGL/DirectX). This talk demonstrates how to compute and update geometry with OpenCL on APUs, how to update VBO on discrete GPUs, and how to compute physics data on OpenCL and transfer those data to discrete GPUs.

Benjamin Coquelle  
Senior Software Engineer  
AMD Professional Graphics

**Autodesk**  
Wednesday, 10 August, 12:45–1:45 pm  
**Multi-Threaded 2D Renderer Design**  
Rendering real-time high-quality 2D vector graphics through a 3D pipeline is a challenging task, requiring custom algorithms for shape tessellation, edge anti-aliasing and text rendering. For best performance, Scaleform 2D renderer includes optimizations such as multi-threaded rendering, mesh caching and draw-primitive batching.

Following a high-level design description, this talk dives into multi-threaded rendering, introducing a novel render tree design that allows the both threads to access scene graph nodes simultaneously, greatly reducing copy overhead. The strategy described is particularly effective when only a subset of nodes is modified every frame and can be applied to any real-time rendering engine.

**Xsens**  
Wednesday, 10 August, 2:15–3:15 pm  
**How Much Animation Can You Do in a Day?**  
This talk shows how to speed up your pipeline with the Xsens MVN animation tool. It also explains how to record a motion, edit the motion, and insert it into a scene in no time, or even real-time, using the Xsens MVN system.

Patrick Runyon  
Xsense Technologies B.V.

**Organic Motion**  
Wednesday, 10 August, 3:45–4:40 pm  
**Organic Motion Unveils the Latest Developments in Next Generation Computer Vision**  
Preview the Building Blocks of Human Computer Interaction
Age Requirement:
Children under 16 are not permitted in the Exhibition. Age verification is required.

As of 1 July

3D Consortium
3D Systems
3D3 Solutions
3Dconnexion, Inc.
3dMD
3DTotal.com
3DVIA
4DDynamics
Aberdeen LLC
Academic Superstore
Academy of Art University
Addison-Wesley
AMD
Animation Magazine Inc.
ANIMATIONMENTOR.COM
ARM
ASC-American Cinematographer
Autodesk, Inc.
Avere Systems
Axceleon Inc.
B&H Photo, Video & Pro Audio
Beijing ENOCHVIEW Digital Art Co., Ltd.
Belfry Animation & Toys Ltd.
Blender Foundation
BlueArc Corporation
British Columbia Film Commission
Campbell River Creative Industries Council
Cap Digital Paris Region
Capilano University
Carnegie Mellon Entertainment Technology Center
cebas Visual Technology Inc.
Centre for Digital Media
CGWAVE Inc.
Champlain College
Chaos Software Ltd.
CLO Virtual Fashion, Inc.
Codeplay
Cogswell Polytechnical College
Computer Graphics World
Consulate of Costa Rica - Procomer
Crimson Forest Entertainment Group Limited
CRC Press / A K Peters
CyberGlove Systems
Digia Plc - Qt Commercial
DigiPen Institute of Technology
Digital Domain
Digital Media Professionals
Dimensional Imaging Ltd.
Drawiz, Inc.
Emily Carr University of Art + Design
EnvisionTEC
Eos Systems Inc.
FARO Technologies Inc.
Fixstars Corporation
Future Publishing/3D World
GI LLC
Google
Hardcore Processing
Hong Kong ACM SIGGRAPH Professional Chapter Ltd.
Hong Kong Trade Development Council
HUONE
IATSE
iDesign Solutions
IdN magazine
Imagination Technologies
Imagineer Systems Ltd.
IntegrityWare, Inc.
Intel Corporation
Isilon Systems, Inc.
John Wiley & Sons, Inc.
Khronos Group
King Abdullah University of Science and Technology
Lightcraft Technology
Lightspeed Design, Inc.
LightWork Design Ltd.
Louisiana State University, Center for Computation & Technology
Lumiscaphe
Luxion
MAXON Computer Inc.
Measurand Inc.
**EXHIBITOR LIST**

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<th>Renderosity</th>
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<td>Morgan Kaufmann/Focal Press</td>
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<td>Robert McNeel &amp; Associates</td>
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Airline Reservations
NEW!: Exclusive airfare discounts for SIGGRAPH 2011 attendees.
SIGGRAPH 2011’s official air-travel partner, UNIGLOBE Vision Travel, offers discounts of 5-30% on airfares to Vancouver.
Contact:
Uniglobe Vision Travel
1.888.221.5221 (toll free North America)
airdesk@uniglobevision.com

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 2011 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 2011. Abuse of this policy will result in the loss of the individual’s registration credentials.
SIGGRAPH 2011 uses an official conference 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.

Discount Ground Transportation From Vancouver International Airport
All SIGGRAPH 2011 attendees are eligible for a special 10% discount on ground transportation between the airport and conference hotels. To receive the discounted rate, print the coupon available at: www.siggraph.org/s2011 and present it to Aerocar or Aeroshuttle when you arrive in Vancouver.

Hotel-Convention Center Shuttle Bus Service
SIGGRAPH 2011 provides complimentary shuttle service between many conference hotels and the Vancouver Convention Centre.

Important Notice
Attendees who use the SIGGRAPH 2011 hotel reservation system to make reservations at hotels served by the SIGGRAPH 2011 shuttle buses will receive a shuttle wristband when they check in. Attendees who do not book through the SIGGRAPH 2011 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.

Luggage and Coat Check
Luggage and coat-check services ($5 per item) are available at the Vancouver Convention Centre from Sunday, 7 August through Thursday, 11 August.

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 2011 Merchandise Pickup Center. Lost merchandise vouchers will not be replaced.

Reception and Computer Animation Festival 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.

Hotel Reservations
Visit the SIGGRAPH 2011 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/s2011
Or contact:
onPeak
SIGGRAPH 2011 Travel Partner
siggraph2011@onPeakevents.com
SIGGRAPH 2011 has negotiated discount rates for hotels in Vancouver. These discounts are available to SIGGRAPH 2011 attendees only. Please make your hotel reservation by 11 July 2011. Reservations made after 11 July will be based on availability only and rates may increase.

Vancouver Convention Centre
Accessibility
The convention center is handicap accessible. If you have special needs or requirements, please call Conference Management at: +1.312.673.4785.

Food Services
There are two cafes in the convention center within the East and West buildings for the convenience of SIGGRAPH 2011 attendees. All other food outlets are found in the adjoining food courts to both buildings, all within close walking distance.

Internet Access
Free wireless access is available in all conference locations within the Vancouver Convention Centre (except the Exhibit Hall).

Parking
SIGGRAPH 2011 attendees can park at the Vancouver Convention Centre parking lot for:
Vancouver Convention Centre East—
999 Canada Place; +1.866.856.8080
Vancouver Convention Centre, West—
1055 Canada Place; +1.604.681.7311
For additional parking information, visit: http://www.vancouverconventioncentre.com/thecity/getting-here/
**Included With Your Registration**

### 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 2011.

### Full Conference DVD-ROM

This digital publication contains the electronic version of the Technical Papers and Game Papers, including images and supplemental 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, Posters, SIGGRAPH Dailies!, The Studio Presentations, 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 2011. The content of the printed version of the *ACM Transactions on Graphics* (Conference Proceedings Special Issue) is included on the Full Conference DVD-ROM.

**NOTE:**
Full Conference registrants must pick up the Full Conference DVD-ROM included with registration at SIGGRAPH 2011 at the Merchandise Pickup Center located in West Building, Exhibit Hall 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

Basic Conference registration does not include any technical materials.

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**Registration Categories**

- Full Conference Access
- Basic Conference Pass
- Computer Animation Festival

- ACM SIGGRAPH Award Presentations
- ACM SIGGRAPH Award Talks
- Art Gallery
- Birds of a Feather
- Computer Animation Festival
- Courses
- Emerging Technologies
- Exhibition
- Exhibitor Tech Talks
- International Resources
- Job Fair
- Keynote Speaker
- Panels
- Papers: Technical, Art, Games, and Transactions on Graphics
- Posters
- Real-Time Live!
- Reception
- SIGGRAPH Dailies!
- Technical Papers Fast Forward
- The Sandbox
- The Studio
- Talks

SIGGRAPH Symposium: The Business Think Tank is NOT included with SIGGRAPH conference registration packages. This is an additional cost.

See page 64 for pricing information.
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**

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#### Full Conference Access

<table>
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<th>On or Before 17 June</th>
<th>On or Before 18 July</th>
<th>At SIGGRAPH 2011</th>
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<td>ACM SIGGRAPH Member</td>
<td>$895</td>
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<td>Student Member</td>
<td>$395</td>
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Includes admission to ALL conference programs and events, including the Exhibition (Tuesday-Thursday), Computer Animation Festival, Full Conference DVD-ROM, and reception ticket.

Add the SIGGRAPH Symposium: The Business Think Tank at a rate of: $75

#### Full Conference One-Day Pass

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<td>ACM SIGGRAPH Member</td>
<td>$325</td>
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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 $175.

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

#### Basic Conference Access Pass

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<th>On or Before 17 June</th>
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<td>ACM SIGGRAPH Member</td>
<td>$95</td>
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<td>Non-Member</td>
<td>$125</td>
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Includes admission to Art Gallery, Birds of a Feather, Exhibitor Tech Talks, Emerging Technologies, Keynote Speaker, 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

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<th>Purchased Before Or At SIGGRAPH 2011</th>
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</table>

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

<table>
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<tr>
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<th>Full Festival Pass</th>
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<tr>
<td>ACM SIGGRAPH Member</td>
<td>$175</td>
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<td>$150</td>
<td>$50</td>
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<tr>
<td>Additional Guest</td>
<td>$200</td>
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</table>

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 Symposium:
The Business Think Tank

<table>
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<tr>
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<th>Purchase Before Or At SIGGRAPH 2011</th>
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<td>$400 or $75 with the purchase of a Full Conference Week Pass</td>
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</table>

A full day of conversations, discussion groups, case studies and two enlightening keynote sessions intended to spark frank and honest interaction about our business in the 21st Century. **The SIGGRAPH Symposium: The Business Think Tank is NOT included with SIGGRAPH conference registration packages. This is an additional cost.**
SIGGRAPH 2011 Conference 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.

SIGGRAPH 2011 Conference Chair
Pete Braccio
Monterey Bay Aquarium Research Institute

ACM SIGGRAPH Conference Chief Staff Executive
Bob Niehaus
Talley Management Group, Inc.

SIGGRAPH 2011 Conference Manager
Angela Anderson
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