AUTODESK MAYA
THE POWER OF 10

Autodesk® Maya® software, our powerful, integrated 3D modeling, animation, and visual effects application, is celebrating its 10th anniversary.

- 10 years of character evolution
- 10 years of development awards
- 10 years of award-winning projects

What you do with Maya never fails to amaze—we salute your ingenuity and your creativity.

Catch Maya in action at booth #Ho1 at SIGGRAPH Asia.

Learn more at www.autodesk.com/maya or contact us at apac_pr@autodesk.com for more information.

Captivating audiences around the world

When you are the world leader in visual projection and visual environments, you can never rest. This means whatever you want, whatever you need, we have a product to suit your budget and delivers flawless performance. From the smallest of meeting rooms to the most sophisticated virtual reality and simulation systems, Christie delivers the right visual solution backed by the very best in customer service.

So, don’t hold back on your vision. Christie will help you find the right solution for every possible and seemingly impossible location and application need.
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## Conference at a Glance

**CONFERENCE REGISTRATION CATEGORIES**
- ★ Full Conference Access
- ● One-Day Full Conference
- ○ Basic Conference/Exhibits Plus
- E Exhibits Only

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See, Hear, and Interact

Welcome to the first SIGGRAPH Asia, four full days of world-class technical presentations, creative exploration, and the industry's largest Asian marketplace of products and services: the SIGGRAPH Asia 2008 Exhibition.

11 December 10:30

Featured Speaker:

The Expanding Boundaries of Computer Graphics

Don Greenberg challenges the new generation of computer graphicists (those who will take great professional risks to solve big problems) to dream impossible dreams and extend the influence of computer graphics to many other disciplines.

Don Greenberg has been researching and teaching in the field of computer graphics for more than 40 years. His primary focus has been on advancing the state of the art in computer graphics.

His current computer science research projects involve realistic image generation, parallel processing algorithms for rendering, new graphical user interfaces, and computer animation. His current application projects include ornithology and the search for the ivory-billed woodpecker, medical imaging and virtual surgery, architectural design for a green environment, and new types of computer displays, from electronic paper to touch-sensitive table displays.

He has taught courses in computer graphics in computer science, computer-aided design in architecture, computer animation in art, and technology strategy for business. Many of his graduate students have gone on to become leaders in the fields of computer graphics, computer animation, and computer-aided design for architecture. Six former students have won Hollywood's Technical Oscars, and five have won the prestigious SIGGRAPH Achievement Award.
Behind the Scenes at Pixar

This talk takes you behind the scenes at Pixar Animation Studios for a look at how its 3D computer graphics films are made. The process starts with development of the story and continues with modelling the geometry, animating the characters, simulating things like water and cloth and hair, defining the look of the surfaces, putting lights in the scene, and rendering the images. Making a computer animated film requires close collaboration between artists and technical experts in many areas of expertise and is a great example of the value of bringing different disciplines together.

Rob Cook was the co-architect and primary author of Pixar's RenderMan software, which creates photo-realistic computer images. In 2001, he received an Oscar for his contributions, the first ever given for software. In the last 10 years, all but one film nominated for a Visual Effects Academy Award has used RenderMan.

He has a Bachelor of Science degree in physics from Duke University and a Master of Science degree in Computer Graphics from Cornell University. At Cornell, he worked on simulating realistic surfaces, taking computer-generated images beyond the distinctive plastic look they had at the time. In 1981, he joined Lucasfilm/Pixar, where he developed the first programmable shader, which is now an essential part of GPUs and game engines.

He was the first to use Monte Carlo techniques in computer graphics, which was essential for simulation of complex, realistic lights and camera effects. His camera techniques were especially important in the visual effects industry, because they allowed computer-generated imagery to match the motion blur and depth of field of live-action footage when the two were combined.

In 1987, he received the ACM SIGGRAPH Achievement Award in recognition of these contributions.
The SIGGRAPH Asia 2008 Art Gallery presents art that transforms, melds, and transcends current Asian paradigms. This international, multicultural festival of creativity showcases work in all media—including “hybrid” formats such as text-literature collaborations, ubiquitous sounds, and zero-gravity space art—that provokes contemplation, explores surprising ideas, addresses contemporary issues, interactively engages viewers in discovery, and stimulates their intellect and creativity.

The first edition of the SIGGRAPH Asia Computer Animation Festival illuminates a new horizon of animation and visual effects from around the world:

**ELECTRONIC THEATRE**
A very popular feature of the SIGGRAPH conference for many years, the Electronic Theatre offers some of the world's most remarkable work selected by a distinguished international jury. In addition, works presented in the Electronic Theatre are eligible for festival prizes. The Best of Show and Jury Awards will be announced during SIGGRAPH Asia 2008.

**ANIMATION THEATRE**
An intriguing collection of innovative achievements in all genres of animation and visual effects.

**SPECIAL PROGRAMME**
Entertaining and inspiring examples of the latest and greatest animation techniques and visual effects, selected in a special jury process.

**INVITED SCREENINGS**
School Showcase of promising student work, Studio Specials from the world's leading animation and visual effects experts, and the Best of SIGGRAPH Award Winners from previous Computer Animation Festivals.

**TALKS & PANELS**
Revealing behind-the-scenes presentations on the how and why of production.

International experts present instructional sessions on every aspect of computer graphics and interactive techniques: animation, computer-human interaction, entertainment, gaming, scientific visualisation, recent breakthroughs, cool programming adventures, and more.

Envisioned as an international gathering of industry professionals and academics, the Educators Programme presents perspectives that appeal to a wide spectrum of interests. The goal is to share educational strategies adopted in both industry and academia to make the learning process more satisfying, productive, and meaningful.

SIGGRAPH Asia 2008 Emerging Technologies presents an Asian paradigm shift, a rich resource of delicate, aesthetic technologies and vivid, innovative ideas. Interactive, mind-expanding explorations in virtual and mixed reality, haptic interfaces, ubiquitous systems, digital tools, HD displays, robotics, and more. Emerging Technologies presents demos and installations of technologies that define the future of computer graphics and interactive techniques.
Conference Overview

Exhibition

All the products and services you need for another year of creative achievement. Try the latest systems, talk with the people who developed them, and get all the information you need to make budget and purchase decisions.

Thursday, 11 December 09:30–18:30
Friday, 12 December 09:30–18:30
Saturday, 13 December 09:30–18:30

Exhibitor Tech Talks

In these sessions, SIGGRAPH Asia 2008 exhibitors give product updates; introduce their latest developments; demonstrate software, hardware, and systems; answer questions; and talk about how their applications improve professional and technical performance.

Job Fair

SIGGRAPH Asia 2008 has partnered with CreativeHeads.net to produce a best-in-class job fair! Employers and creative professionals will be able to connect months before and after the conference via the CreativeHeads.net web site, and during the conference via the actual job fair.

Thursday, 11 December 09:30–18:30
Friday, 12 December 09:30–18:30
Saturday, 13 December 09:30–18:30

International Resources

Learn how the industry is evolving worldwide and collaborate with attendees from five continents.

The International Centre offers informal translation services and space for meetings, talks, and demonstrations. Throughout the year, the International Resources programme facilitates worldwide collaboration in the SIGGRAPH community, provides an English Review Service for SIGGRAPH and SIGGRAPH Asia to help submitters whose first language is not English, and encourages participation in all conference venues, activities, and events.

Thursday, 11 December 09:30–18:30
Friday, 12 December 09:30–18:30
Saturday, 13 December 09:30–18:30

Reception

Social and intellectual interaction with the movers and shakers of the international SIGGRAPH Asia community. Touch base with the people you need to know for another year of business, professional success, and adventure.

Friday, 12 December
19:00 Marina Barrage

Sketches & Posters

Sketches: A dynamic forum for thought-provoking, speculative ideas, novel applications, what-if concepts, and behind-the-scenes production details. Following each sketch presentation, authors discuss future implications of their work and answer audience questions.

Posters: Graphic depictions of incremental or half-baked but innovative ideas displayed throughout the week with scheduled sessions for informal discussions.

Technical Papers

The SIGGRAPH Asia 2008 Technical Papers programme is a premier international forum for disseminating provocative and important new work in computer graphics and interactive techniques. Leading international experts from Asia and beyond present peer-reviewed research in rendering, modelling, animation, human-computer interaction, computer-aided design, virtual reality, and visualisation.

Technical Papers & Sketches Fast Forward Sessions

ACM SIGGRAPH’s first back-to-back Technical Papers and Sketches Fast Forward Session. Get a preview of the latest research in computer graphics and interactive techniques and select the Technical Papers and Sketches that you need to attend later in the week.
Co-Located Events

VRCAI 2008
The 7th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications
8-9 December 2008

An exciting VRCAI 2008 awaits participants from both academia and industry in Singapore, a hotbed of innovation where state-of-the-art technologies and applications in the virtual reality continuum (VRC) will be explored and presented. Spanning next-generation info-communication environments such as virtual reality, augmented virtuality, augmented reality, and mixed reality, VRC is key to defining and interacting, with and within, our virtual worlds. Advances in research and novel applications in this field have revolutionised much of our leisure activities, making them more appealing and fun. Just as significantly, these advances provide the foundation for more effective interactivity in work- and learning-related activities.

VRCAI 2008 focuses on the following main themes: Fundamentals, Systems, Interactions, and Industry and Applications in the VRC.

Machinima Symposium 2008
12-13 December 2008
Room 301

Ascertain the future of Machinima, its creation, distribution, and consumption. Acquire knowledge from industry players expounding on this new area. Gather tips and techniques from international experts, explore new terrains, and delve deep into the arts and sciences of Machinima making and expression.

Subject to separate registration

Days & Hours
8-9 December 2008
12-13 December 2008
Related Events

Khronos Developer University & Specification Launch

Wednesday, 10 December, 10:00–17:00
Room 203

Join experts from Khronos for the public launch of OpenCL 1.0 and OpenVG 1.1. This day-long “Developer University” session is free to SIGGRAPH Asia 2008 attendees and provides a comprehensive update on the Khronos ecosystem of mobile graphics and media APIs that enable advanced user interfaces, 3D games, and other rich-media applications on a wide range of systems and devices. Attendees will gain a detailed understanding of how this evolving ecosystem of widely adopted APIs—including OpenGL, COLLADA, OpenGL ES, OpenMAX and OpenKODE—can empower their development plans and their businesses. Also to be announced:

- The worldwide launch of OpenCL 1.0, a new standard for portable, parallel programming of heterogeneous systems built with CPUs, GPUs, and other processors.
- The launch of OpenVG 1.1, which enables hardware acceleration of vector graphics-based engines such as Adobe Flash and SVG with added support for accelerated high-quality text rendering.

Learn about cutting-edge graphics and media processing on platforms ranging from high-end workstations to mobile phones.

http://www.khronos.org

Blender: Migration, Integration, and Education

Thursday, 11 December, 12:15–15:15
Room 302

See how Blender’s powerful animation and game-production suite can complement or replace existing software to provide a more economical solution and achieve higher efficiency. Get educated in the power and versatility of Blender and learn about the Certified Blender Trainer program.

Blender is an open-source, 3D-creation program that provides a versatile platform for creative and research endeavors.

http://www.blender.org

Emerging Markets

Friday, 12 December, 16:00–18:00
Hall 401/402–Exhibitor Tech Talk Area

While we nod our heads to the big markets in the film communities such as Los Angeles, San Francisco, London, and Paris, most of the current excitement is happening in the emerging film-production communities. India, China, Indonesia, Singapore, and even Nepal have active and growing production companies and training facilities that are enabling thousands of young filmmakers, technologists, and animators to work, thrive, grow, and make movies all over the world.

In this session, industry professionals who are working in these markets talk about what is happening in their respective countries, anticipated growth in emerging film industries, and how they believe these emerging markets will change the way the film business is done.

Moderator
RK Chand

Panelists
Kevin Geiger
China
Prashant B.
Malaysia
Laura Dohrmann
India
Andi S. Boediman
Indonesia

http://www.blender.org
General Information

Accessibility
The Convention Centre is handicap accessible. If you have special needs or requirements, please contact Conference Management at koelnmesse@siggraph.org.

Age Requirement Policies
Registered attendees under the age of 16 must be accompanied by an adult at all times.
Children under 16 are not permitted in the Exhibition.
Age verification is required.

Automated Teller Machines (ATMs) / Banks / Currency Exchange

ATMs
There are several ATMs located throughout the lobbies of Suntec Singapore International Convention & Exhibition Centre.

Banks
Nearby banks include:
DBS
Suntec City Branch
3 Temasek Boulevard #01-054 Suntec City Mall
Singapore 038983
08:30–16:30
Sat: 08:30–13:00

Citibank
1 Raffles Link
#01-01 One Raffles Link Building
Singapore 039393
09:30–18:00
Sat: 09:30–12:00

POSB
3 Temasek Boulevard
#02-003/005/007 Suntec City Mall
Singapore 038983
11:00–19:00
Sat: 11:00 – 19:00

Currency Exchange
There are two Foreign Currency Exchange counters located within Suntec City Mall.

Bookstore

Gallery East
Thursday–Saturday, 11–13 December
07:30–18:00

BreakPoint Books offers the latest and greatest books, CDs, and DVDs on computer animation, graphic design, gaming, 3D graphics, modelling, and digital artistry. The bookstore features recent books by SIGGRAPH Asia speakers and award winners.

Bookstore refunds will only be processed during the conference. All bookstore policies are those of BreakPoint Books and not SIGGRAPH Asia 2008.

Busing
SIGGRAPH Asia 2008 provides a one-way complimentary shuttle service between conference hotels (not within walking distance) and the Suntec Singapore International Convention & Exhibition Centre every morning. Departure times are available at the hotels.

IMPORTANT NOTICE
The SIGGRAPH Asia 2008 Shuttle Service is available only to attendees who register at official conference hotels through the SIGGRAPH Asia 2008 hotel reservation system. All attendees must be badged before they can board the Shuttle Service.

Child Care
Child care will not be provided at SIGGRAPH Asia 2008. Contact your hotel concierge for suggestions.

Conference Management Office

Level 5 Office (Via Lift near Joaquim)
If you have questions regarding SIGGRAPH Asia 2008, call or stop by this office any time during conference hours.

Conference Policies
To be admitted to the Reception, you must have a ticket (your registration badge does not provide access).

SIGGRAPH Asia 2008 reserves the right to deny registration or entrance to any attendee or prospective attendee, and to cancel an existing registration, if it determines that a registration or an attendee is not in the best interest of SIGGRAPH Asia 2008 or ACM SIGGRAPH.

Lost badges cannot be replaced. If you lose your badge, you must register again at the published rates to obtain a new badge.

No cameras or recording devices are permitted at SIGGRAPH Asia 2008. Abuse of this policy will result in revocation of the individual's registrations credentials.

SIGGRAPH Asia 2008 employs a professional photographer and reserves the right to use all images that this photographer takes during the conference for publication and promotion of future ACM SIGGRAPH events.

SIGGRAPH Asia 2008 conference documentation and merchandise will not be shipped, nor will refunds be given for any material not picked up at the Merchandise Pickup Centre.

Exhibition Management Office

Outside Hall 401
Exhibition Management representatives are available during conference hours to meet with exhibitors and help with plans for exhibiting at SIGGRAPH Asia 2009.
General Information

Exhibitor Registration
Lobby Level
Open during registration hours. See Registration.

Cafeteria / Restaurants / Stand Catering
A variety of coffee shops, snack bars and restaurants are available in the convention centre and within the Suntec City Mall. For Stand Catering Services, Exhibitors are required to contact Suntec Singapore at +65.6825.2313. Please be informed that outside food and drinks are strictly not allowed within the Exhibition and Conference vicinity.

Housing Desk
Exhibition Management Office, Outside Hall 401
Complete information about SIGGRAPH Asia 2008 hotel accommodations. Open during show opening hours. See Registration.

International Centre
SIGGRAPH Village, Hall 401
Thursday–Saturday, 11–13 December
09:30–18:30
The SIGGRAPH Asia 2008 International Committee and a multi-lingual staff of student volunteers answer questions, offer suggestions, provide informal translation services, and make connections with international attendees.

Wireless Internet Access
SIGGRAPH Asia 2008 provides 802.11 a/b/g wireless network access in most areas of the convention centre. To use the wireless network, attendees should have their own wireless (802.11a, b or g compatible) cards.

Please refer to your laptop operation system and client adapter documentation and follow this procedure:
1. Document all existing TCP/IP and wireless configuration information before you make any changes.
2. Configure your laptop to use DHCP.
3. Configure your wireless adapter Network Name (SSID) to be “SA2008”.
4. Disable encryption on your wireless adapter.

The SIGGRAPH Asia 2008 wireless network provides open, unencrypted communications for conference attendees. The system is not secure and can be monitored by others.
SIGGRAPH Asia 2008 does not provide public workstations for internet access.

Lost and Found
Exhibition Management Office, Outside Hall 401
To enquire about lost items during and after the conference, proceed to the Lost & Found desk outside Hall 401. All lost items (including badges) should be turned into this location where they will be logged and stored until the conclusion of the conference. After the conference, all lost and found items will be turned over to the Suntec Singapore International Convention & Exhibition Centre Security office.

Merchandise Pickup Centre
Gallery East
Your conference documentation (included with registration) must be picked up at the Merchandise Pickup Centre. Conference documentation and pre-purchased merchandise will not be shipped, nor will refunds be given for any material that is not picked up at the Merchandise Pickup Centre. Open during registration hours. See Registration.

Parking
SIGGRAPH Asia 2008 attendees can park at Basement 1 (B1) of Suntec Singapore International Convention & Exhibition Centre.
The rates are as follow:
Mondays to Fridays (except Public Holidays)
07:00–17:00 $1.07 per half hour or part thereof
17:00–24:00 $2.14 flat per entry
24:00–07:00 $1.07 per hour or part thereof

Saturdays, Sundays and Public Holidays
07:00–24:00 $1.07 per hour or part thereof
24:00–07:00 $1.07 per hour or part thereof

Registration
Lobby, Level 1
Tuesday, 9 December 15:00–19:00
Wednesday, 10 December 07:30–18:00
Thursday, 11 December 07:30–18:00
Friday, 12 December 07:30–18:00
Saturday, 13 December 07:30–18:00
Speaker Preparation Room

Room 308, Level 3
Tuesday, 9 December
09:00–18:00
Wednesday–Saturday, 10–13 December
07:00–18:00

Please pick up your registration credentials and conference information at the registration counter on Level 1 before proceeding to the Speaker Preparation Room on Level 3, where you will collect your speaker ribbons and badge holder.

If you are presenting at the conference, you should check in with Speaker Prep at least 24 hours before your session to review your materials, practice your presentations, and test the playback of your animations. It’s the best place to make sure that you will have everything you need for your session.

Technical Materials Available for Purchase

Technical materials included with your registration must be picked up at the SIGGRAPH Asia 2008 Merchandise Pickup Centre. Lost merchandise vouchers will not be replaced.

Full Conference DVD-ROM
This digital publication contains the electronic version of the Technical Papers, including images and supplemental material; the Course Notes, including supplemental materials (movies, source code, HTML presentations); and abstracts and supplemental materials from both the Educators Programme and Sketches & Posters. The content of the printed version of the ACM Transactions on Graphics (Conference Proceedings Special Issue) and the Digital Experiences: the SIGGRAPH ASIA 2008 Art Gallery, Emerging Technologies, and Computer Animation Festival Catalogue is also included on the Full Conference DVD-ROM.
The DVD-ROM is included with all Full Conference Access registrations, and it is available for purchase at SIGGRAPH Asia 2008.

ACM Transactions on Graphics
The printed ACM Transactions on Graphics (Conference Proceedings Special Issue) contains the Technical Papers. This publication is available for purchase at SIGGRAPH Asia 2008.

Digital Experiences: SIGGRAPH Asia 2008 Art Gallery, Emerging Technologies, and Computer Animation Festival Catalogue
Includes the permanent record of images from the Art Gallery, the Computer Animation Festival, and Emerging Technologies. This publication is available for purchase at SIGGRAPH Asia 2008.

SIGGRAPH Asia 2008 Video Review
Contains animations presented at the SIGGRAPH Asia 2008 Computer Animation Festival. It is available to purchase at SIGGRAPH Asia 2008.

To order these materials after the conference, contact:
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800.342.6626
(Continental US and Canada)
+1.212.944.1318 fax
orders@acm.org

Registration

Location: Lobby, Level 1

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SIGGRAPH Asia 2008 Registration Fees (in Singapore dollars)

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Exhibits Only Ticket

Exhibits Only admission is available only upon invitation from a SIGGRAPH Asia 2008 exhibitor. You must have received an invitation code in order to be eligible. Exhibits Only ticket includes admission to the Exhibition and Exhibitor Tech Talks only.

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Registration

Member Rate
If you are currently an ACM, ACM SIGGRAPH, or SIGCHI Member, you are eligible for member discounts. You must provide your membership number to receive the discount. Otherwise, you will be charged the non-member rate. Local or regional ACM SIGGRAPH memberships are not eligible for registration discounts.

Student Rate
You must be a full-time student to qualify. You must provide your 2008 ACM student membership number to qualify for student membership rates. This applies to those registering in advance as well as at the conference.

Press Centre

Exhibition, Hall 401
The press centre is open from 09:30–18:30, 11–13 December. The press centre is not available on 10 December.

Media Registration
Media representatives must register in person at the registration counter located on Level 1. You must submit full and proper media credentials for a media pass. No exceptions will be made.

Early Exhibition Floor Access
A “sneak preview” of the latest products and applications, for registered media representatives only, before the Exhibition opens to attendees: Thursday, 11 December, 08:30–09:30

Media Tours of the Art Gallery and Emerging Technologies
Get up-close and personal with the Chair and Co-Chairs of these programmes as they take you through the inspiring pieces of art and technology on display. A media tour schedule is available in the Press Centre.

Exhibitor Media Events
A schedule of various exhibitor media events is available in the Press Centre located in Hall 401.
Courses

International experts present instructional sessions on every aspect of computer graphics and interactive techniques: animation, computer-human interaction, entertainment, gaming, scientific visualisation, recent breakthroughs, cool programming adventures, and more.

These unique educational opportunities are only available at SIGGRAPH Asia 2008.

Courses Committee

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National University of Singapore

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University of Technology, Sydney

Yusuf Pisan
University of Technology, Sydney
COURSES

WEDNESDAY, 10 DECEMBER

PIXAR’S RENDERMAN

09:00–17:00
Level: Beginner
Computer Lab

Attendance for this course is limited to 25 persons.

Attendance is on a first-come, first-served basis. Attendees who are interested in this session are required to join a dedicated queue labelled Pixar’s RenderMan Course at Level 1, Registration Counter, Suntec Singapore International Convention and Exhibition Centre. The first 25 persons in this queue with their registration badges already collected will be allowed to attend the course. If you are hoping to attend this course, you are strongly advised to collect your registration badge the day before.

Transportation will be provided to the offsite computer laboratory where this course is presented, and at the end of the course, a return trip back to the convention centre.

Departure time is 08:15, Wednesday, 10 December.

An overview of:
- The structure of RenderMan scene descriptions
- The implementation and application of custom shaders
- The use of RenderMan for Maya Pro

This full-day course is an intensive, hands-on practical introduction to the RenderMan system and Pixar’s RenderMan, a high-quality renderer that is widely used in the animation and digital effects industry.

In the first part of the course, attendees gain sufficient familiarity with RenderMan’s scene description protocol to enable them to edit and manipulate RIB files. RIB files enable modelling and animation applications to communicate with Pixar’s RenderMan.

The second part of the course introduces the use of the RenderMan Shading Language (RSL). Attendees are not expected to have prior programming experience. The intention is to provide an overview of the creative potential of the shading language to the point where attendees will be confident to continue creating their own custom shaders with RSL.

During the final part of the course, attendees use Pixar’s high-end product, RenderMan Studio, in conjunction with AutoDesk’s Maya. Prior experience with Maya will be advantageous, but it is not required.

PREQUISITES
None

INTENDED AUDIENCE
This course is ideal for artists and designers who have prior experience using a 3D modelling and animation application but who wish to investigate the features of a graphics system that has become the de-facto standard for the feature film industry.

INSTRUCTOR
Malcolm A. Kesson
Savannah College of Art and Design
INTRODUCTION TO COMPUTER GRAPHICS

★ ○ ○

08:30–12:15
Level: Beginner
Room 301/302

This course is open to attendees in three registration categories:
Full Conference Access, One-Day Full Conference, and Basic Conference/Exhibits Plus.
All other courses require Full Conference registration.

A SIGGRAPH Asia conference is an exciting event, but it is often an intimidating experience for first-time attendees. There are so many new terms, new concepts, and new products to understand. And all the simultaneous programmes leave new attendees baffled and frustrated about how to spend their time.

This course is designed to ease newcomers into the SIGGRAPH Asia 2008 experience by presenting the fundamental concepts and vocabulary at a level that can be readily understood. Far from being made up of dry facts, this course also portrays the fun and excitement that led most of us to the SIGGRAPH Asia conference in the first place. After the course, attendees will be well-prepared to understand, appreciate, enjoy, network in, and learn from the rest of the SIGGRAPH Asia experience.

PREREQUISITES
A basic understanding of computers and algebra.

INTENDED AUDIENCE
The complete newcomer who wants to learn some of the basic terms and concepts in computer graphics, and receive some guidance on how to get the most out of attending SIGGRAPH Asia 2008.

INSTRUCTORS
Mike Bailey
Oregon State University

Steve Cunningham
Brown Cunningham Associates

SCHEDULE

08:30 Welcome and Overview
Presenter: Mike Bailey
• Course goals and schedule
• Generic Graphics Process

08:45 Graphics Hardware
Presenter: Mike Bailey
• How to understand what they are telling you in the Exhibition

09:30 Modelling
Presenter: Steve Cunningham
• The creation of 3D models

10:15 Break

10:30 Rendering
Presenter: Steve Cunningham
• Two approaches: start at the object and start at the eye
• Local and global shading

11:00 GPU Shaders
Presenters: Bailey & Cunningham
• Three types of shaders
• What kinds of things you can do and why you care

11:30 Scientific and Data Visualisation
Presenter: Mike Bailey

12:00 Finding additional information
Presenters: Bailey & Cunningham
FINDING YOUR PLACE IN DIGITAL PRODUCTION

★ ★
13:45–15:30
Level: Beginner
Room 301/302

Deciding to pursue a job in digital production is easy for many people, but once you’ve decided that you want to help produce animation, visual effects, and video games, and you’ve completed the relevant training, then what? The process of preparing material to present to a potential employer can be nerve wracking and confusing. Many aspiring artists put together a demo reel before even considering what jobs they might apply for.

This tutorial presents an inside view of what the industry expects from a candidate’s show reel, portfolio, and résumé, and the simple steps artists can take to live up to those expectations. While there is quite a bit of information available about the mechanics of putting together a demo reel and résumé, those details are not very useful if you don’t know what purpose your reel will be serving.

There is intense competition for digital production jobs, and just having a reel with some animation or modelling on it is no longer all it takes to land an interview. Industry veterans Tad Leckman and Patricia Kung share their experiences reviewing reels and résumés, and preparing young artists for careers in digital media. They also show and analyse examples of effective demo reel.

PREREQUISITES
Basic understanding of CG terminology.

INTENDED AUDIENCE
Students, new graduates, and individuals with production experience who are thinking about their next move. This tutorial is also useful for educators, parents, and recruiting professionals.

INSTRUCTORS
Tad Leckman
Lucasfilm Animation Singapore

Patricia Kung
Animal Logic
INTERACTIVE MASSIVE MODEL RENDERING

08:30–17:30
Level: Intermediate
Room 306

Users consistently try to manage and display more data than any computing system allows, especially when they work with 3D models for films, games, CAD systems, medical imaging, seismic exploration, information spaces, etc. In this course, seven international researchers and practitioners present software and hardware strategies for real-time visualisation of and interaction with massive models.

Even when they work with higher-performance computing systems, game and entertainment producers use a set of techniques to limit model size during real-time visualisation and interaction sessions. However, polygon decimation, texture maps, and related techniques do not readily apply to domains where high levels of visual accuracy are essential. Such models can contain a billion polygons or voxels and millions of individually selectable objects.

Although the course addresses ray tracing and rasterization, its objective is to explore a systems approach. It focuses on system integration and optimization techniques that let extract higher performance, such as:

- Software techniques to overcome performance and memory size limitations (kd-trees, occlusion culling, LODs, multi-threaded programming, memory-mapped files, display lists, cache coherence).
- Computing system architecture (parallel-processor architectures, single and multi-GPU hardware, thin client, hardware occlusion culling, cell computers, multi-core CPUs).
- Scalable system architecture (preprocessing, large user communities, model-configuration management, network transfer of basic geometry, variable form-factor display devices).
- Practical implementation issues.

The course summarizes overall performance-improvement strategies, gives examples of industrial and academic approaches using both rasterization and ray tracing, and concludes with real-world experience in a commercial environment.

PREREQUISITES
General knowledge of the difference between ray tracing and rasterization. Familiarity with computing-system architecture, graphics hardware, and parallel processing.

INTENDED AUDIENCE
This course is intended for users of complex models and practitioners who build real-time 3D applications. The techniques are applicable to any community that commonly reduces model detail (games, for example) or works only with model chunks (CAD, for example).

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

Philipp Slusallek
Universität des Saarlandes

Andreas Dietrich
NVIDIA Research

Marco Agus
Center for Advanced Studies, Research and Development in Sardinia

Renato Pajarola
Universität Zürich

Sung-eui Yoon
Korea Advanced Institute of Science and Technology

SCHEDULE
08:30  Course Introduction
Presenter: Sung-eui Yoon

08:45  Motivation and Challenges
Presenter: Philipp Slusallek

09:50  Coffee Break

10:05  Output Sensitive Techniques
Presenters: Gobbetti & Agus

11:10  Parallelization for Rasterization
Presenter: Renato Pajarola

12:15  Lunch Break

13:45  Massive Model Visualisation Using Realtime Ray Tracing
Presenters: Slusallek & Dietrich

15:30  Coffee Break

15:45  Data Management Issues
Presenter: Sung-eui Yoon

17:00  Stump the Speaker Panel
Presenter: All
AN INTRODUCTION TO PROGRAMMING WITH OPENGL AND OPENGL ES

08:30–17:30
Level: Beginner
Room 303/304

OpenGL, and its derivative API OpenGL ES, are among the most widely available programming libraries for computer graphics applications, and are used for almost every discipline of computer graphics: research, scientific visualisation, entertainment and visual effects, computer-aided design, interactive gaming, and many more. This course provides an accelerated introduction to creating applications using the OpenGL application-programming interfaces (API). It covers fundamental topics such as modelling, lighting, depth buffering, and texture mapping, and introduces advanced topics such as using vertex and fragment shaders.

The course introduces OpenGL’s operation through more than just code snippets and static images. It utilizes several applications that introduce various subsets of the OpenGL API (for example, lighting or texture mapping). And it includes tutorials that allow attendees to interactively modify the values passed into OpenGL and immediately see the resulting images.

Topics include how OpenGL represents geometric objects; how lighting, texture mapping, anti-aliasing, and other supported features are applied; and how to use pixel images, both in elementary image processing and imagery for texture maps. The OpenGL Shading Language (GLSL) is introduced using both vertex and fragment programs. Advanced topics, whose scope precludes a detailed discussion in an introductory class, are introduced with references for further study.

PREREQUISITES
Ability to read simple programmes written in the C language. No previous experience writing graphics programmes is required. Knowledge of basic concepts from linear algebra (vector notation and matrix multiplication) is useful but not required.

INTENDED AUDIENCE
Novice graphics programmers who want to learn how to author interactive, 3D, graphics applications using OpenGL and OpenGL ES.

INSTRUCTORS
Dave Shreiner
ARM, Inc.

Ed Angel
University of New Mexico

SCHEDULE
08:30 Welcome, Introduction of Speakers, Course Overview
08:40 Getting Started
• What you need to write an OpenGL application
• Opening an OpenGL window
• Accessing OpenGL functions
• Using user input
09:10 Working with Objects in OpenGL
• How OpenGL specifies objects
• Working with geometric transformations
• Depth buffering
• Animation—getting objects to move
09:55 Transformations
• Transformation pipeline
• Viewing transformations
10:15 Break
10:30 Transformations (continued)
• Rotation, translation, scaling
11:00 Lighting
• Specifying lighting, normals
• Lights, Materials, Action...
11:30 Texture Mapping
• Fundamentals
• Loading textures
• Enabling texture mapping
• Specifying texture coordinates
• How textures are applied
12:15 Lunch
13:45 OpenGL Modes
• Immediate Mode
• Retained Mode
• Display Lists
14:00 Vertex Arrays
14:30 OpenGL ES
• It’s OpenGL, just lighter
• OpenGL ES versions: 1.1 and 2.0
• What did you just learn that you need to forget
• EGL
15:00 Buffers
• Compositing and blending
• Other Buffers
15:30 Break
15:45 Programmable Pipelines
• Vertex shaders
• Fragment shaders
16:45 OpenGL 3.0 and 3.1
17:15 Conclusion and Q&A
SCATTERING

A taxonomy of scattering phenomena and how to treat them efficiently, by leveraging the wealth of knowledge from computer graphics and computer vision. This course shows a wide range of multidisciplinary applications in both overlapping fields, from appearance modelling to vision in bad weather, and reviews measurement techniques.

Computer graphics and computer vision deal with acquiring, interpreting, and presenting the rich visual world around us. These are exciting multidisciplinary fields of research with a wide spectrum of applications that affect our daily lives. However, most current computer-generated imagery represents scenes with clear atmospheres, neglecting light scattering effects. Analogously, most computer-vision systems are not successful when deployed in uncontrolled outdoor environments.

This course addresses the challenges presented by light scattering in computer graphics and computer vision. Both fields have seen great advances over the past few years, but most of the existing algorithms still assume that light emitted by a source or reflected off a surface reaches the sensor unaltered. From a computer graphics perspective, this is due mainly to the complex interactions that occur and the high computational costs of simulating them. In computer vision, scattering has traditionally been considered as noise that one should ideally get rid of.

Scattering effects are one fundamental hurdle that must be overcome to significantly extend and enhance current state-of-the-art graphics and vision techniques and achieve successful impact in a wide range of domains. Given the increasing overlap between computer graphics and computer vision, including hot research fields such as computational photography, this course is useful for practitioners in both communities and everybody who studies the intersection of the two.

PREREQUISITES
None

INTENDED AUDIENCE
This course is intended for people involved in computer graphics, computer vision, or related fields such as computational photography. It is particularly relevant to SIGGRAPH Asia attendees, as it provides a good understating of scattering phenomena, state-of-the-art techniques to simulate it and treat it, and a wide range of applications. It is especially useful for attendees who are interested in particular applications such as medical imaging, oceanography, driving simulators, and game production.

INSTRUCTORS
Diego Gutierrez
Universidad de Zaragoza

Henrik Wann Jensen
University of California, San Diego

Srinivasa Narasimham
Carnegie Mellon University

Wojciech Jarosz
University of California, San Diego

SCHEDULE
08:30 Welcome and Introduction
Presenter: Diego Gutierrez

08:45 Rendering Scattering Media
Presenter: Wojciech Jarosz

09:25 Real-Time Rendering
Presenter: Srinivasa Narasimham

09:45 Scattering Materials
Presenter: Henrik Wann Jensen

10:15 Break

10:30 Inelastic Scattering
Presenter: Diego Gutierrez

10:45 Underwater Imaging
Presenter: Srinivasa Narasimham

11:05 Scattering and Vision
Presenter: Srinivasa Narasimham

11:30 Acquisition and Measurement
Presenter: Henrik Wann Jensen

12:00 Wrap up and Discussion
Presenter: All
LIGHT INTERACTION WITH HUMAN SKIN: FROM BELIEVABLE IMAGES TO PREDICTABLE MODELS

13:45–17:30
Level: Intermediate
Room 305

This course on biophysically based models of light interaction with skin tissues provides details and interdisciplinary concepts often omitted from publications. The emphasis of the course is on scientific issues that need to be addressed in rendering of realistic and predictable images of human skin.

Recent research in image synthesis has focused on rendering of believable and predictable images of biological materials. This course addresses an important topic in this area: predictive simulation of skin appearance. The modelling approaches, algorithms, and data examined during this course can be also applied to rendering other organic materials such as hair and ocular tissues.

The first module of the course provides the biophysical background required not only for development of models of light interaction with organic materials, but also for their evaluation. It begins with a review of optics and “measurement-of-appearance” concepts, followed by a presentation of biological factors involved in the processes of light propagation and absorption in skin tissue. A concise review of modelling approaches used in biomedical and related fields, and often cited by computer graphics researchers, completes this module. The second module provides detailed descriptions of computer graphics models of light interaction with human skin, including approaches to practical issues involving their implementation and analysis of their strengths and limitations. Recent developments involving these models, such as extensions, applications, and more accurate or efficient versions, are also examined. The course concludes with a discussion of current and future challenges related to rendering human tissues.

PREREQUISITES
Familiarity with basic optics concepts and radiometric terms. Attendees should have a working knowledge of standard graphics techniques and terminology. Experience with numerical methods is helpful, but not required.

INTENDED AUDIENCE
Students, practitioners, and researchers interested in rendering, biomedical imaging, and natural phenomena.

INSTRUCTORS
Gladimir Baranoski
University of Waterloo

Aravind Krishnaswamy
Adobe Systems Incorporated

SCHEDULE
Module I–Biophysical background
13:45 Introduction
Presenter: Gladimir Baranoski

14:05 Light, Optics, and Appearance
Presenter: Aravind Krishnaswamy

14:35 Biological Issues

15:00 Review of Models Used in Scientific Applications
Presenter: Gladimir Baranoski

15:30 Break

Module II–Computer Graphics Modelling
15:45 The Multilayer Scattering Model
Presenter: Gladimir Baranoski

16:05 The Discrete-Ordinate Model
Presenter: Gladimir Baranoski

16:20 The Biophysically Based Spectral Model
Presenter: Aravind Krishnaswamy

16:40 The Diffusion Theory-Based Model and Extensions
Presenter: Aravind Krishnaswamy

17:05 Current and Future Challenges
Presenter: Gladimir Baranoski

17:25 Conclusion
Presenter: Gladimir Baranoski

17:30 Panel Discussion (informal)
Presenters: Baranoski & Krishnaswamy
Courses

Wednesday, 10 December

THERE CAN BE ONLY ONE: INDEPENDENT ANIMATION FOR THE LONELY

★ ●
15:45–17:30
Level: Beginner
Room 301/302

Many logistical challenges confront the independent animator. The task of single-handedly producing an animated piece (budget, schedule, creative blocks, copyright issues, sound quality, publicity, distribution, being a jack of all trades, etc.) at first may seem overwhelming and insurmountable, yet this is not the case. With proper planning and adoption of professional strategies for success, animations produced by independent creators can be more creative and higher quality, and their personal experiences can be more rewarding and enjoyable.

In this course, attendees learn pre-production concepts and techniques that will allow them to focus on creative aspects of their projects and avoid time-consuming scheduling mistakes that can cripple production. From concept to design, storyboard to animation, attendees learn the smartest ways to work and how to save time, money, and heartache as they seek to realize their unique visions. Scheduling, resource management, and copyright issues are explored and discussed in the production segment of the course, to keep the artist on track for project completion while taking care of minute details that could lead to major legal and logistical roadblocks. In the post-production segment, the final edit, output issues, credits, DVD authoring, making press kits, and final submission to animation festivals are addressed, giving attendees a clear, organized plan of creation and production. With more careful organisation, animators can concentrate on the creative aspects of their work and not get bogged down in unforeseen details.

SCHEDULE
Presenters: Palana & Rittler

15:45 Introduction
• Brief personal introductions
• Course and topical overview
• Course goals and distribution of handouts
• Examples of several animations produced independently

16:00 Pre-production
• Concept
• Story and character development; visual development and continuity
• Scheduling and meeting the deadline, Part 1: Budgeting your time as well as your money
• Design: Identifying style, intent and your own strengths and weaknesses
• Storyboarding (visual demos)
• Scratch Tracks and rough sound: Identifying sound resources
• Animatics with scratch tracks
• Options for epics

16:40 Universal Production Concerns
• Scheduling and meeting the deadline, Part 2: Hardware, software, resource and supply issues. Keeping motivated and finishing on time.
• Copyright issues of sound and visuals
• Obtaining royalty-free music and sound effects (or creating your own)
• Examples of creating specific sounds (manipulating sound to create specific effects)
• Obtaining music licenses
  – How much it costs
  – How much time you will need
• The final edit with final sound
• Formatting for DVDs. Square pixels vs. rectangular pixels. Avoiding those final formatting mistakes.
• Submitting to animation festivals
  – Time-saving strategies
  – Publicity and promotion
  – Where to submit and odds of being selected, etc.; submission formats vs. exhibition formats
• Examples of independent animation produced by one or two people (visual demos)

17:20 Q&A and Conclusion

PREREQUISITES
General knowledge of computer graphics and at least beginning-level experience in digital animation and design, either 3D or 2D.

INTENDED AUDIENCE
This course is ideally suited for beginning and intermediate student animators, and interested professionals and (especially) independent animators.

INSTRUCTORS
Kristen Palana
The American University of Rome

Steve Rittler
William Paterson University

15:45–17:30
Level: Beginner
Room 301/302
INTRODUCTION TO COMPUTER GRAPHICS
SHADERS WITH GLMA

13:45–17:30
Level: Intermediate
Room 314

SCHEDULE

13:45 Welcome and Course Context
Presenter: Mike Bailey

13:50 Review of the Graphics Pipeline
Presenter: Steve Cunningham
• Block diagram
• For each block: what are the inputs and what are the outputs?

14:00 Basic Shader Concepts
Presenter: Steve Cunningham
• What blocks in the pipeline do the shaders replace or augment?
• Functions of vertex, fragment, and geometry shaders
• Relations between vertex, fragment, and geometry shaders

14:15 Coordinates and Transformations
Presenter: Steve Cunningham
• Homogeneous coordinates
• Coordinate systems: Model, World, Eye, Clip, NDC, Screen
• Normal transformation matrix
• Modelling and viewing transformations, viewing volumes, normals

14:30 Introduction to the OpenGL Shading Language (GLSL)
Presenter: Mike Bailey
• Similarities to, and differences from, C++

14:45 Communication Between Application And Shaders, and Between Shaders
Presenter: Mike Bailey
• The roles of uniform, varying, and attribute variables

14:55 Built-in GLSL Functions and Variables
Presenter: Mike Bailey

15:00 The glman Tool
Presenter: Mike Bailey
• How to use glman
• Illustrated examples

15:15 Vertex Shaders
Presenter: Mike Bailey
• Dome shading
• Surface coloring in model coordinates versus eye coordinates
• Stripes example
• Dots example

15:30 Break

15:45 Fragment Shaders
Presenter: Mike Bailey
• Shading: flat, smooth, Phong, exact, anisotropic
• Applying transfer functions

16:00 Textures
Presenter: Mike Bailey
• Texture data: unsigned byte, floating point, 2D, 3D, parameters, binding
• Texture application: texture units, multitextures, sampler functions, texture rectangle
• Bump mapping
• Texture techniques: Cube maps, reflection, refraction

16:20 Noise
Presenter: Mike Bailey
• Positional noise, gradient noise
• Fractional Brownian Motion (FBM, 1/f noise, octaves), turbulence.
Noise in glman

16:30 Image manipulation in shaders
Presenter: Steve Cunningham
• Brightness
• Contrast
• Saturation
• Difference
• Dissolve
• Sharpness
• Edge detection
• Toon rendering

16:45 Visualisation
Presenter: Mike Bailey
• Cutting plane
• Volumes

17:00 The GLSL API
Presenter: Mike Bailey
• Compiling and attaching shaders

17:15 Geometry Shaders
Presenter: Steve Cunningham
• Inputs and outputs, built-in variables, built-in functions
• Silhouettes
• Adaptive subdivision

If time permits

Shader Special Effects
Presenter: Steve Cunningham
• Optical effects
• Atmospheric effects

Question and answers

An introduction to the programmable shader capabilities of the latest generation of graphics cards. Attendees learn to write graphics programmes using vertex, fragment, and geometry shaders, and use the glman tool to develop the shaders independently from the applications that will use them.

The course covers basic shader concepts, showing how shaders fit into the traditional graphics pipeline and how they communicate with each other and with an application. The GLSL language is introduced, along with the special types and built-in variable names it uses, and how the GLSL API is used to add shaders to an OpenGL application. Examples illustrate how shaders can be used to implement advanced modelling and shading features, and the use of noise, image manipulation techniques, and LOD operations. Specific applications of shaders in scientific visualisation are also presented. A CD containing the glman tool and code for all the examples used in the course will be distributed, and attendees will be able to install glman on their laptops and work with the examples as the course progresses.

After this course, an experienced OpenGL programmer will be able to write shader programmes and integrate them into graphics applications.

PREREQUISITES
A solid knowledge of fixed-function OpenGL programming and a basic understanding of higher-level computer graphics concepts.

INTENDED AUDIENCE
Anyone who wants to understand and use the vertex, fragment, and geometry shaders that are available with the GLSL shading language in the latest versions of OpenGL.

INSTRUCTORS
Steve Cunningham
Brown Cunningham Associates

Mike Bailey
Oregon State University
Mesh parameterisation is a powerful geometry-processing tool with numerous computer graphics applications, from texture mapping to animation transfer. This course outlines its mathematical foundations, describes recent methods for parameterizing meshes over various domains, discusses emerging tools like global parameterisation and inter-surface mapping, and demonstrates a variety of parameterisation applications.

For any two surfaces with similar topology, there exists a bijective mapping between them. If one of these surfaces is a triangular mesh, the problem of computing such a mapping is referred to as mesh parameterisation. The surface that the mesh is mapped to is typically called the parameter domain.

Parameterisation was introduced to computer graphics for mapping textures onto surfaces. Over the last decade, it has gradually become a ubiquitous tool for many mesh-processing applications, including detail-mapping, detail-transfer, morphing, mesh-editing, mesh-completion, remeshing, compression, surface-fitting, and shape-analysis. In parallel to the increased interest in applying parameterisation, various methods were developed for different kinds of parameter domains and parameterisation properties.

The goal of this course is to familiarize attendees with the theoretical and practical aspects of mesh parameterisation. It provides the skills needed to implement or improve existing methods, investigate new approaches, and critically evaluate the suitability of the techniques for a particular application.

The course begins with an introduction to the general concept of parameterisation and an overview of its applications. The first half of the course then focuses on planar parameterisations, while the second addresses more recent approaches for alternative domains. The course covers the mathematical background, including intuitive explanations of parameterisation properties like bijectivity, conformality, stretch, and area-preservation. The state of the art is reviewed by explaining the main ideas of several approaches, summarizing their properties, and illustrating them using live demos. The course concludes with a list of open research problems and potential applications that can benefit from parameterisation.

**SCHEDULE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>13:45</td>
<td>Introduction</td>
<td>Alla Sheffer</td>
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<tr>
<td>13:55</td>
<td>Barycentric Mappings</td>
<td>Kai Hormann</td>
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<tr>
<td>14:20</td>
<td>Differential Geometry Primer</td>
<td>Kai Hormann</td>
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<tr>
<td>14:45</td>
<td>Non-Linear Methods</td>
<td>Alla Sheffer</td>
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<tr>
<td>15:15</td>
<td>Comparison and Applications of Planar Methods</td>
<td>Kai Hormann</td>
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<tr>
<td>15:30</td>
<td>Break</td>
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<tr>
<td>15:45</td>
<td>Non-Planar Domains</td>
<td>Kai Hormann</td>
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<tr>
<td>16:00</td>
<td>Cross-Parameterisation and Constraints</td>
<td>Alla Sheffer</td>
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<tr>
<td>16:40</td>
<td>Global Parameterisation and Cone Points</td>
<td>Konrad Polthier</td>
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<tr>
<td>17:25</td>
<td>Open Problems and Q/A</td>
<td>All</td>
</tr>
</tbody>
</table>

**PREREQUISITES**

Some prior exposure to mesh representation of geometric models and a working knowledge of vector calculus, elementary linear algebra, and the fundamentals of computer graphics. Some familiarity with differential geometry and graph theory is useful, but not required.

**INTENDED AUDIENCE**

Graduate students, researchers, and application developers who want to understand and use the concepts and technologies used in mesh parameterisation.

**INSTRUCTORS**

- Kai Hormann  
  Technische Universität Clausthal
- Konrad Polthier  
  Freie Universität Berlin
- Alla Sheffer  
  The University of British Columbia
REAL-TIME INDIVIDUALIZED VIRTUAL HUMANS

<table>
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<th>Time</th>
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<tr>
<td>13:45</td>
<td>Introduction and Overview</td>
<td>Nadia Magnenat-Thalmann</td>
</tr>
<tr>
<td>13:50</td>
<td>Body Modelling and Deformations</td>
<td>Nadia Magnenat-Thalmann</td>
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<tr>
<td>14:40</td>
<td>Modelling and Animating Faces</td>
<td>Nadia Magnenat-Thalmann</td>
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<tr>
<td>15:30</td>
<td>Break</td>
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<tr>
<td>15:45</td>
<td>Motion Control for Virtual Humans</td>
<td>Daniel Thalmann</td>
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<tr>
<td>16:30</td>
<td>Individualized Models for Groups and Crowds</td>
<td>Daniel Thalmann</td>
</tr>
<tr>
<td>17:15</td>
<td>Questions and Answers</td>
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The latest techniques for modelling fast, individualized, animatable virtual humans for real-time applications. Because a human is composed of a head and a body, this course analyses how these two parts can be modeled and globally animated. More precisely, it shows how individualized real-time bodies can be automatically generated from scanned data or from interactive measurements and how an automatic skeleton can be created for any body size, animated automatically, controlled in real time, and retargeted according to a motion-sequences database. Other topics include: facial animation from facial motion capture and simulation of interactive, realistic talking virtual humans, including personality models and complete body gestures.

The course also shows how crowds are modeled in real time using dynamic meshes, static meshes, and impostors, and explains techniques for adding variety to crowds, including individual animation, individualized path-planning, and accessories.

Several case studies in cultural heritage, emergency situations, and fashion modelling are presented to illustrate interaction with virtual humans. And the course concludes with a summary of open research topics in the virtual-human field.

**PREREQUISITES**
Familiarity with the fundamentals of computer graphics and computer animation, geometrical methods, collision detection and response, and real-time techniques is highly recommended but not mandatory.

**INTENDED AUDIENCE**
Developers of real-time virtual worlds, technical directors, researchers, and game developers who are looking for innovation as well as proven methodologies in simulating real-time virtual humans.

**INSTRUCTORS**
Nadia Magnenat-Thalmann  
*MIRALab, Université de Genève*

Daniel Thalmann  
*VRlab, EPFL*
MULTIPERSPECTIVE MODELLING, RENDERING, AND IMAGING

15:45–17:30
Level: Intermediate
Room 312

A perspective image represents the spatial relationships of objects in a scene as they would appear from a single viewpoint. In contrast, a multiperspective image combines what is seen from several viewpoints into a single image. Despite their incongruity of view, effective multiperspective images can preserve spatial coherence and can depict, within a single context, details of a scene that are simultaneously inaccessible from a single view, yet easily interpretable by a viewer. In computer vision, multiperspective images have been used to analyse structure revealed via motion and generate panoramic images with a wide field of view using mirrors.

This tutorial provides a practical guide on topics in multiperspective modelling and rendering methods, and multiperspective imaging systems. It begins with a brief review of multiperspective image techniques frequently employed by artists. Illustrations include the visual paradoxes of Escher, the Cubism of Picasso and Braque, and multiperspective panoramas in cel-animations. The course characterises existing multiperspective camera models, with an emphasis on their underlying geometry and image properties, then demonstrates how to use these camera models for creating specific multiperspective rendering effects. The course includes demonstrations of several multiperspective imaging systems for extracting 3D geometry for computer vision.

PREREQUISITES
Basic understanding of camera operation, image processing, and machine vision.

INTENDED AUDIENCE
Digital artists, photographers, and computer graphics and computer vision researchers who use or build multiperspective cameras.

INSTRUCTOR
Jingyi Yu
University of Delaware

SCHEDULE

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<td>15:45</td>
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<td>Multiperspective Modelling Methods</td>
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<td>Multiperspective Rendering Techniques</td>
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<td>Multiperspective Imaging Systems</td>
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<td>17:00</td>
<td>Future Work: Multiperspective Displays, Cameras, Rendering Hardware</td>
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<td>17:20</td>
<td>Q&amp;A</td>
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CG PRODUCTION PRINCIPLES: KEEPING YOUR MONEY ON THE SCREEN & OFF THE FLOOR

13:45–15:30
Level: Intermediate
Room 312

Are you satisfied with your production relationships, communication, adaptation, and high-quality delivery? Animation-industry veteran Kevin Geiger helps you analyse these questions with his unique organizational insight and signature presentation style. You will never look at your pipeline or your studio the same way again.

How much of your money makes it onto the screen? Got a leaky pipeline? Is your workflow trickling? Does your team approach work like a film, or like a science project? Can you roll with last-minute story changes? What economies of scale do you employ?

The global animation industry is as competitive as ever, with merciless markets, unforgiving audiences, and leaner profit margins. Yet independent and major productions alike seem content to burn through money (and people) as though they have resources to spare. This sort of waste is so pervasive in our industry that it is routinely acknowledged with a winking “you-know-how-production-is” acceptance. This attitude is not only irresponsible, it is also unsustainable. And it is easily addressed through insightful, considerate, and fearless assessment and action.

This course begins with an examination of the human factors and organizational considerations that are the foundation of all production (dys)function. Next, it covers workflow considerations and strategies, establishment (and erosion) of balance, common heuristic assumptions and errors, and the importance of clarity and adaptation within the studio environment. A series of “Golden Rules” for production leads into the characteristics of a balanced pipeline, an overview of a robust non-linear production pipeline, and specific departmental examples. Finally, the course reviews asset management with an eye toward organisation, flexibility, and transparency. The presentation concludes with a micro/macro view of the production paradigm, and the synergistic orchestration of these parts into a transcendent whole.

PREREQUISITES
A working understanding of CG production processes and terminology.

INTENDED AUDIENCE
Artists, supervisors, managers, producers, and executives.

INSTRUCTOR
Kevin Geiger
Animation Options LLC
DISCRETE DIFFERENTIAL GEOMETRY: AN APPLIED INTRODUCTION

08:30–17:30
Level: Advanced
Room 311

This new and elegant area of mathematics has exciting applications, as this course demonstrates by presenting practical examples in geometry processing (surface fairing, parameterisation, and remeshing) and simulation (of cloth, shells, rods, and fluids).

The behavior of physical systems is typically described by a set of continuous equations using tools such as geometric mechanics and differential geometry to analyze and capture their properties. For purposes of computation, one must derive discrete (in space and time) representations of the underlying equations. Researchers in a variety of areas have discovered that theories, which are discrete from the start and have key geometric properties built into their discrete description, can often more readily yield robust numerical simulations that are true to the underlying continuous systems: they exactly preserve invariants of the continuous systems in the discrete computational realm.

This course introduces the nascent field of discrete differential geometry, laying out fundamental concepts and surveying the exciting array of applications. It begins with a simple-to-follow presentation of discrete curves and discrete curvature. This backdrop introduces the overarching theme structure of preservation, which makes repeated appearances throughout the entire course. As the day proceeds, the course explores the question of which quantities one should measure on a discrete object such as a triangle mesh, and how one should define such measurements.

Following the introduction of the basic technical concepts, the course proceeds to investigate numerous exciting application areas. The lectures introduce and delve deeply into geometric modelling problems (including variational remeshing and parameterisation using discrete exterior calculus) and physical simulation of curves (such as elastic rods and hair), surfaces (such as cloth and thin-shells), and volumes (such as fluids). The emphasis is on understanding how structure preservation leads to simple and highly efficient implementations of important physical simulations.

PREREQUISITES
A working knowledge of vector calculus and elementary linear algebra. Optional prerequisites: some lectures may also assume some familiarity with physical simulation, geometry processing, and triangle and tetrahedral meshes. Recommended but not required: a basic understanding of continuous local differential geometry and classical mechanics.

INTENDED AUDIENCE
Graduate students, researchers, and application developers who seek a unified understanding of the mathematics underlying common geometry-processing operations and how these fundamentals apply to problems such as Laplacian smoothing, surface fairing using prescribed curvature flow, remeshing, conformal parameterisation, and cloth/shell/rod/fluid simulation.

INSTRUCTORS
Mathieu Desbrun
California Institute of Technology

Peter Schröder
California Institute of Technology

Max Wardetzky
Georg-August-Universität Göttingen

SCHEDULE

08:30 Welcome
Presenter: Max Wardetzky

08:45 Introduction
Presenter: Peter Schröder

09:30 Discrete Plates and Shells
Presenter: Max Wardetzky

10:15 Break

10:30 Conformal Equivalence of Triangle Meshes
Presenter: Peter Schröder

11:30 DEC: Discrete Exterior Calculus
Presenter: Mathieu Desbrun

12:15 Lunch

13:45 Applications of DEC to Fluids and Beyond
Presenter: Mathieu Desbrun

14:45 Coding Your Own DEC at Home
Presenter: Peter Schröder

15:30 Break

15:45 Discrete Elastic Rods
Presenter: Max Wardetzky

16:30 Time Integration
Presenter: Mathieu Desbrun
PARALLEL COMPUTING FOR GRAPHICS: BEYOND PROGRAMMABLE SHADING

08:30–17:30
Level: Beginner
Room 312

This course provides an introduction to parallel-programming architectures and environments for interactive graphics and demonstrates how to combine traditional rendering API with advanced parallel computation.

There are strong indications that the future of interactive graphics involves a more flexible programming model than today’s OpenGL/Direct3D pipelines. That means that graphics developers will need a basic understanding of how to combine emerging parallel-programming techniques with the traditional interactive rendering pipeline. The first half of the course introduces several parallel graphics architectures, programming environments, and the new types of graphics algorithms that will be possible. The second half presents case studies of how game developers, researchers, and graphics hardware vendors combine traditional rendering API techniques with advanced parallel computation. Each case study includes a live demo and discusses the mix of parallel-programming constructs used, details of the graphics algorithm, and how the rendering pipeline and computation interact to achieve the technical goals.

PREREQUISITES
Knowledge of general purpose programming languages.

INTENDED AUDIENCE
Developers interested in general purpose computing on the GPU.

INSTRUCTORS
Jason Yang
Advanced Micro Devices, Inc.

Justin Hensley
Advanced Micro Devices, Inc.

Tim Foley
Intel Corporation

Mark Harris
NVIDIA Corporation

Anselmo Lastra
University of North Carolina at Chapel Hill

Anjul Patney
University of California, Davis

Pedro V. Sander
Hong Kong University of Science and Technology

Jeremy Shopf
Advanced Micro Devices, Inc.

Kun Zhou
Zhejiang University

SCHEDULE
08:30 Introduction
Presenter: Anselmo Lastra

08:45 Throughput Computing: Hardware Basics
Presenter: Justin Hensley

09:30 Introduction to Parallel Programming Models
Presenter: Tim Foley

10:15 Break

10:30 Introduction to CUDA
Presenter: Mark Harris

11:00 BSGP: Bulk-Synchronous GPU Programming
Presenter: Kun Zhou

11:30 OpenCL
Presenter: Jason Yang

12:15 Lunch

13:45 Real-Time Reyes: Programmable Pipelines and Research Challenges
Presenter: Anjul Patney

14:15 Parallel Programming on Larrabee
Presenter: Tim Foley

14:50 Stream Computing for Graphics
Presenter: Jeremy Shopf

15:30 Break

15:45 Parallel Geometry Processing on Graphics Hardware
Presenter: Pedro V. Sander

16:10 Computational Graphics and Physics Simulation with CUDA
Presenter: Mark Harris

16:50 Next-Generation Graphics on Larrabee
Presenter: Tim Foley

17:25 Conclusion and Final Questions
SEEING IN 3D

08:30–17:30
Level: Beginner
Room 313/314

Most people, even technical draftsmen, designers and computer graphics programmers, find it very difficult to visualise 3D shapes well enough to reason about them. This course demonstrates the problem and takes attendees through a series of exercises that help them acquire this important practical skill.

“Stand a cube on its corner. What is the shape of a horizontal cross-section taken at half the height of this object?” About four percent of human beings can reason about 3D space well enough to answer this question easily and with confidence. Most of us enter a state of panic when confronted by 3D problems. Yet it is possible to train yourself to think and visualize in 3D. This course helps attendees start thinking in 3D. Once they have the basic principles, they can develop the skill independently.

PREREQUISITES
Familiarity with some basic geometric ideas (for example, two planes meet in a straight line). Also helpful: awareness of how to find distances with Pythagoras’ theorem, but this is used for only a few exercises, and the course can be understood without mathematics.

INTENDED AUDIENCE
Graphic artists, engineers, designers, computer graphics programmers, and students interested in graphics, drawing, or sculpture.

INSTRUCTORS
Geoff Wyvill
University of Otago

Bob Parslow
Independent Consultant

SCHEDULE
Presenter: Wyvill and Parslow

08:30  Session 1
* 1.1 The Hidden Man
* 1.2 The SIGGRAPH Subway
* 1.3 Identical cubes
* 1.4 A cube on its corner
* 1.5 The mind as an expert system shell
* 1.6 Building shapes in layers
* 1.7 More pyramids

10:15  Break

10:30  Session 2
* 2.1 The eye
* 2.2 Illusions
* 2.3 Lines in space
* 2.4 An application in mathematics
* 2.5 More cubes
* 2.6 Curious engineering drawings

12:15  Lunch

13.30  Session 3
* 3.1 Solids of intersection
* 3.2 Origami
* 3.3 Tensegrity
* 3.4 Turning a torus inside out

15:30  Break

15:45  Session 4
* 4.1 Road safety
* 4.2 Nova Plexus: understanding structure
ADVANCED ILLUMINATION TECHNIQUES
FOR GPU-BASED VOLUME RAY CASTING

08:30–12:15
Level: Intermediate
Room 311/312

In-depth instruction on advanced illumination techniques for volume ray casting implemented on the graphics processing unit (GPU). This course covers fast implementations of local and global illumination techniques for volume data and implicit surfaces, including ambient occlusion, deep shadow maps, and scattering effects.

Volume ray-casting techniques are important for both visual arts and visualisation. They support efficient generation of visual effects and visualisation of scientific data obtained by tomography or numerical simulation. Due to their flexibility, experts agree that GPU-based ray casting is the state-of-the-art technique for interactive volume rendering. It will most likely replace existing slice-based techniques in the near future. Volume rendering techniques are also effective for direct rendering of implicit surfaces used for soft-body animation and constructive solid geometry.

The course, which begins with a detailed introduction to the concepts behind GPU-based ray casting, focuses on advanced illumination techniques that approximate physically based light transport more convincingly. Such techniques include interactive implementation of soft and hard shadows, ambient occlusion, and simple Monte-Carlo based approaches to global illumination, including translucency and scattering.

With these techniques, users can interactively create convincing images from volumetric data whose visual quality goes far beyond traditional approaches. Using volume rendering techniques, artists who create medical visualisation for science magazines may now work on tomographic scans directly, without creating polygonal models of anatomical structures.

PREREQUISITES
A working knowledge of computer graphics and basic programming skills, familiarity with graphics hardware and shading languages, and basic knowledge of volume data and interactive volume-rendering techniques.

INTENDED AUDIENCE
The steadily growing number of developers who create specialized implementations of volume-rendering techniques on state-of-the-art graphics hardware.

INSTRUCTORS
Christof Rezk-Salama
Universität Siegen

Markus Hadwiger
VRVis Research Center for Virtual Reality and Visualisation

Timo Ropinski
Westfälische Wilhelms-Universität Münster

Patric Ljung
Siemens Corporate Research

SCHEDULE
08:30  Introduction and Basics
Presenter: Markus Hadwiger
• Speaker introduction
• Application areas for volume rendering
• Benefits of ray-casting
• GPU-based volume ray-casting
• Space leaping and early ray termination
• Memory management

09:30  Light Interaction
Presenter: Timo Ropinski
• Light transport and illumination models
• Local volume illumination
• Specular reflections through ray-tracing soft vs.
  Hard shadows semi-transparent shadows with
  deep shadow maps simulation of color bleeding

10:15  Break

10:30  Ambient Occlusion
Presenter: Patric Ljung
• Ambient occlusion for isosurfaces
• Local ambient occlusion (DVR)
• Dynamic ambient occlusion (DVR)

11:15  Scattering
Presenter: Christof Rezk-Salama
• Monte-Carlo integration
• Single versus multiple scattering
• Translucency
• Phase functions and bsdfs
• Monte-carlo scattering
• Multiple scattering
• Practical examples
• Scattering with deep shadow maps

10:15  Break

10:30  Ambient Occlusion
Presenter: Patric Ljung
• Ambient occlusion for isosurfaces
• Local ambient occlusion (DVR)
• Dynamic ambient occlusion (DVR)

11:15  Scattering
Presenter: Christof Rezk-Salama
• Monte-Carlo integration
• Single versus multiple scattering
• Translucency
• Phase functions and bsdfs
• Monte-carlo scattering
• Multiple scattering
• Practical examples
• Scattering with deep shadow maps
MODERN OPENGL: ITS DESIGN AND EVOLUTION

13:45–17:30  
Level: Intermediate  
Room 311/312

A long-time implementer of OpenGL and the system’s original architect explain OpenGL’s design and evolution. OpenGL’s state machine is now a complex data flow with multiple programmable stages. In this course, OpenGL practitioners can expect candid design explanations, advice for programming modern GPUs, and insight into OpenGL’s future.

OpenGL was conceived in 1991 to provide an industry standard for programming the hardware graphics pipeline. The original design has evolved considerably over the last 17 years. Whereas capabilities mandated by OpenGL such as texture mapping and a stencil buffer were present only on the world’s most expensive graphics hardware in 1991, now these features are completely pervasive in PCs and are even available in several hand-held devices. Over that time, OpenGL’s original fixed-function state machine has evolved into a complex data flow including several application-programmable stages. And the performance of OpenGL has increased from 100x to over 1,000x in many important raw graphics operations.

This course explains how the modern (post-2006) graphics hardware pipeline is exposed through OpenGL. Kurt Akeley presents his personal retrospective on OpenGL’s development. Attendees learn nine ways to write better OpenGL programs and how modern OpenGL implementations operate. In conclusion, the course assesses OpenGL’s future evolution.

Whether you programme with OpenGL or program with another API such as Direct3D, this course gives you new insights into graphics hardware architecture, programmable shading, and how to take maximum advantage of modern GPUs.

PREREQUISITES
Familiarity with the OpenGL graphics system. Familiarity with other graphics APIs such as Direct3D is helpful. The course assumes that attendees are familiar with concepts such as rasterization, shading, texturing, and vertex transformation.

INTENDED AUDIENCE
Graphics practitioners who want to better understand the modern 3D graphics hardware pipeline and its evolution as expressed through OpenGL. OpenGL programmers who want to learn how to update their programming practices to improve the performance and cross-platform portability of their OpenGL applications.

INSTRUCTORS
Mark Kilgard  
NVIDIA Corporation

Kurt Akeley  
Microsoft Research Silicon Valley

MODERATOR
Mark Levoy  
Stanford University

SCHEDULE

13:45  Introductions  
Presenter: Akeley & Kilgard

13:50  Modern OpenGL  
Presenter: Mark Kilgard

14:40  OpenGL’s Evolution: A Personal Retrospective  
Presenter: Kurt Akeley  
★ How a proprietary graphics library known as IRIS GL evolved into an industry standard. What can be learned about making standards that succeed? How has OpenGL’s design held up over time?

15:05  Writing Better OpenGL  
Presenter: Mark Kilgard

15:30  Break

15:45  Implementing OpenGL  
Presenter: Mark Kilgard

16:15  OpenGL’s Future Evolution  
Presenter: Mark Kilgard

16:50  OpenGL in Context  
Presenters: Akeley & Kilgard  
★ A facilitated conversation including slides and examples. Questions from the audience are encouraged during this segment.
INTERACTIVE INTRODUCTION TO X3D GRAPHICS

★ ●
13:15–17:30
Level: Beginner
Room 313/314

Extensible 3D (X3D) graphics is the open standard for 3D real-time communication on the web. X3D defines scene files that integrate network-enabled 3D graphics and multimedia. X3D applications are real-time, interactive, animated systems that can run stand-alone or in networked virtual environments. This tutorial focuses on the primary functionality of X3D including scene authoring, creation of geometry, web capabilities, designing animation chains, and user interaction.

Specific topics include animation design using interpolators and sequencers. The tutorial briefly examines embedded scripting, prototypes for extensibility, and various visualisation examples. Attendees learn hands-on how to build an X3D world, and they have access to the latest X3D Showcase DVD, which contains a wide variety of free and commercial viewers, authoring tools, and example content.

PREREQUISITES
Understanding 3D scene graphs and 3D modelling is helpful but not required. X3D can be learned without prior programming experience.

INTENDED AUDIENCE
Beginning modellers, who will learn how to create simple 3D scene graphs with animation and user interactivity; experienced programmers, who will learn how their current knowledge can be expressed using a web standard for broader interoperability, and educators, who will learn how X3D can be used for introductory graphics courses.

INSTRUCTOR
Don Brutzman
Naval Postgraduate School

SCHEDULE
13:15 Optional: Guided Software Tool Setup for Early Arrivals
13:45 Course Commencement and Introduction
14:00 Getting Started with X3D
• Available viewers
• X3D-Edit modelling tool
• Examples and resources
• Book organization
14:30 Development History: VRML, Web Consortium, ISO, X3D
14:45 X3D Specification, Scene Graph Concepts, Xml
15:00 Profiles and Components for Extensibility
15:15 Shape and Geometry
15:30 Break
15:45 Grouping and Transformation
16:00 Viewing and Navigation
16:15 Appearance, Material and Textures
16:30 Animation and Behaviors, 10-Step Animation-Chain Construction with Routes
17:00 User Interactivity
17:15 Quick Look Ahead: Scripting and Prototypes For Further Extensibility
17:20 Course Review, Getting Involved, Discussion
DEVELOPING AUGMENTED REALITY APPLICATIONS

08:30–12:15
Level: Beginner
Room 313/314

In this course, attendees learn how to use open source software to build their own augmented reality (AR) applications.

As computers become more and more invisible, AR (overlaying virtual images on the real world) is becoming an increasingly important application area for computer graphics and user-interface design. This detailed introduction to AR interface design and research includes reviews of important topics such as tracking and registration, interaction techniques, design principles, and usability evaluation, as well as key areas for current and future AR research. Case studies are presented in the application areas of gaming, entertainment, medicine, and engineering. Part of the course also involves hands-on demonstrations where attendees will be able to experience the technology for themselves.

Significant portions of the course are devoted to reviewing the ARToolKit and osgART open-source software tools that can be used to start building AR applications, as well as other supporting software tools. After this course, attendees will understand the fundamentals of AR interface design, the tools they can use to build AR applications, and how to evaluate them once they are built.

PREREQUISITES
Some programming experience is useful but not necessary. Also useful but not required: some experience with C/C++ programming and the OpenGL API.

INTENDED AUDIENCE
Academic and industrial researchers, and anyone interested in developing AR applications.

INSTRUCTORS
Mark Billinghurst
Human Interface Technology Laboratory
New Zealand

Raphaël Grasset
Human Interface Technology Laboratory
New Zealand

SCHEDULE
Presenters: Billinghurst & Grasset

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<td>08:30</td>
<td>Introduction to Augmented Reality</td>
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<td>AR Technology Components</td>
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<td>Tools for Building AR Applications</td>
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<td>AR Interface Design Principles</td>
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<td>Usability Evaluation</td>
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<td>11:40</td>
<td>Research Directions in AR</td>
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Technical Papers

The SIGGRAPH Asia 2008 Technical Papers programme is a premier international forum for disseminating provocative and important new work in computer graphics and interactive techniques. Leading international experts from Asia and beyond present peer-reviewed research in rendering, modelling, animation, human-computer interaction, computer-aided design, virtual reality, and visualisation.

This year also features ACM SIGGRAPH’s first Technical Papers Fast Forward Session back-to-back. Get a preview of the latest research in computer graphics and interactive techniques and select the Technical Papers that you need to attend later in the week.

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Indian Institute of Technology Delhi

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Geoff Wyvill
University of Otago

Jianmin Zheng
Nanyang Technological University

Kun Zhou
Zhejiang University
Technical Papers

Wednesday, 10 December

TECHNICAL PAPERS
FAST FORWARD SESSION

★ ● ○
18:00–20:00
Theatre

ACM SIGGRAPH’s first Technical Papers & Sketches Fast Forward Sessions back-to-back. Get a preview of the latest research in computer graphics and interactive techniques and select the Technical Papers and Sketches that you need to attend later in the week.
SHAPE MODELLING

08:00–10:15
Room 303/304/305

SESSION CHAIR: Tao Ju

---

**Single Image Tree Modelling**
A simple and rapid method to generate a realistic 3D tree model from a single image.

Ping Tan
National University of Singapore
Tian Fang
Peng Zhao
Jianxiong Xiao
Long Quan
Hong Kong University of Science and Technology

**Sketch-Based Tree Modelling Using Markov Random Field**
A new system for converting a free-hand tree sketch into a full 3D model that is complex and realistic-looking. The problem is formulated as Markov random field.

Xuejin Chen
University of Science and Technology of China
Boris Neubert
Universität Konstanz
Ying-Qing Xu
Microsoft Research Asia
Oliver Deussen
Universität Konstanz
Sing Bing Kang
Microsoft Research Redmond

---

**Space-Time Surface Reconstruction Using Incompressible Flow**
This work deals with the problem of reconstructing watertight objects deforming across time. The process takes advantage of space-time coherence and adopts a global approach considering all frames simultaneously.

Andrei Sharf
Dan Anthony Alcantara
University of California, Davis
Thomas Lewiner
Pontifícia Universidade Católica do Rio de Janeiro
Chen Greif
Ala Sheffer
The University of British Columbia
Nina Amenta
University of California, Davis
Daniel Cohen-Or
Tel-Aviv University

---

**Non-Homogeneous Resizing of Complex Models**
Resizing of 3D models can be very useful when creating new models or placing models inside different scenes. However, straightforward nonuniform scaling can destroy features and lead to serious visual artifacts. This paper introduces a method that resizes 3D models in an intuitive way, protecting model features and structure.

Vladislav Kraevoy
Ala Sheffer
The University of British Columbia
Ariel Shamir
Interdisciplinary Center Herzliya
Daniel Cohen-Or
Tel-Aviv University

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**Mesh Ensemble Motion Graphs: Data-Driven Mesh Animation with Constraints**
This approach to data-driven animation of high-dimensional mesh ensembles, such as tree-structured botanical models, proposes a randomized space-time optimization algorithm for precomputing smooth asynchronous transitions that also avoid introducing non-physical self-collisions.

Doug L. James
Christopher D. Twigg
Andrew Cove
Robert Y. Wang
Cornell University
CHARACTER ANIMATION I

13:45–15:30
Room 303/304/305

SESSION CHAIR: Subodh Kumar

Animating Responsive Characters with Dynamic Constraints in Near-Unactuated Coordinates
An approach to animating physically responsive virtual characters by combining kinematic pose control with dynamic constraints in the muscle-actuation space.

Yuting Ye
C. Karen Liu
Georgia Institute of Technology

Synthesis of Constrained Walking Skills
A flexible framework for locomotion that enables physically simulated characters to navigate across terrains with gaps and other stepping constraints.

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

Interaction Patches for Multi-Character Animation
A method to generate large-scale character animation, such as a character fighting with many enemies, and a crowd passing luggage one after another in a warehouse.

Hubert P.H. Shum
Taku Komura
University of Edinburgh

Motion Overview of Human Actions
A method for generating overview videos based on the analysis of motion capture data.

Jackie Assa
Daniel Cohen-Or
Tel Aviv University

I-Cheng Yeh
Tong-Yee Lee
National Cheng Kung University

Masashi Shiraishi
Waseda University

Shuntaro Yamazaki
National Institute of Advanced Industrial Science and Technology

Thursday, 11 December
FUN WITH SINGLE IMAGES

15:45–18:00
Room 303/304/305

Deep Photo: Model-Based Photograph Enhancement and Viewing
A novel method for browsing, enhancing, and manipulating outdoor photographs by combining them with existing geo-referenced digital terrain and urban models.

Johannes Kopf
Universität Konstanz

Dani Lischinski
The Hebrew University

Daniel Cohen-Or
Tel Aviv University

Boris Neubert
Oliver Deussen
Universität Konstanz

Michael Cohen
Matt Uyttendaele
Microsoft Research

Billy Chen
Microsoft Research

Optimised Scale-and-Stretch for Image Resizing
An image-resizing method that computes an optimal scaling transformation for each local region, such that the aspect ratios of the automatically detected prominent features are preserved.

Yu-Shuen Wang
National Cheng Kung University

Chiew-Lan Tai
The Hong Kong University of Science and Technology

Olga Sorkine
New York University

Interactive Normal Reconstruction From a Single Image
An interactive approach for reconstructing surface normals of an object in a single image: interactive shape-from-shading and rotation palettes, which allow easy and intuitive manipulation using relative normals.

Tai-Pang Wu
Jian Sun
Microsoft Research Asia

Chi-Keung Tang
Hong Kong University of Science & Technology

Heung-Yeung Shum
Microsoft Research Asia

Depicting Procedural Caustics in Single Images
A powerful technique to simulate and approximate caustics in images. The algorithm is designed to produce excellent results without the need to painstakingly paint over pixels.

Diego Gutierrez
Jorge Lopez-Moreno
Jorge Fandos
Francisco J. Seron
Maria P. Sanchez
Universidad de Zaragoza

Erik Reinhard
University of Bristol

Animating Animal Motion From Still Images
A novel technique to infer and animate animal motions from a still image.

Xuemiao Xu
Liang Wan
Xiaopei Liu
Tien-Tsin Wong
Liansheng Wang
The Chinese University of Hong Kong

Chi-Sing Leung
City University of Hong Kong
CHARACTER ANIMATION II

08:00–10:15
Room 303/304/305

**Facial Performance Synthesis Using Deformation-Driven Polynomial Displacement Maps**
A method for acquiring, modelling, compressing, and synthesizing realistic detailed facial deformations using polynomial displacement maps driven by coarse motion capture markers.

Wan-Chun Ma
University of Southern California, National Taiwan University

Andrew Jones
Jen-Yuan Chiang
Tim Hawkins
Sune Frederiksen
Pieter Peers
University of Southern California

Marko Vukovic
Sony Pictures Imageworks

Ming Ouhyoung
National Taiwan University

Paul Debevec
USC Institute for Creative Technologies

**Reusable Skinning Templates Using Cage-Based Deformations**
A skinning template abstraction that makes it easy to design and transfer skin deformation styles.

Tao Ju
Washington University in St. Louis

Qian-Yi Zhou
University of Southern California

Michiel van de Panne
The University of British Columbia

Daniel Cohen-Or
Tel Aviv University

Ulrich Neumann
University of Southern California

**Accelerometer-Based User Interfaces for the Control of a Physically Simulated Character**
User study of three Wiimote interfaces for controlling a physically simulated character.

Takaaki Shiratori
Jessica Hodgins
Carnegie Mellon University

**Video Puppetry: A Performative Interface for Cutout Animation**
A video-based interface for creating animations by puppeteering.

Connelly Barnes
Princeton University

David Jacobs
University of California, Berkeley

Jason Sanders
NVIDIA Corporation

Dan B. Goldman
Adobe Systems Incorporated

Szymon Rusinkiewicz
Adam Finkelstein
Princeton University

Maneesh Agrawala
University of California, Berkeley

**Laughing Out Loud: Control for Modelling Anatomically Inspired Laughter Using Audio**
A novel technique for generating animation of laughter, including an audio-controlled method that automatically creates an animation from a soundtrack of an individual laughing.

Paul C. DiLorenzo
Victor B. Zordan
Benjamin L. Sanders
University of California, Riverside
LIGHTING, SHADING, AND GPUs

Real-Time KD-Tree Construction on Graphics Hardware
The first real-time algorithm for constructing kd-trees on GPUs and its potential in GPU ray tracing, photon mapping, and point-cloud modelling.

Kun Zhou
Zhejiang University
Qiming Hou
Tsinghua University
Rui Wang
Zhejiang University
Baining Guo
Microsoft Research Asia

Fast, Realistic Lighting and Material Design Using Nonlinear Cut Approximation
An algorithm for efficient computation with cut approximations and an application for interactive lighting and material design under complex illumination with arbitrary BRDFs and per-pixel shading.

Ewen Cheslack-Postava
Stanford University
Rui Wang
Oskar Akerlund
University of Massachusetts Amherst
Fabio Pellacini
Dartmouth College

Progressive Photon Mapping
A new formulation of photon mapping for computing global illumination with progressive refinement.

Toshiya Hachisuka
University of California, San Diego
Shinji Ogaki
The University of Nottingham
Henrik Wann Jensen
University of California, San Diego

Automated Reprojection-Based Pixel Shader Optimisation
This paper presents a set of techniques for automating the use of data reprojection as a general strategy for optimising procedural shaders.

Pitchaya Sitthi-amorn
Jason Lawrence
University of Virginia
Lei Yang
Pedro V. Sander
Hong Kong University of Science and Technology
Diego Nehab
Microsoft Research
Jiahe Xi
Hong Kong University of Science and Technology

Imperfect Shadow Maps for Efficient Computation of Indirect Illumination
A method for interactive computation of indirect illumination in large and fully dynamic scenes. It is based on approximate visibility encoded in imperfect shadow maps.

Tobias Ritschel
Thorsten Grosch
Max Planck Institut für Informatik
Min H. Kim
University College London
Hans-Peter Seidel
Max Planck Institut für Informatik
Carsten Dachsbacher
Universität Stuttgart
Jan Kautz
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Universität Stuttgart
Jan Kautz
University College London
IMAGE-BASED CAPTURE

10:30–12:15
Room 303/304/305

**SESSION CHAIR:** Chi-Keung Tang

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**Shield Fields: Modelling and Capturing 3D Occluders**
Decoupling 3D occluders from 4D illumination using shield fields, then analysing occluder reconstruction from cast shadows, leading to a single-shot light-field camera for visual hull reconstruction.

Douglas Lanman  
*Mitsubishi Electric Research Laboratory, Brown University*

Ramesh Raskar  
*MIT Media Lab, Mitsubishi Electric Research Laboratory*

Amit Agrawal  
*Mitsubishi Electric Research Laboratory*

Gabriel Taubin  
*Brown University*

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**Time-Resolved 3D Capture of Non-Stationary Gas Flows**
A new method for capturing dynamic gas flows in 3D.

Bradley Atcheson  
*The University of British Columbia*

Ivo Ihrke  
*Max Planck Institut für Informatik*

Wolfgang Heidrich  
*The University of British Columbia*

Art Tevs  
*Max Planck Institut für Informatik*

Derek Bradley  
*The University of British Columbia*

Marcus Magnor  
*Braunschweig Technical University*

Hans-Peter Seidel  
*Max Planck Institut für Informatik*

---

**Extracting Depth and Matte Using a Color-Filtered Aperture**
This method automatically extracts a scene-depth map and the alpha matte of a foreground object by capturing a scene through RGB color filters placed in the camera lens aperture.

Yosuke Bando  
*Toshiba Corporation, The University of Tokyo*

Bing-Yu Chen  
*National Taiwan University*

Tomoyuki Nishita  
*The University of Tokyo*

---

**A Photometric Approach for Estimating Normals and Tangents**
A photometric approach that estimates surface orientation and the directions of principle light scattering based on symmetries in the BRDF.

Michael Holroyd  
*University of Virginia*

Jason Lawrence  
*Greg Humphreys*

Todd Zickler  
*Harvard University*

---

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Derek Bradley  
*The University of British Columbia*

Marcus Magnor  
*Braunschweig Technical University*

Hans-Peter Seidel  
*Max Planck Institut für Informatik*
Random-Access Rendering of General Vector Graphics
An efficient representation for random-access anti-aliased vector graphics on the GPU, consisting of a lattice of cell-specialised variable-length descriptions.

Diego Nehab
Hugues Hoppe
Microsoft Research

Texture Amendment: Reducing Texture Distortion in Constrained Parameterisation
This paper describes an approach that combines the benefits of constrained parameterisation and low-distortion parameterisation to reduce texture distortion.

Yu-Wing Tai
Michael S. Brown
National University of Singapore

Chi-Keung Tang
Hong Kong University of Science & Technology

Heung-Yeung Shum
Microsoft Research Asia

IGT: Inverse Geometric Textures
A parameterisation-independent texturing technique that allows preservation of texture details from a high resolution reference model onto lower resolutions, generated with any given simplification method.

Gustavo Patow
Ismael García
Universitat de Girona

A Psychophysically Validated Metric for Bidirectional Texture Data Reduction
Psychophysical experiments show that optimal bidirectional texture function compression parameters are material dependent. This paper proposes a psychophysically validated metric that estimates these parameters and provides a predefined perceptual quality.

Jiří Filip
Michael J. Chantler
Patrick R. Green
Heriot-Watt University

Michal Haindl
Institute of Information Theory and Automation of the ASCR
REFLECTANCE & SUBDIVISION

15:45–18:00
Room 303/304/305

**SESSION CHAIR:** Kun Zhou

---

**Practical Modelling and Acquisition of Layered Facial Reflectance**

A practical method for modelling layered facial reflectance from a modest number of photographs recorded from a single viewpoint.

Abhijeet Ghosh
Paul Debevec
Tim Hawkins
Pieter Peers
Sune Frederiksen

USC Institute for Creative Technologies

**A Layered, Heterogeneous Reflectance Model for Acquiring and Rendering Human Skin**

A layered, heterogeneous, spectral reflectance model for acquiring and rendering the appearance of human skin. The model measures appearance via a novel acquisition method that uses multi-spectral photographs.

Craig Donner
Columbia University

Tim Weyrich
University College London

Eugene d’Eon
NVIDIA Corporation

Ravi Ramamoorthi
Columbia University

Szymon Rusinkiewicz
Princeton University

**Phong Tessellation**

The Phong Tessellation is a geometric version of the Phong normal interpolation to improve the visual continuity of meshes with a local curved displacement, adapted to current and next-generation GPUs.

Tammy Boubekeur
Marc Alexa

Technische Universität Berlin

**Subdivision Shading**

Rendering subdivision surfaces using normals generated by subdivision.

Marc Alexa
Tammy Boubekeur

Technische Universität Berlin

**Real-Time Reyes-Style Adaptive Surface Subdivision**

An efficient and real-time Reyes-like surface subdivision (split/dice) using modern GPGPU techniques that subdivides complex models to subpixel accuracy in a few milliseconds.

Anjul P. Patney
John Owens
University of California, Davis
MESH PROCESSING

★ ★

08:00–10:15
Room 303/304/305

SESSION CHAIR: Olga Sorkine

Efficient Traversal of Mesh Edges Using Adjacency Primitives
Efficient edge traversal allows fast shadow volumes and silhouette computations on the GPU. Minimising the number of adjacency primitives leads to discrete optimizations on the mesh dual graph.

Pedro V. Sander
Hong Kong University of Science & Technology

Diego Nehab
Microsoft Research

Eden Chlamtac
Princeton University

Hugues Hoppe
Microsoft Research

Randomised Cuts for 3D Mesh Analysis
This paper investigates a new shape analysis method based on randomised cuts of 3D surface meshes.

Aleksey Golovinskiy
Thomas Funkhouser
Princeton University

Deduction of Interpolating Subdivision Schemes From Approximating Subdivision Schemes
A method for directly deducing new interpolating subdivision schemes from the corresponding approximations. The purpose is to solve some limitations in the exiting interpolating subdivision.

Shujin Lin
Xiaonan Luo
Fang You
Zheng Li
Sun Yat-sen University

Spectral Quadrangulation With Orientation and Alignment Control
A new algorithm for quad mesh generation based on a spectral surface quadrangulation approach that provides flexible explicit control of the shape, size, orientation, and feature alignment of the quad faces.

Jin Huang
Muyang Zhang
Jin Ma
Xinguo Liu
Zhejiang University

Leif Kobbelt
RWTH Aachen

Hujun Bao
Zhejiang University

Quadrilateral Mesh Simplification
Mesh simplification is an important geometric-processing algorithm, serving as a building block for many higher-level methods. This paper introduces a quadrilateral mesh-simplification technique, constructing quality LOD mesh hierarchies.

Joel Daniels
Claudio T. Silva
University of Utah

Jason Shepherd
Sandia National Laboratories

Elaine Cohen
University of Utah

Technical Papers
Saturday, 13 December

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Elaine Cohen
University of Utah
COLOURISATION & UPSAMPLING

08:00–10:15
Theatre
SESSION CHAIR: Marc Pollefeys

A Virtual Restoration Stage for Real-World Objects
A system to virtually restore damaged or historically significant objects without needing to physically change the object in any way.

Daniel G. Aliaga
Alvin J. Law
Yu-Hong Yeung
Purdue University

Superimposing Dynamic Range
A cost-efficient way of extending contrast, perceived tonal resolution, and color space of static hardcopy images, beyond the capabilities of hardcopies or low-dynamic-range displays alone.

Oliver Bimber
Bauhaus Universität Weimar
Daisuke Iwai
Osaka University

VirtualStudio2Go: Digital Video Composition for Real Environments
Synchronised film cameras, video projectors, and high-speed LED lighting, together with radiometric image correction, enable professional digital video composition effects in real environments without the constraints of virtual studios.

Anselm Grundhöfer
Oliver Bimber
Bauhaus Universität Weimar

Intrinsic Colourisation
An example-based colourisation technique robust to illumination differences between grayscale target and colour-reference images.

Xiaopei Liu
Liang Wan
Yingge Qu
Tien-Tsin Wong
The Chinese University of Hong Kong

Fast Image/Video Upsampling
A simple yet effective upsampling method for automatically enhancing image/video resolution, while naturally preserving the structural information and temporal coherence.

Qi Shan
Zhaorong Li
Jiaya Jia
The Chinese University of Hong Kong

Chi-Keung Tang
Hong Kong University of Science & Technology

Stephen Lin
Microsoft Research Asia

Chi-Sing Leung
City University of Hong Kong

Pheng-Ann Heng
The Chinese University of Hong Kong
**NON-PHOTOREALISTIC RENDERING**

**Saturday, 13 December**

10:30–12:15
Room 303/304/305

**SESSIO N CHAIR: Ken Anjyo**

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**Adaptive Cutaways for Comprehensible Rendering of Polygonal Scenes**
Generating cutaway renderings of polygonal models at interactive frame rates, using illustrative and non-photorealistic rendering cues to expose objects of interest in the context of nearby and enclosing objects.

Michael Burns
Adam Finkelstein
Princeton University

**Richness-Preserving Manga Screening**
A novel method for screening manga-style drawings from photographs, by preserving the tone similarity, texture similarity, and chromaticity distinguishability.

Yingge Qu
Wai-Man Pang
Tien-Tsin Wong
Pheng-Ann Heng
The Chinese University of Hong Kong

---

**Line-Art Illustration of Dynamic and Specular Surfaces**
A real-time rendering system that can illustrate dynamic 3D models in line-art styles. The system can also illustrate reflections and refractions on specular surfaces.

Yongjin Kim
Pohang University of Science & Technology

Jingyi Yu
Xuan Yu
University of Delaware

Seungyong Lee
Pohang University of Science & Technology

---

**Demarcating Curves for Shape Illustration**
This paper defines a new class of view-independent curves (demarcating curves) and proves relations between them and other well-known curves. Their application to archaeological artifact illustration is demonstrated.

Michael Kolomenkin
Technion–Israel Institute of Technology

Ilan Shimshoni
University of Haifa

Ayellet Tal
Technion–Israel Institute of Technology
Technical Papers

Saturday, 13 December

UBER MODELLING

13:45–15:30
Room 303/304/305

SESSION CHAIR: Tong Xin

Continuous Model Synthesis
A novel method for procedurally modelling large complex shapes. The approach is general-purpose and accepts as input any 3D polyhedral model provided by a user.

Paul Merrell
Dinesh Manocha
University of North Carolina at Chapel Hill

Interactive 3D Architectural Modelling From Unordered Photo Collections
An interactive image-based modelling system for architectural scenes that leverages recent advances in automatic computer vision techniques and sketch-based 3D modelling and handles large photo collections.

Sudipta N. Sinha
University of North Carolina at Chapel Hill

Drew Steedly
Microsoft Live Labs

Interactive Example-Based Urban Layout Synthesis
An interactive system for synthesising urban layouts by example. New urban layouts are inferred from the road network, parcel data, and aerial images of given cities.

Daniel G. Aliaga
Carlos A. Vanegas
Bedrich Beneš
Purdue University

Image-Based Façade Modelling
A semi-automatic image-based approach to building façade modelling from automatically recovered cameras and 3D points of a sequence of images.

Jianxiong Xiao
Tian Fang
Hong Kong University of Science & Technology

Ping Tan
National University of Singapore

Image-Based Façade Modelling
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Peng Zhao
Hong Kong University of Science & Technology

Eyal Ofek
Microsoft Corporation

Marc Pollefeys
ETH Zurich, University of North Carolina at Chapel Hill

Long Quan
Hong Kong University of Science & Technology
PHYSICALLY BASED ANIMATION

15:45–18:00  
Room 303/304/305

**Magnets in Motion**
A method for magnetic interaction in rigid-body simulation, allowing interactive simulation of dozens of magnets. The approach is physically sound and has excellent accuracy and preservation properties.

Bernhard Thomaszewski  
Andreas Gumann  
Simon Pabst  
Wolfgang Straßer  
Universität Tübingen

**Real-Time Control of Physically Based Simulations Using Gentle Forces**
Real-time control with gentle forces cooperates with natural dynamics to generate simulations that are fast, compliant, and directable.

Jernej Barbic  
Jovan Popović  
Massachusetts Institute of Technology

**Staggered Projections for Frictional Contact in Multibody Systems**
A discrete, velocity-level formulation of frictional-contact dynamics that enables a novel and accurate algorithm for frictional-contact resolution based on a simple staggered sequence of projections.

Danny Kaufman  
Shinjiro Sueda  
The University of British Columbia

**Optimizing Cubature for Efficient Integration of Subspace Deformations**
Cubature optimization enables fast evaluation of subspace internal forces associated with subspace deformations of models with complex geometry, nonlinear deformations, and nonlinear hyperelastic materials.

Steven An  
Theodore Kim  
Doug L. James  
Cornell University

**Fast Animation of Turbulence Using Energy Transport and Procedural Synthesis**
A novel technique for animation of turbulent fluids by coupling a procedural turbulence model with a numerical fluid solver to introduce subgrid-scale flow detail.

Rahul Narain  
Jason Sewall  
University of North Carolina at Chapel Hill

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The University of British Columbia

**Optimizing Cubature for Efficient Integration of Subspace Deformations**
Cubature optimization enables fast evaluation of subspace internal forces associated with subspace deformations of models with complex geometry, nonlinear deformations, and nonlinear hyperelastic materials.

Steven An  
Theodore Kim  
Doug L. James  
Cornell University

**Fast Animation of Turbulence Using Energy Transport and Procedural Synthesis**
A novel technique for animation of turbulent fluids by coupling a procedural turbulence model with a numerical fluid solver to introduce subgrid-scale flow detail.

Rahul Narain  
Jason Sewall  
University of North Carolina at Chapel Hill

**Optimizing Cubature for Efficient Integration of Subspace Deformations**
Cubature optimization enables fast evaluation of subspace internal forces associated with subspace deformations of models with complex geometry, nonlinear deformations, and nonlinear hyperelastic materials.

Steven An  
Theodore Kim  
Doug L. James  
Cornell University
Days & Hours

Thursday, 11 December 08:30–17:30
Friday, 12 December 08:30–17:30
Saturday, 13 December 08:30–17:30

Educators Programme

Envisioned as an international gathering of industry professionals and academics, the Educators Programme presents perspectives that appeal to a wide spectrum of interests. The goal is to share educational strategies adopted in both industry and academia to make the learning process more satisfying, productive, and meaningful.

Educators Programme Committee

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Nanyang Academy of Fine Arts
Pan Zhigeng
Zhejiang University
Educators Programme

Thursday, 11 December

METHODOLOGIES IN LEARNING

Session Chair: Mark Chavez

08:30–10:15
Educators Papers
Room 309


This paper discusses the concept of teaching a first course in computer graphics that includes a context—a field outside computer graphics in which graphics is used—in order to engage students and broaden their understanding of the graphics principles. The paper presents a specific example, a course in computer science, where creating an engagement with a wider topic is known to improve student learning.

Steve Cunningham
Brown Cunningham Associates

Using Augmented Reality to Promote Understanding of Materials Science to School Children

Using tables of data to understand and compare their properties is a rather boring and unintuitive way to learn about materials. Children learn much more quickly and intuitively if they can touch the materials they are learning about and link them directly to their properties and applications. But such an approach can be very demanding on teachers’ knowledge and attention, especially in large classes.

The challenge is to engage pupils by exploiting information and communication technology to aid the learning process. If this approach can build on their interest in animations and exciting graphics, developed through their exposure to television and computer games, then so much the better. Kids rarely read the instructions when playing computer games, since they adopt intuitive protocols.

Augmented reality (AR) is a relatively mature technology, but so far it remains largely undiscovered by schools as a means of enhancing traditional lesson delivery. The advantage of AR is its ability to overlay information on real physical objects as viewed on a LCD projector or interactive white board. This paper describes a set of educational AR software for helping children to familiarise themselves with simple physics, chemistry, and materials principles.

AR technology brings photographic and computer-generated images into real environments, facilitating real-time 3D interactions connected to physically available objects. The tools developed in this project comprise four major kinds of applications, each designed to help pupils learn about materials and their applications. The linkages between the hands-on materials and their properties and applications are explored through a series of puzzles, games, and tasks, with the AR providing intuitive guidance. For example, pupils can try to identify the materials required to build a jet engine or play a “top trumps” game with the computer to choose attributes for their materials that could outperform the materials chosen by the computer. The AR system also acts as a virtual microscope to reveal the microstructure of a given material as it is placed under the web-cam. For younger pupils, the school can use a simpler AR tool to learn about the categorisation of materials (metal, ceramic, polymer, and natural). The AR recognition software rewards correct allocations and helps pupils to identify mistakes.

This paper outlines development and deployment of AR and discusses evaluations that will be carried out with teachers and pupils during exhibitions at the Farnborough Air Show, the Manchester Science Festival, and schools visits. The goal is to provide a valuable starting point for other AR developments in educational settings.

Kevin Tan
Emma Lewis
University of Manchester

Simulating Educational Physical Experiments in Augmented Reality

This paper presents PhysicsPlayground, an augmented reality application that utilizes a recent physics engine developed for the PC gaming market to simulate physical experiments in mechanics in real time. Students are able to actively build their own experiments and study them in a three-dimensional virtual world. Several tools are provided to analyze forces, mass, paths, and other properties of objects before, during, and after experiments. Innovative teaching content exploits the strengths of this immersive virtual environment. PhysicsPlayground is an example of how current technologies can be combined to deliver new experiences in physics education.

Hannes Kaufmann
Bernd Meyer
Technische Universität Wien

Nick Avis
Cardiff University

Philip Withers
University of Manchester
Educators Programme

Thursday, 11 December

EDUCATORS PROGRAMME RAMP-IN
AND KEYNOTE ADDRESS

★ ●
13:45–15:30
Room 309

SESSION CHAIR: Mark Chavez

Ramp-In: Welcome and Overview of Programme by
Programme Chair Mark Chavez

The New Perspective of Consilience of the Arts
and Technology in the Era of Ubiquitous Computing

EDUCATORS KEYNOTE ADDRESS

Ubiquitous Arts & Technology (U-AT)
Consilience Education is a new term coined by the Korea National University of Arts to
refer to consilience of ubiquitous computer technology and diverse arts genres in a narrow
sense, and consilience of the arts, humanities, and technology in a broader sense. In this
sense, consilience refers to a non-reductionist unity of knowledge, unlike the reductionist
consilience in the humanist biology of Edmund Wilson.

The term, coined by William Whewell in the early 19th century, is a revival of the Latin
word consilier, which means “varied branches uniting and jumping together to form a
unified trunk.” According to the science of complex systems, the process of mixing differ-
et elements, and their interactions, are critical requirements for creative experience and
knowledge creation.

The key objective of U-AT Consilience Education is to establish a creative education
system to produce quality content in multi-source-multi-use mode by institutionalizing the
cooperative ties between industry and the university for joint research projects, creative
endeavors, and education. The overall purpose is to promote continuous and systematic
communications and consilience of six artistic genres: music, drama, film-TV-multimedia,
visual arts, dance, and Korean traditional arts.

Park Se-Hyung
Korea National University of Arts
Shift to The Third Space - isAT 2008
The arts and technology are no longer strangers. They are forging a closer partnership, as the arts reveal what could previously exist only in our imaginations by utilizing ubiquitous technology, and technology, in turn, leaps over the modern era by adding a wing of artistic sensibility to science.

In light of this shift, isAT 2007 (International Symposium for Arts and Technology 2007) was held last year to explore the “Lightning Effects” from the encounter between the arts and technology. Under the theme of Shift to the Third Space, the upcoming event, isAT 2008, will seek the meaning of the union of the arts and technology and explore how ubiquitous computing technology shifts our lives into other dimensions.

Shim Kwang-Hyun  
*Korea National University of Arts*

The Animation Solution Kit
The main benefit of independent creation is not cost reduction but quality. In the process of indie-creation, concept art can be retained until final step because it’s mainly created by a small, efficient team. By expanding the traditional concept of “animation,” DMMG Lab makes a “prototype model” for animation based on NPR and, by building a library of models, materials, motion, and effect sources, facilitates a “stand-alone on network,” which enables one person to manage the entire animation process.

Lee Jungmin  
*Korea National University of Arts*

Making Intelligent Sounds
An intelligent sound is a sound that can think. It can create, modify, evolve, and even kill itself according to its environment. This paper shows two approaches to this concept. One is creative and experimental (the author’s compositions), and the other is practical and educational (the Intelligent Sound Lab at The Korea National University of Arts).

The Intelligent Sound Lab develops basic technologies and solutions for synthesis of realistic sound effects that can be automatically synthesized according to the recorded or analyzed meta-data of various media content. The main objective of this lab is to develop and build an “intelligent sound library” of sound-effect algorithms that can create and vary themselves according to their content.

Chang, Jaeho  
*Korea National University of Arts*
**Creating a Multi-Disciplinary Gaming Curriculum: Avoiding Mistakes, Missteps, and Growing Pains**

While the volume of game-development curricula has grown dramatically over the past five years, there is still relatively little information on the proliferation of these programmes. At Drexel University, game development has grown from a few unrelated, area-specific courses to become a truly multi-disciplinary, multi-course sequence that unifies the foundation skills of several departments and colleges across the university. Yet there have been numerous challenges and changes during the four-year evolution of this sequence. This paper documents the growth of the programme, the problems it encountered, and the solutions developed, in the hope that it can serve as a road map for other institutions.

At Drexel, game development does not “live” in one department, so it mirrors the true nature of game development in commercial settings. Game development is offered in a coordinated, cross-listed series of courses in both the computer science (CS) and digital media (DIGM) majors, and production courses are open to other majors as well. Computer science courses teach foundation software-development skills and offer software design courses for prototyping game concepts. Drexel’s digital media major is one of the oldest such programmes in the United States. It instructs students on the foundation skills of design, art, programming, modelling, animation, audio and video production, and the use of industry tools such as Maya and 3ds Max. The gaming courses and projects bring these two majors together, with the additional participation of students and faculty from other majors including music, music industry, screenwriting and playwriting, engineering, and business.

Many problems were encountered during the programme’s growth from an original two-course sequence to the current nine-course offering including: cultural and communication differences between the different majors; scheduling differences across programmes, departments, and colleges; teaching and staffing issues; course sequencing issues; introduction of soft-skill techniques; project management issues; student and staff turnover; rapidly changing technology platforms; lack of adequate texts; software and hardware access issues; and even educating administrators and parents as to what game development entails.

The gaming sequence is designed to reflect the nature of the industry and industry demands and practices. For example, the programme makes heavy use of the iterative development cycle and SCRUM methodology. However, introduction of these techniques provides unique challenges in classroom settings, where students have always been able to “get by” with less-formal structures, or where grades are based on a final submission.

The cross-discipline nature of the course offerings presents logistical challenges for reaching and informing interested students and researchers, and has led to formation of the Drexel RePlay Lab web site.

The 2007-2008 academic year was the first in which the complete complement of courses was fully offered. Despite this, the student work produced from even an abridged offering has been very impressive.

Paul Diefenbach
Drexel University

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**Sharing the Magic Circle With Spatially Inclusive Games**

A discussion of innovative (capstone) projection environments at an IT and electrical engineering school. The overarching brief was to develop both more expansive and immersive viewing and playing environments. Game courses were used as a springboard to extend the students’ creative and critical design thinking in relation to wider interaction-design issues. Imaginative combinations of game engines and peripherals were also used as initial prompts to encourage students to go beyond current game-theory definitions, explore how to increase the player’s sense of embodiment, and transmit the player’s gameplay experience to a wider audience. The resulting prototypes are being incorporated into future versions of CAVE UT to help educators develop more engaging and immersive interactive environments. Hopefully, the next version of CAVE UT will also allow players and audiences to share the so-called “magic circle.”

Erik Champion
The University of New South Wales

Jeffrey Jacobson
PublicVR
Gaming: Back to the Basics
By recreating basic games, this presentation returns to the basics of computer games and experiments with game play, game rules, and players’ psychology. It surveys 2D and 3D games designed as experimental prototypes of “treasure hunting,” “plateau,” and generic “Space Invaders” and “Pac Man” games, and it shows how player experience can be affected by slight changes in game mechanics.

The exploration of game play takes place inside 2D and 3D versions of basic games created by students and professionals during workshops with limited-time assignments. Creators of these games reshape behaviours and relationships governing levels, modes, rules, choices, classes of objects, characters, and interactive elements. They experiment with game play and rules, following the psychology of the players and demonstrating the need to be not too simple and not too complex.

Topics covered in this presentation include how small variations of the elements of game design can affect the game-playing experience, how the architecture of a game can repeat from one game to the other and in different times and contexts, how the player is placed in the center of the gaming experience, and how choices are presented to the player.

The presentation also shows how to create an interactive interface that allows real-time testing of dynamic transformations of game mechanics and rules of play. The audience uses Wiimotes to participate in demos that focus on side-by-side evaluation of basic 2D games and their recreation as 3D games. It also surveys examples of authoring tools, interactive animations, and behavioural engines available for education (Torque, Virtools, XNA).

Jean-Marc Gauthier
Tisch School of the Arts Asia,
New York University
THE MINDSPACE OF LEARNING

10:30–12:15
Educators Papers
Room 309

**Practice Project Management in Web Site Design: An Experiential Learning Simulation**

The current literature suggests that experiential learning is a necessary component of formal instruction in higher education. But research on experiential learning in web site design development and management is minimal. The purpose of this project is to detail research on how to blend experiential learning principles with project management into an actual case of web site design practice for the new age of electronic learning.

Art and design faculties are no strangers to experiential learning. One cannot learn the complexities of the design discipline without extensive design studio projects. Where experiential learning is well integrated, students demonstrate a greater understanding of the complexity of real-world problems. By combining theory with practice, this project helps the academic community understand the relationships among education, work, and technology. It also provides rich dialogues about students’ experiential learning, which helps them build a foundation for professional life in the real world. In this approach, the “process” is as important as the “product.” This study hopes to stimulate further work in this area.

Mei-Fen Chen
Robert Morris College

**Guitar Man**

This paper proposes a game system that presents a cooperative musical performance system using guitar and bass guitar. Because the bass guitar does not necessarily support fast playing, it is suited to the subject of this study. However, it is necessary to accelerate the speed of a pitch-detection algorithm in order to extend it to a cooperative musical performance system that includes other non-string instruments. A constant time interval should be maintained due to the fact that it is difficult to apply a pitch-detection process for specific tones when the recognition time is reduced.

This study considers how new musical possibilities can be achieved through online networks by overcoming the stereotypes in off-line musical activities, such as music-instrument lessons or traditional cooperative performances. It is based on the assumption that the future computer game industry will not be developed as a simple virtual reality but an actual system like the cooperative musical performance system proposed in this paper.

Aram So
Sogang University
Bridging the Gap Between Education and Professional Production

While there is a global interest in learning animation and special effects, the quality of academic programmes and training ranges from excellent to mediocre. It takes time and a great deal of skill, knowledge, and talent to develop global-quality education that meets the needs of today's production companies, and the bar is raised higher every year.

In too many countries, get-rich-quick institutions advertise software training that at best provides comprehensive coverage of tool sets and techniques, and at the worst, certifies students who are completely unprepared for the careers they seek and with little or no knowledge of anything but the basic operation of a popular software programme.

Some countries have 500 or even 1,000 animation programmes (China for example) yet few have instructors who have worked and excelled in the industry. In addition, many instructors have received little or no training in effective and meaningful instructional techniques. The inevitable result: the quality of education is often very low, and graduates are completely unprepared for the career paths they want to follow.

As there is no professional certification for animators or visual effects professionals, it’s time to move toward a universally acceptable framework for specifying and evaluating the skills, portfolios, and show reels that are the fundamental entry point to prospective employment. Also, it’s essential to blend this framework into every employee’s upgrade path and lifelong learning plans in this rapidly evolving field.

The panelists have been dealing with these problems for many years, as educators, trainers, and recruiters. Their desire is see dramatic improvement in education and training through development of clearly defined professional requirements. Such a framework will make it easier for institutions to design relevant and high-quality education that meets the needs of today’s and tomorrow’s globally distributed production companies.

Robin King
Imagina Corporation

Prashant Buyyala
Rhythm & Hues Studios

Shelley Page
DreamWorks Animation

Michael Sehgal
Autodesk, Inc

Comparison of Animation Storyboard Education in China and the United States

More and more Chinese universities and schools have started teaching animation storyboard courses, but there is still a shortage of original work produced by the Chinese animation industry. This paper discusses the development of Chinese animation storyboard education and compares it to similar programmes in the US. The result is new insight into how to most effectively teach animation storyboarding.

The inquiry focuses, in part, on development of story and visual content, and how storyboard artists develop concepts. Animation storyboard programmes are compared through an examination of their curricula, faculty, 2D and 3D computer animation works, lab facilities, environmental and aesthetic aspects, and contrasts between the two cultures. Practical approaches to teaching are also discussed. The goal of this presentation is to provide an international perspective on animation storyboard education and a summary of the current state of Chinese animation.

Hui Zhu
Xiaobo Lu
Tsinghua University

Frank Suarez
Bunko Studios, Inc.
**METHODOLOGIES IN TEACHING**

★ ●

08:30–10:15
Educators Papers
Room 309

**SESSION CHAIR:** Chen Meifen

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**Deconstructing an Old Master Painting Using Photoshop’s Advanced Toolset**

An old master painting is a highly “made” thing, and every aspect of its appearance was subject to careful consideration and evaluation before its manufacture. These aspects can be very hard to grasp, but with Photoshop’s advanced toolset, they can be visualised and made more accessible for the student of art history. This paper details interesting applications of the Adjustments menu, the Blend modes, and the Blend If values.

Martin Constable
*Nanyang Technological University*

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**Using Animation and Interactive Virtual Technology to Create Interpretive Materials for Museum Learning and Promotion**

Museums around the world have incorporated computer graphics, virtual reality, 2D and 3D animation, and interactive technology in gallery exhibits, educational games, films, and online presentations for many years. To move beyond the traditional ways of using technology to create interpretive materials for teaching and learning, and to communicate with its audiences, The National Palace Museum (NPM) in Taiwan embarked on two major digital projects: a 3D Virtual Exhibition System: Experience the Imperial Artifacts and “Adventures in the NPM,” a 13-minute 3D animation. This paper provides an overview of these projects.

In early 2003, NPM began to develop Experience the Imperial Artifacts. Through this system, users can virtually touch and interact with the famous Jadeite Cabbage, Ivory Ball, Carved Olive-Stone Boat, and Mao-Kung Ting from the museum collection. For the first time, users could experience the highest privileges of the emperor. The paper provides detailed information on development, selection, creation, and implementation of various 3D technologies: the stereoscopic construction approach to visualising details, 2D photo stitching techniques for reconstructing a jadeite surface, a 3D laser-scanning method for geometric modelling, etc. It also reviews the tasks and challenges of the project and presents a documentary film about the development process of these high-tech systems.

In 2005, to bridge the gap between today’s audiences and “ancient” artifacts, NPM collaborated with Digimax Corporation to produce a 3D animated film entitled “Adventures in the NPM.” This film personifies some of the NPM’s key collection objects and their adventures in the museum at night. Its lovely characters and captivating story are designed to bring viewers to a new level of appreciation for those ancient artifacts. The production team invited Gérard Pirès (“Knights in the Sky”), Tom Sito (“Osmosis Jones”), and Teddy Yang (“Shark Tale”) to contribute their expertise to the production. The film premiered on 13 April 2007 to many positive reviews. Most recently, it was honored at the Tokyo International Animation Fair 2008 as the Animation of the Year. This paper shares some of the behind-the-scenes stories of the production and its creative marketing and promotion.

James Quo-Ping Lin
*National Palace Museum*

Herminia Din
*University of Alaska Anchorage*

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**Chinese Whispers**

Chinese Whispers refers to the concept of mediating between remote studios with new forms of hybrid designing and real-time online collaboration. A sequence of experiments explored the concepts of linkage and slippage that occur at the boundaries of converging technologies as a means of generating innovative and unexpected design outcomes (real and virtual, tangible and intangible). The project is framed in a contemporary context with background research into current concepts and theories centered on learning ecology and user-generated design into future trends and state-of-the-art technologies.

Chinese Whispers involved linking hardware and software that are not immediately compatible in a remote networked environment to facilitate an educational design process in both remote and real environments. Through this process, students engaged in 3D scanning, downloading, visualising, analysing, remote simultaneous modelling in stereo, and deciding when to hit “3D print” at any given stage to invent a new design methodology.

Simon Fraser
Tim Miller
Morgan Barnard
Kris Henning
*Victoria University of Wellington*  
*School of Design*

Mark Billinghurst
*HIT Lab NZ*
PEDAGOGY IN ACTION

10:30–12:15
Educators Papers
Room 309

Session Chair: Lucy Petrovic

Incorporating Animation Technologies Into Tools for Colonial American Education
This paper describes integration of animation and visual effects technologies into development of tools geared for colonial American education. Projects discussed include incorporation of crowd simulation software and full-body motion capture to recreate Revolutionary War battles, laser-scan acquisition of excavated archaeological artifacts, and recreation of historic structures with modelling and animation software. These technologies reduce the margin of error in representation, accentuate the level of realism for the end user, and create a more engaging educational presentation for schoolchildren.

Christopher Redmann
Drexel University

Wireless Sensor Network to Support a Multiple-Student Group Learning Game With One PC in the Classroom
Unlike the One Laptop Per Child concept promoted by the MIT Media Laboratory, this study utilizes a wireless sensor network to support a multiple-student group-learning game with one PC in classroom. In the traditional computerised classroom, each student is equipped with one desktop (or laptop) computer for learning. This approach (one kid one desktop) has some disadvantages. For example, the cost of establishing the classroom is high, and students are confined to their seats during learning activities. It is adult-oriented, not kid-oriented.

This alternative approach, based on a wireless sensor network, allows students to interact with a computer via body motions, such as gestures, which is a much more natural way to use technology in the classroom. A set of ribbons with wireless gesture-detection sensors connects to a server. The ribbons are worn by the students, and the entire classroom’s gestures are captured and sent to the server.

With this technology, the classroom can be reconfigured from one kid one desktop to many kids one desktop. In one application, students are asked to create, share, and review stories using the gesture-detection ribbons in the classroom.

Yi-Shiang Lin
Ben Chang
National Central University
PROFESSIONAL/ACADEMIC

Educators Programme Saturday, 13 December

15:45–17:30
Educators Papers
Room 309

SESSION CHAIR: Pan Zhigeng

Teaching 3D Animation: The Balance Between Creative and Technical Skills
Craig Caldwell
Griffith University

We are getting much better at teaching the technical skills that our students need to enter the visual-effects and 3D-animation industries. But sometimes these skills take precedence in our teaching, and we inadvertently give less emphasis to the more elusive creative skills that affect promotion into positions such as producers, visual effects supervisors, art directors, etc.

Superior quality and and excellent story can make a big difference in the critical first eight seconds of a demo reel, when professionals decide whether to keep watching or hit the eject button. This paper covers not only the creative fundamentals, but also how to apply them consistently in our teaching, which in turn contributes to our students’ success after they graduate.

Computer Games Degrees in the UK: A Review of Current Practice
Barry Ip
Martin Capey
Swansea Metropolitan University

This paper examines the development, content, and outputs of computer games development (CGD) courses in the United Kingdom. It provides a background of CGD courses, followed by a case study of how a Bachelors of Arts course was developed and implemented at Swansea Metropolitan University. And it analyses and discusses the characteristics of student applications (such as background qualifications, achievement levels, and skill-sets), the nature of student projects (including their themes, creativity, and quality), course structure and composition, and staff profiles. The results offer a unique and valuable insight into development of CGD courses, especially in view of their increasing importance in fostering new creative talent for games and games-related industries.

From Motion Capture to Interactive Animation
Jean-Marc Gauthier

Jean-Marc Gauthier, director of the new animation and digital arts MFA program at Tisch School of the Arts Asia in Singapore, summarises the program’s curriculum: traditional animation, interactive animation, gaming, and motion studies applied to design.

His talk includes an overview of Life Motion Analysis: Ways to Visualise Motion From Real Life, a motion capture class designed for collaborative work among actors, dancers, storytellers, filmmakers, animators, and others.

Jean-Marc Gauthier
Tisch School of the Arts Asia,
New York University
Sketches

A dynamic forum for thought-provoking, speculative ideas, novel applications, what-if concepts, and behind-the-scenes production details. Following each sketch presentation, authors discuss future implications of their work and answer audience questions.

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SKETCHES FAST FORWARD

18:00–20:00
Theatre

ACM SIGGRAPH’s first Technical Papers & Sketches Fast Forward Sessions back-to-back. Get a preview of the latest research in computer graphics and interactive techniques and select the Technical Papers and Sketches that you need to attend later in the week.

GPU-BASED METHODS

08:30–10:00
Room 302

SESSION CHAIR: Edward Angel

GPU Crowd Simulation
This first interactive, GPU-accelerated massive crowd simulation (>65,000 agents) combines parallel implementations of a course global-path planning technique with a fine-grained local avoidance model.

Jeremy Shopf
Christopher Oat
Joshua Barczak
Advanced Micro Devices, Inc.

GPU Tessellation for Detailed, Animated Crowds
A method for rendering detailed crowds of characters using tessellation, instancing, and LOD management, along with a technique to reduce artifacts along uv seams when using displacement mapping.

Natalya Tatarchuk
Joshua Barczak
Budrijanto Purnomo
Advanced Micro Devices, Inc.

A GPU-Based Approach for Real-Time Haptic Rendering of 3D Fluids
An innovative GPU-based approach that enables real-time haptic rendering of high-resolution 3D Navier-Stokes fluids.

Meng Yang
University of Pennsylvania

Jingwan Lu
Hong Kong University of Science and Technology

Zehua Zhou
Alla Safonova
Katherine Kuchenbecker
University of Pennsylvania

GPU-Based Scene Management for Rendering Large Crowds
A system for rendering crowds of characters with full shadows, in arbitrary environments, with stable performance and excellent visual quality, managing all aspects directly on the GPU.

Joshua Barczak
Natalya Tatarchuk
Christopher Oat
Advanced Micro Devices, Inc.
**Sketches**

**Thursday, 11 December**

**RECENT PRODUCTION TECHNIQUES AT LUCASFILM ANIMATION SINGAPORE**

**SESSION CHAIR:** Ken Anjyo

**13:45–15:15**

**Theatre**

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**“Star Wars: The Clone Wars” TV Series: Making the Impossible Happen**

In creating episodes of “Star Wars: The Clone Wars,” flexibility is the key. It requires an adaptable pipeline and lighting tools that enable completion of several tasks in one render calculation.

Ryan T. Smith
Lucasfilm Animation Singapore

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**The Invisible Art Behind “Ironman”**

What is real and what is not? In “Ironman,” suspension of disbelief due to the larger-than-life action and realistic backgrounds was the ultimate goal for matte painters.

Danny Janevski
Lucasfilm Animation Singapore

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**Keeping It Real: Classical Art Principles in Today’s VFX Features**

The tools have changed, but it is still the artist’s process, rooted in the knowledge of basic artistic principles, that make visual effects convincing and realistic.

Kalene Dunsmoor
Lucasfilm Animation Singapore

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**Clone Wars Animation in Lucasfilm Animation Singapore**

What does it take to animate “Star Wars: The Clone Wars?” From stills and shots, learn how animators bring the Star Wars universe and its colorful characters to life.

Ullas Narayana
Lucasfilm Animation Singapore

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**Lighting Clone Wars: A New Planet Every Week**

How to bring the vast Star Wars universe to TV without making it look small? The challenge of introducing new characters and locations in every episode, on a TV production schedule.

Ben Huber
Lucasfilm Animation Singapore

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**“Star Wars: The Clone Wars” TV Series: Making the Impossible Happen**

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Ryan T. Smith
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**The Invisible Art Behind “Ironman”**

What is real and what is not? In “Ironman,” suspension of disbelief due to the larger-than-life action and realistic backgrounds was the ultimate goal for matte painters.

Danny Janevski
Lucasfilm Animation Singapore

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**Keeping It Real: Classical Art Principles in Today’s VFX Features**

The tools have changed, but it is still the artist’s process, rooted in the knowledge of basic artistic principles, that make visual effects convincing and realistic.

Kalene Dunsmoor
Lucasfilm Animation Singapore

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**Clone Wars Animation in Lucasfilm Animation Singapore**

What does it take to animate “Star Wars: The Clone Wars?” From stills and shots, learn how animators bring the Star Wars universe and its colorful characters to life.

Ullas Narayana
Lucasfilm Animation Singapore

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**Lighting Clone Wars: A New Planet Every Week**

How to bring the vast Star Wars universe to TV without making it look small? The challenge of introducing new characters and locations in every episode, on a TV production schedule.

Ben Huber
Lucasfilm Animation Singapore
**Sketches**

Thursday, 11 December

INTERACTIVE TECHNIQUES

**平衡球界面**

只有用户坐在平衡球上，这个系统捕获用户的粗略运动和行为。

麻生和也

东京艺术大学

**Fu-Fuu: 一个使用呼吸控制的互动游戏**

一个新颖的界面，使用玩家的位置和呼吸通过相机和麦克风来控制一个虚拟的纸飞机。

大西大辉

佐藤健

他成也

田中健

田中优

北野晴

庆应义塾大学

**跟踪移动设备在交互屏幕上与RFID的位置**

一个用于识别和跟踪移动设备在交互屏幕上的位置和一个原型系统的提议方法。

韩桑俊

韩克

杨胜贤

金佑勋

三星电子

**熊的啤酒和智能托盘——手持交互式触觉显示**

一个托盘形状的力反馈显示方法，以及一个基于视觉系统的定位系统。这种方法允许在手持设备上进行触觉交互。

安木利

宫上和也

安藤浩

前田龙

大阪大学

15:45–17:15

会议室302

**Session Chair**: Matt Adcock

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Balance Ball Interface

Only the user sits on the balance ball, and this system captures the user’s rough motion and behaviour.

Masasuke Yasumoto

Tokyo University of the Arts

Fu-Fuu: An Interactive Game Using Breath Control

A novel game interface that uses a player’s position and breath captured via a camera and a microphone to manipulate a virtual paper airplane.

Taichi Nishiyori

Soei Sato

Toki Takeda

Narumi Tashiro

Ryoichi Ando

Maki Terai

Taketoshi Ushiama

Reiji Tsuruno

Kyushu University

Tracking the Position of a Mobile Device on Interactive Screens With RFID

A novel method for identifying and tracking the position of mobile devices on interactive screens and a prototype system of the proposed method.

Sang-Jun Han

Kuk-Hyun Han

Pil Seung Yang

Bo Hyun Kyung

Samsung Electronics

Bear’s Beer and Smart Platter–Handheld Interactive Haptic Display

A new tray-shaped force-feedback display with an interactive robot and a vision-based positioning system. This method enables haptic interaction in handheld devices.

Tomohiro Amemiya

NTT Communication Science Laboratories

Hideyuki Ando

Taro Maeda

Osaka University
**ARTS & ROBOTS**

08:30–10:00  
Room 302  

**SESSION CHAIR:** Daniel Maskit

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**Shadow Play**  
A method for computer-aided shadow play, where shadows cast on a screen are saved and projected back onto the screen. Users can create an environment with butterflies that are controlled by user shadows.

Cem Sina Cetin  
Sabanci Üniversitesi

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**Automatic Composition for Contemporary Dance Sequences**  
An automatic composing system for contemporary dance using 3D motion data. Instead of creating completed connections, this method creates conceptual sequences for dance lessons.

Asako Soga  
Ryukoku University

Bin Umino  
Toyo University

Motoko Hirayama  
University of Tsukuba

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**Nervixxx: Introducing Biosignals to Live Video Performance**  
A video performance system based on EEG (the most informative of the biosignals) and EMG (highly controllable) data.

Satoru Tokuhisa  
Keio Research Institute at SFC

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**Rendering Lots of Robots**  
An outline of the lighting pipeline tools and tricks used at Double Negative to render the Golden Army for “Hellboy 2: The Golden Army”.

Katherine Roberts  
Graham Jack  
Double Negative
PHOTOGRAPHS & DRAWINGS

10:30–12:00
Room 302

SESSION CHAIR: Diego Gutierrez

Forward Lean–Deriving Motion Illustrations From Video
Forward Lean extracts moving objects from a video sequence and then illustrates the objects’ motions in a single static image by shearing the image into the direction of its motion.

Marc Nienhaus
mental images GmbH

Holger Winnemöller
Adobe Research Inc.

Bruce Gooch
University of Victoria

Visualising Adaptive Clusters of Digital Photographs
With this visualisation method, which considers semantic flow in each cluster, users can select references from a specific camera for smart visualisation if concurrent photos are used as input data.

Chuljin Jang
Hwan-Gue Cho
Pusan National University

Clean up Your Image Using Internet Photo Collections
An algorithm that uses images from internet photo collections to remove user-identified occlusions in an image and faithfully reconstruct the image data that should have been displayed.

Hanieh Taipalus
Helsinki University of Technology

Satoshi Kondo
Matsushita Electric Industrial Co., Ltd.

Takafumi Aoki
Tohoku University

Automatic 3D Caricature Generation By Learning in Enlarged Manifold Space
Lack of samples makes it challenging to generate 3D caricatures by machine learning. In this method, a training set is enlarged by reconstructing 3D caricatures, and then a regressive model is learnt by manifold regularisation.

Junfa Liu
Chen Yiqiang
Chinese Academy of Sciences

Chunyan Miao
Nanyang Technological University

Wen Gao
Peking University
CURVES, PLANES, AND TERRAINS

13:45–15:15
Room 302

SESSION CHAIR: Olga Sorkine

Single-View Sketch-Based Modelling From Construction Lines
A new modelling-from-sketches system in which models are made of simple parts drawn with only two strokes, and all the strokes are drawn from a single viewpoint.

Alexis Andre
Suguru Saito
Masayuki Nakajima
Tokyo Institute of Technology

Interactive Control of 3D Class-A Bézier Curves
For design of highly aesthetic curves, this interactive technique controls 3D, class-A Bézier curves by specifying the two endpoints and their tangents.

Ryo Fukuda
Norimasa Yoshida
Nihon University

Relief Clipping Planes for Real-Time Rendering
A technique for performing clipping and capping of arbitrarily shaped solids against clip planes with an additional height or offset map.

Matthias Trapp
Universität Potsdam

Hexagonal Geometry Clipmaps for Spherical Terrain Rendering
A unified representation of hierarchical triangular mesh and geometry clipmaps using hexagonal geometry clipmaps to render spherical terrain with uniform sampling on the sphere and fast rendering.

Shiben Bhattacharjee
P. J. Narayanan
International Institute of Information Technology, Hyderabad

Takafumi Saito
Tokyo University of Agriculture and Technology

Jürgen Döllner
Universität Potsdam
Sketches

VOLUMES

15:45–17:15
Room 302

SESSION CHAIR: Baoquan Chen

Optimised Volume Sampling Based on Manipulation Points for Volume Deformation
A volume-sampling mesh that is optimised to users’ dynamic manipulation and the volume data used for interactive volume deformation.

Kei Wai Cecilia Hung
Megumi Nakao
Kotaro Minato
Nara Institute of Science and Technology

Curvature-Based Volume Visualisation of Local Structures
A new curvature-based transfer function for interactive volume visualisation and mining of local structures. The visualisation results are obtained in real time by GPU computing.

Yu Hirata
Megumi Nakao
Tadao Sugiura
Kotaro Minato
Nara Institute of Science and Technology

Rigid-Body Interaction in SPH
A new boundary force based on collision to solve rigid-body interactions in SPH. This method produces more physically feasible results in rigid-rigid interaction than the existing method.

Seungtaik Oh
Younghhee Kim
Byung-Seok Roh
Electronics and Telecommunications Research Institute
VISUAL SIMULATION

08:30–10:00
Room 302

SESSION CHAIR: Geoff Wyvil

Visual Simulation of Scattering and Settling of Fine Particles
This approach to simulating scattered fine particles can simulate the phenomenon in which particles are scattered by the wind and subsequently settle.

Tetsuyuki Minamihara
Maki Terai
Reiji Tsuruno
Kyushu University

A Visual Simulation for Gold Leaf and Japanese Lacquerware

Kazunori Miyata
Kaisei Sakurai
Japan Advanced Institute of Science and Technology

Toshihiro Tomoi
Hiroshi Tashimo
Koji Imao
Yoshiyuki Sakaguchi
Digital Fashion Limited

Fire Simulation and Rendering for “Hellboy 2: The Golden Army”
How Double Negative developed a new fluid simulation system for the pyrokinetic character Liz, resulting in fast, highly detailed fire simulations and renders.

Eugenie von Tunzelmann
May Leung
Double Negative Visual Effects

Interactive Simulation of the Process of Glottal-Wave Generation Using a GPU
A FDLB (compressible and thermal fluid)-MPS(new anisotropic elastics model) coupling method using GPU to directly simulate the process of glottal-wave generation during human phonation.

Kazuhiko Yamamoto
Kyushu University
LIGHTING & REFLECTANCE

10:30–12:00
Room 302

**SESSION CHAIR:** Wojciech Jarosz

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**B-Spline Volume vs. Other BRDF Models**
This sketch shows that the B-spline volume representation is more suitable for fitting to measured BRDF data than two popular analytical models such as Cook-Torrance and Lafortune.

Joo-Haeng Lee
Electronics and Telecommunications Research Institute

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**Spatial-Directional Radiance Caching**
Spatial-directional radiance caching accelerates indirect illumination computation on arbitrary glossy surfaces. The main idea is to perform lazy indirect illumination evaluation in both the spatial and directional domains.

Václav Gassenbauer
Czech Technical University in Prague

Jaroslav Klívánek
Cornell University

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**SPARTA: A Scalable Architecture for Ray-Tracing Applications**
A low-cost, scalable hardware and software infrastructure for high-performance, interactive ray tracing of very large models that will target large-scale visualisation applications.

Ross Brennan
Michael Manzke
Trinity College Dublin

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**Fast, Approximate HDR Image-Based Lighting Using Summed-Area Tables**
A method to rapidly generate higher-order summed-area tables that allows multiple tables to be generated dynamically while maintaining interactive frame rates.

Justin Hensley
Advanced Micro Devices, Inc.

Thorsten Scheuermann
Valve Software
CALIBRATION & ACQUISITION

13:45–15:15
Room 302

SESSION CHAIR: Craig Donner

Image-Correction Method for Multi-Projector Display Using SIFT Features
An image-correction method for multi-projector display that corrects geometric transformation of projected images using feature points in images instead of the special patterns.

Toru Takahashi
Norihito Numa
Tatsuya Kawano
Takafumi Aoki
Tohoku University

Satoshi Kondo
Matsushita Electric Industrial Co., Ltd.

Gloss and Normal Map Acquisition Using Gray Codes
This technique for gloss and normal map acquisition of fine-scale specular surface details provides an efficient and easy method employing only ubiquitous hardware components.

Yannick Francken
Tom Cuypers
Tom Mertens
Philippe Bekaert
Universiteit Hasselt

Considering Shape Reconstruction from Specular Reflection
This method considers the availability of 3D measurement of specular objects when simulating with CAD rendering software.

Tomohito Masuda
Toppan Printing Co., Ltd.

Abhijeet Ghosh
Wan-Chun Ma
University of Southern California

Hiromi Unten
Toppan Printing Co., Ltd.

Paul Debevec
University of Southern California

Image-Based Roughness Modelling Using Perlin Noise
A method for modelling the roughness of real objects from captured images using Perlin noise. Model parameters were acquired from a real object.

Masashi Baba
Masayuki Mukunoki
Naoki Asada
Hiroshima City University
Days & Hours
Thursday, 11 December 08:00–18:00
Friday, 12 December 08:00–18:00
Saturday, 13 December 08:00–18:00
Poster Session: Thursday, 11 December 12:15–13:15
Poster Session: Friday, 12 December 12:15–13:15

LOCATION: CONCOURSE LINKWAY

Posters

Graphic depictions of incremental or half-baked but innovative ideas displayed throughout the week with scheduled sessions for informal discussions.

During Poster Sessions, authors stand by their posters to talk with attendees and demonstrate their work. See above for days and hours.

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Automatic Data-Extracting Software for Retrieval of Lifetime Photos Using Scent Information
Young ah Seong
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Yasuaki Kakehi
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Takeshi Naemura
The University of Tokyo

Enhancing Procedural Animations with Motion Capture Data
Chang-Hung Liang
Tsai-Yen Li
National Chengchi University

Fast Plausible 3D Face Generation from a Single Photograph
Akinobu Maejima
Shigeo Morishima
Waseda University

Flaneur: Digital See-Through Telescope
Hiroshi Sakasai
Hiroshi Kato
Takako Igarashi
Miho Ishii
Masahiko Inami
Naohito Okude
Masa Inakage
Keio University

Green Graphics: Feedback Control for Energy-Efficient Rendering
Gabriyel Wong
Jianliang Wang
Nanyang Technological University

High-Speed Hand Tracking for Gesture Recognition
Takafumi Aoki
Tokyo Institute of Technology

Interactive Animation of Waterdrops With Particle-Based Fluid Simulation
Takuya Abe
Masataka Imura
Sei Ikeda
Yoshitsugu Manabe
Kunihiro Chihara
Nara Institute of Science and Technology

Kime Pose Anime in Japanese Style Using Action-Line Control
Satoshi Cho
Kanagawa Institute of Technology
Toshihiro Komma
Shobi University
Hisashi Sato
Kanagawa Institute of Technology
Kunio Kondo
Tokyo University of Technology

Real-Time Composition Pre-Visualisation System
Hye-mi Kim
Jungjae Yu
Jae-Hean Kim
Electronics and Telecommunications Research Institute

Shade Pixel: Interactive Skin for Ambient Information Displays
Hyunjung Kim
Boram Lee
JinHa Seong
Woohun Lee
Korea Advanced Institute of Science and Technology

Toward Multi-View Photometric Stereo for Body-Shape Measurement
Yusuke Yoshiyasu
Keio University

Twist-and-Stretch: A Shape Dissimilarity Measure Based on 3D Chain Codes
Victor Lopez
Universidad Nacional Autónoma de México
Irene Cheng
University of Alberta
Ernesto Bribiesca
Universidad Nacional Autónoma de México
Tao Wang
Anup Basu
University of Alberta
Art Gallery / Synthesis

The SIGGRAPH Asia 2008 Art Gallery presents art that transforms, melds, and transcends current Asian paradigms. This international, multicultural festival of creativity showcases work in all media—including “hybrid” formats such as text-literature collaborations, ubiquitous sounds, and zero-gravity space art—that provokes contemplation, explores surprising ideas, addresses contemporary issues, interactively engages viewers in discovery, and stimulates their intellect and creativity.

Art Gallery Committee

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The University of Tokyo

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Lin Hsin Hsin
Lin Hsin Hsin Art Museum

Linda Lauro-Lazin
Pratt Institute
The Japan Media Arts Festival is a showcase of award-winning new media art, animation, manga, and entertainment with a strong focus on Japanese culture. Since its inauguration in Tokyo in 1997, this annual event has grown from strength to strength, attracting entries from amateurs and professionals alike from around the globe.

The exhibition at the Singapore Art Museum’s new contemporary art wing at 8 Queen Street introduces Southeast Asian audiences to a varied and engaging selection of digital and new media art and technologies. Cutting-edge artworks are displayed alongside familiar and well-loved pop culture icons from the world of anime and manga. The exhibition also features an interactive section with various popular entertainment systems such as Nintendo Wii and a schedule of symposia, workshops, and screening events.

**Symposium**
Intersection of Asian Art and Technology
Featuring SIGGRAPH Asia 2008 artists and chairs
12 December, 16:00–18:00
The Auditorium at Singapore Art Museum Main Building

**Festival**
22 November–14 December 2008
Galleries 4.11, 4.12, Octro & Qoppa Rooms, 8Q sam
Singapore Art Museum
Art Gallery

Alison: Statified Cooperative Storytelling in Dissociative Identity
In the Alison installation, different plot elements are presented based on the viewer’s movement within a physical space. The space works as both a form of interaction and another method of presenting story elements.

Matthew Smith
Evan Boucher
Drexel University

Amagatana + Fula
A set of daily objects that combine physical and ubiquitous computing to allow users to live their daily lives playfully. Amagatana, an umbrella, makes clashing sword noises when swung around, and Fula, a muffler, flutters and billows by itself in response to the user’s motor-action potentials.

Yuichiro Katsumoto
Masa Inakage
imgl / Keio University
Japan

dot . a scene = sinθ at the sea _ tactuaL [sig:gak] series #2
A proposal for new media installation artworks for empirical communication design of visual information based on digital graphic design in the social context. The significance of this project is to promote public awareness of the disabled in formative ways. As users touch the tactile dots of the installation, they experience “tactile seeing” of ocean scenery in shining dots. This project is a successor to Dreaming a Fingertip Conversation with You, which was shown in the SIGGRAPH 2007 Art Gallery.

Haemin Kim
Graduate School of Seoul National University
South Korea

Falling: Suicide and the Sidewalk
This work comprises a video sequence shot from my sixth-floor apartment window to the sidewalk below and composed inside a digital-game environment. The intention is to empty the video of narrative, reduce it to an image string. Exploring the space, flying over and through the image sequence, the effect turns unsettling and a new narrative emerges.

Brett Phares
Marist College
USA

Liuli Pangpang
Liuli Pangpang is an interactive optical-illusion installation. A projected floor dynamically tilts like a see-saw in different directions when people interact with it. Balls inside the floor move according to natural physical laws. The floor’s directions and angles are influenced by the locations and numbers of viewers. The game-like environment encourages viewers to explore body movements and interact with each other.

Yachi Peng
Maowei Yu
Woo sok Jang

COLLABORATORS
Sue Gyeong Syn
SeungJoo Kim
Pratt Institute
Taiwan/Korea

Movement 11 (2008 serie)
In this expression of the energy of a virtual dancer, we can see the vibration of his virtual movements in the universe. My work is about my impression of Asian wisdom and gods.

Alain Bittler
France

Optical Tone – Dynamic Color Composition
Optical Tone is an installation that proposes and proves a technique for interactive and temporo-spacio color composition in accordance with human perception of color consistency.

Tsutomu Mutoh
International Media Research Foundation
Japan

The Orb
The Orb bridges the gap between the art object and functional information display, advancing desires for more sophisticated digital representations, while simultaneously establishing a dialogue between the new technology and the symbolic content of the display. Featuring an 18-inch-diameter display and aluminum and carbon-fiber construction, this version has a spherical resolution of 1024 X 216 with 24-bit color. It explores visualisations of the phenomena of creation and destruction within the universe, evoking a “big bang” and eventual climate collapse.

James Nick Sears
USA

Pudding Building
A visualisation of tremors that affect an Asian building symbolises a rapidly changing people’s social cognition and a contracting social structure. Max/MSP, Jitter, and Arduino are used to capture the image of the miniature building, for image processing, for detecting the number of viewers, and to operate vibrating motors.

ByungKyu Kim
HyunDong Kim
Dongjo Kim
JungHwa Han
Unzi Kim
Chung-Ang University
South Korea
Shan-Shui-Shua (Mountain-Water Painting)
This ambient “video scroll” presents two poems of the famous poet Han Shan as a reflection on Western mountaineers’ fight against nature as they ascend and descend the highest peaks, counterpointing the Chinese attempt of spiritual harmony. Proceeding from Chinese thought and aesthetics, the traditional concept of landscape painting, Shan-Shui-Hua, is recreated in digital visualisation. The concept of multiple vanishing points (San-e-Ho) and the endless scroll are explored through digital filmmaking.

Christin Boleswki
Loughborough School of Art and Design
United Kingdom

Strada
The concept of this work is separating landscape scenes from the people and objects that occupy the street space. The source of the idea is background-subtraction programming developed at the Tele-Immersion Lab at the University of California, Berkeley. Viewers see two different location street scenes, one from somewhere in the USA and the other from the SIGGRAPH Asia 2008 Art Gallery. Viewers experience three different ways of digitally visualising animated street scenes in which they themselves are included.

Hojin Chang
University of California, Berkeley College of Environmental Design

Sukkyu Lee
University of Illinois at Urbana Champaign

Sooyeon Han
University of California, Berkeley Center for New Media
USA

STRANGERS
Out-of-focus elements read as individual faces, familiar yet unfamiliar. The works speak about recognition of what we think we know ... but they are elusive.

Derek Basant
Alberta College of Art & Design
Canada

Tactile Cloud Landscape
This simulation of a natural landscape is a tactile artwork that interactively expresses images and movements of clouds. Images and tactile sensations incorporating the soft movements of clouds interact simultaneously to create a tactile display that reacts to human contact. This work could be used as a universal display for the disabled and for various other forms of global communications.

Kumiko Kushiyama
Tokyo Metropolitan University
Japan

Telematic Drum Circle
Telematic Drum Circle is an interdisciplinary art project combining telecommunications, robotics, human-computer interaction, and improvisational music. The project allows online users around the world to create a live collective sound improvisation by controlling 16 robotic percussion instruments via the internet. By tapping the computer keyboard while viewing the web site, online users can remotely play the robotic instruments together while watching a live streaming webcast of their ensemble.

Byeong Sam Jeon
Department of Electronic Arts, Rensselaer Polytechnic Institute
USA

Ten Thousand Cents
Ten Thousand Cents is a digital artwork that creates a representation of a US $100 bill. Using a custom drawing tool, thousands of individuals working in isolation from one another painted tiny parts of the bill with no knowledge of the overall task. Workers were paid one cent each via Amazon’s Mechanical Turk distributed labor tool. The total labor cost to create the bill, the artwork created, and the reproductions available for purchase are all $100. The work is presented as a video piece with all 10,000 parts being drawn simultaneously. The project explores the circumstances we live in, a new and uncharted combination of digital labor markets, “crowdsourcing,” “virtual economies,” and digital reproduction.

Takashi Kawashima
Aaron Koblin
USA

theRelativity
Our impression of a scene changes depending on the aspect. theRelativity is an interactive art work that seamlessly reflects a third-person view of a structure into a first-person view.

Jun Fuji
Japan Society for the Promotion of Science, Kyushu University

Three Little Pigs in the CG Theater
NHK has developed a new style of content creation for a puppet show. The performers operate the actual puppets in a CG environment called Uncompleted Contents, and the complete contents are produced with them in real time. This production style presents limitless possibilities not only for TV programming, but also for interactive elements.

Yuko Yamanouchi
Takashi Fukaya
Hideki Mitsumine
Hidehiko Okubo
NHK (Japan Broadcasting Corporation)
Japan

[un]wired
[un]wired is a live-processing installation that responds to interactions from personal radio-frequency devices such as mobile phones, WiFi signals, Bluetooth signals, and car-key fobs. It tracks real-time statistical information from wireless “mesh” access points (designed for seamless handoff of moving wireless traffic, like a cell phone network), along with periodically updated information from handheld and wireless access points. Control information is collected from network services via SQL and transferred into Max/MSP/Jitter.

Jesse Allison
John Fillwalk
Keith Koithman
Institute for Digital Intermedia Arts, Ball State University
USA
ART PAPER

A Method for Transformation of 3D Space into Ukiyo-e Composition

Saturday, 13 December, 15:45–16:15
Room 302

This paper discusses a method of using a perspective drawing to reconstruct three dimensions and then converting this to an ukiyo-e composition by moving three-dimensional objects without changing their three-dimensional aspects. To develop the method, the authors analyzed the structure of ukiyo-e to quantitatively identify non-perspective features of an architectural ukiyo-e scene from 1800 and later. To verify the method, they developed a program to convert photographs and perspective drawings to ukiyo-e compositions.

Yuka Kubo
Koichi Hirota
Zhao Jie
The University of Tokyo
Japan
Breathing Chaos Fluidity
Breathing Chaos (2004, 8:11, DVD) is a short film that uses the dynamic forces of nature to suggest that life emerges from the expression of physical power. Themes include the chaos of fluidity, the order that results from it, and the symmetrical splendor born from indeterminate chaos.

Fluidity (2008) is a collection of photography and moving images of ferrofluid art that expresses “fluidity” itself.

Sachiko Kodama

Flow of Qi
A video presentation of an interactive artwork in which participants experience the artistic spirit of the ancient calligraphy masters and how breathing was reflected in creating famous pieces of Chinese calligraphy.

Two participants are seated in chairs equipped with ultra-wide-band devices that measure both the speed and depth of breathing every 0.1 seconds, which influences the pattern of the calligraphy. One person affects the fluidity and speed of the strokes, while the other alters the intensity of the ink. By altering the depth and rhythm of their breathing, the participants gradually reach a state of harmony with the calligrapher and with each other, drifting deeper into this art through sensing and controlling the flow of their own Qi.

CONCEPT, CREATIVE DIRECTOR
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ART DIRECTOR
Yau Chen

PRODUCER
Horus Shu

TECHNICAL DIRECTOR
Tsang-Gang Lin

UWB TECHNICAL DIRECTOR
Teh-Ho Tao

INTERACTIVE SOUND DESIGNER
Tang-Chun Li

CREATIVE PRODUCER
Ministry of Economic Affairs, Taiwan

CREATOR
Industrial Technology Research Institute

EXECUTIVE PRODUCER
ITRI Creativity Lab

The original calligraphy images are all authorised by the National Palace Museum in Taiwan.

Ghostly Images Appearing in Moving Human Eyes and Still Machine Eyes
This saccade-based display is a device capable of presenting two-dimensional images using a unique bar of addressable light sources (a column of LEDs). In a dimly lit environment, each time the saccadic eye movement of the observer is detected, the flashing pattern of the column light expands, and ghostly images appear in midair.

Due to the electronic scanning mechanism of the CCD image sensor, certain video cameras are also capable of capturing these floating images even when they are not moving at all.

These observations encourage a reflection on the process of vision. Natural and artificial visual systems rely on some sort of active sensory mechanism for exploring the external world, though their temporal scales may be different. We sense and react to the world, and we even use machines that can take pictures without paying attention to these hidden perceptual mechanisms, but understanding and exploiting them may open up new possibilities of perceiving and displaying.

Hideyuki Ando
Alvaro Cassinelli
Junji Watanabe

Imaginary-Numbers
In my creative process, I begin with a numerical formula as a universal language and then develop it into various media. As a result, I spend a great deal of time constituting the system. However, at this stage, there is hardly anything visual apart from small graphs.
I can only imagine the visual result, and I have to depend on my own sense of the fluctuating structure when I constitute the system. Once I get to the stage of making a collection of graphs into an artwork, I try to take such factors as human physicality and memory into the work, which makes it more than just a visual image.

I believe that art is not intended to be a gateway to understanding the artist’s system, but a method of activating the viewers’ psychological-motion systems (memory and physical sensation). These should be triggered by looking at the artwork. When viewers can realise their own feelings and memories, the artwork is truly completed. The systems activated in the mind of the viewer can be different, depending on the medium of the work. Even if the artist has created only one system in the computer, the image generated has to be properly selected.

This series is supported by the Aihara Complexity Modelling Project at JST ERATO, and the artist is a member of the project.

Keiko Kimoto

Kazuma Morino Works

Kazuma Morino has received many awards in international competitions including SIGGRAPH and Ars Electronica. In his Build, exhibited in the SIGGRAPH 2003 Art Gallery, many of the built structures in our contemporary urban landscapes are concatenations of pre-fab parts and standardized dimensions.

This film plays with different skeletal arrangements of those parts to create images reflective of contemporary building blocks. In Runners, figures (dolls) made up of geometric shapes rush around, intertwining with other objects. The work expresses the beauty of interacting objects over the course of time.

Currently, he is collaborating with musicians such as Ken Ishii and Yosui Inoue on their music videos. He has also played an important role as a producer of the first floor of the SETO NIPPON KAN pavilion in EXPO 2005 in Aichi, Japan. For SIGGRAPH Asia 2008, he is a contributing artist for the Art Gallery and Emerging Technologies trailer.

Kazuma Morino

Media Device for Hand Scroll 2008

This reproduction of the handscroll of Poems of the Thirty-Six Immortal Poets over Design of Cranes is a rolled up scroll of paper. But the paper is blank. When the media device is engaged, the projected image of the Crane Scroll appears on blank paper.

As viewers unroll the scroll, they can decide which part they want to view (for example, only the calligraphy of Hon’ami Koetsu or only the painting by Sotatsu). They can also hear a recitation of the poetry, sung in the traditional manner by members of the Reizai family.

Viewers are free to use this system as they like, as they gain the understanding that the original handscroll was also, in a very real sense, an interactive medium.

This project is supported by the Kyoto National Museum, Reizei-ke Shigureteibunko, the Philadelphia Museum of Art, IAMAS, IDD at Tama Art University, and members of the Hon’ami Koetsu multimedia project.

Yasuhiro Nagahara
Nobuya Suzuki
Keiko Kobayashi

SIGGRAPH Asia Archive in Second Life

Hidenori Watanave is researching the arts in the 3D internet (for example, Second Life) and the 3DGIS (for example, Google Earth). He is interested in collaborative work in the realms of architecture and environmental design in tele-existence in the 3D internet.

Spatial design in the 3D internet was established through the Archidemo project (2007-2008), which was selected to be part of FILE 2008 and SIGGRAPH 2008 in Los Angeles. His current experiment focuses on translating 3D internet space into real space through GPS and GIS, using techniques like those developed by Hidenori in the NetAIBO project (2004-2005, Honorary Mention, Prix Ars Electronica) and the ObaMcCain project (2008) of 3Di-chatterbots-space, which was exhibited in Mission Accomplished at the Location One gallery, New York.

The theme of this SIGGRAPH Asia 2008 project is a visualisation of a huge visual archive of SIGGRAPH 2008 Emerging Technologies in the 3D internet domain.

Hidenori Watanave

Watch Me!

Watch Me! is an experimental installation dedicated to documenting social bind (defined below) by intervening in a public space. It observes the behaviour of people’s “eyes” using a robot bear as an unusual event.

When you visit another country for the first time, you may be puzzled by people’s behaviour as they respond to incidents or encounters. Then you might realise that they seem to behave spontaneously but are predisposed to exhibit certain behavioural traits by society and culture. We call this “social bind.”

Yasushi Noguchi
Hideyuki Ando
Days & Hours
Thursday, 11 December 08:30–17:30
Friday, 12 December 08:30–17:30
Saturday, 13 December 08:30–17:30
LOCATION: GALLERY EAST

Emerging Technologies

SIGGRAPH Asia 2008 Emerging Technologies presents a paradigm shift, a rich resource of delicate, aesthetic technologies and vivid, innovative ideas.

Interactive, mind-expanding explorations in virtual and mixed reality, haptic interfaces, ubiquitous systems, digital tools, HD displays, robotics, and more. Emerging Technologies presents demos and installations of technologies that define the future of computer graphics and interactive techniques.

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ARForce
A novel marker-based system for augmented reality that measures not only the 3D positions and IDs of markers, but also the distribution of force vectors applied to the markers. Users can observe overlaid virtual images and control them with their fingers.

ENHANCED LIFE
Many current marker-based AR systems can easily combine virtual imagery with the real world, but their user-input options are limited, and it is difficult for users to freely manipulate the virtual images without special electronic devices. Because ARForce detects the distribution of force vectors applied on the interface as well as their 3D positions and IDs, users can manipulate them by pinching and twisting in the three-dimensional space.

GOALS
The overall goal is to develop a novel tangible interface for augmented reality. Specifically, the goal is to provide a marker-based interface that allows users to observe overlaid virtual images on the real world and manipulate the images with their fingers.

INNOVATIONS
The core innovation is an interface design that detects 3D positions, IDs, and force input at the same time without special electronic devices installed on the interface. The sensing process:

1. The system detects its 3D position and the ID of each interface through position markers attached on the interface. The square-detection method of ARToolKit tracks positions, and an original pattern-matching method detects IDs.

2. To detect the force-vector distribution, the system tracks the movement of force markers embedded inside the interface. Infrared filters make the markers invisible to users.

3. As users push, twist, or stretch the interface, the system generates virtual images in appropriate positions with auditory feedback.

VISION
In the near future, ARForce will be enhanced so that it can measure more detailed tactile information and control virtual objects as if they are real objects. Ultimately, ARForce will provide a novel computer-human interface that supports more natural and intuitive input in everyday life.

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Kensei Jo
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Augmented Reality Authoring for Artists and Designers
By using ARToolkit for marker tracking and Touch Designer (a commercial, real-time 3D environment) for modelling, rendering, and compositing real and virtual images, artists and designers can quickly create interactive AR environments.

ENHANCED LIFE
When artists can directly control underlying technologies without an intermediary such as a programmer, they can take more creative risks and push their ideas further.

GOALS
The primary goal is to bring the technologies for making augmented reality out of the labs and into the hands of artists, designers, and other creative practitioners. Eventually, this will serve a wider goal: hastening augmented reality’s transition from a technology to a true expressive medium and part of our collective culture.

INNOVATIONS
This system is essentially a novel combination of existing technologies: the marker-tracking capabilities of ARToolkit and the 3D-display capabilities of Touch Designer. The most important component is the procedural-flow-style interface that eliminates the need for C++ programming and makes the designer’s job easier.

VISION
In the future, end-user programming tools like this one will allow people to customize their own augmented reality environments and generally have more control over the technology that surrounds them.

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An Augmented Tabletop Video Game With Pinching Gesture Recognition
A novel interaction technique for a multiplayer tabletop entertainment system that recognises quick tapping gestures for position and orientation input using a high-speed camera.

ENHANCED LIFE
This technology enables more intuitive and entertaining interaction between humans and interactive surfaces such as tabletop systems.

GOALS
To recognise various human behaviours, including very quick motions, and enable intuitive and entertaining interaction between humans and displays.

INNOVATIONS
The main innovation is a new interaction technique that recognises tapping gestures. In tests with multiple users, the system achieved a high-response bimanual interaction. It uses a high-speed camera to track positions, orientations, and quick tapping gesture.
Emerging Technologies

VISION
In the near future, interactive surfaces will be ubiquitous. Walls, tabletops, floors, and other surfaces in private and public spaces will provide interactive communication and experiences.

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Kentaro Fukuchi
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Balance Ball Interface
A user-interface device for exercise and entertainment. As users move while sitting on the balance ball, the system captures their motion and behaviour.

ENHANCED LIFE
This easy-to-use, inexpensive interface system liberates people from sedentary, unhealthy computer work. It is a surprising new concept that changes our assumptions about chairs and interfaces, and promotes a new reality.

GOAL
To develop a game-interface device that acquires complex movements of a human body in a sitting posture.

INNOVATIONS
This interface technology converts information from an acceleration sensor and a pressure sensor into posture information. Movements of the upper body and the waist are calculated from these inputs and converted into whole-body movements.

CONTRIBUTOR
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Eggy Robot
The most recent progress on the Eggy Robot project, which aims to synthesise a robot that helps us feel and imagine the emergence of primeval organisms.

ENHANCED LIFE
The Eggy Robot project is the very first attempt to implement a totally soft robot, a synthetic being that consists of “soft balloons” and pneumatic muscles. The robot moves in a very novel manner, approaches humans when they are detected by the robot’s vision system, and offers greetings.

GOAL
The short-term goal is to synthesise artistic, child-safe, entertaining robots. The long-term goal is to develop Eggy Robots that will explore the surface of Mars or the deep oceans.

INNOVATIONS
When a robot consists of “hard” materials such as aluminum, it is easy to control its behavior. But when a robot is made of soft materials, it is almost impossible to control its behavior with traditional control theory. The Eggy Robot project explores a novel behavioural-control architecture in which robot behaviours emerge from the interplay among the robot’s neural system, its bodily dynamics, and its environmental dynamics.

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Flaneur: Digital See-Through Telescope
Flaneur is a digital scope that helps you see shops and objects behind buildings as you stroll around town.

ENHANCED LIFE
This technology adds richness and surprise to city explorations.

GOAL
To make city life more interesting.

INNOVATION
The major innovation of this technology is its ability to present spatial representations from a first-person point of view.

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Heaven’s Mirror: Mirror Illusion Realised Outside of the Mirror
With this system, users experience a mirror illusion through three modalities of feedback (haptic, visual, and auditory) and perceive a boundary-less transition between the real world and the world inside the mirror.

ENHANCED LIFE
Sometimes, mirrors provide illusions that distort physical laws. In Heaven’s Mirror, the illusions become “real” as users’ visual, tactile, and auditory senses are immersed in the world inside the mirror. This approach opens new possibilities for using mirrors in virtual reality.

GOALS
To allow users to perceive a seamless boundary between the inside and outside of the mirror.

INNOVATIONS
Heaven’s Mirror focuses on the physical relationship between the real world and the world inside the mirror. It uses a mirror illusion and amplifies it to the real world so users can experience a mirror illusion through three modalities of feedback.

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M3: Multi-Modal Interface in Multi-Display Environment for Multi-Users
A sophisticated and intuitive interface for multi-display environments where the displays are stitched seamlessly and dynamically according to the users’ viewpoints.
ENHANCED LIFE
M3 is a multi-modal interface in a multi-display environment for multiple users. It combines multi-modal interaction techniques such as gaze, body movement, and hand gestures. Perspective-aware interfaces also allow users to observe and control information on the multiple displays as if they are in front of an ordinary desktop GUI environment.

GOAL
To build intelligent environments that provide appropriate types of information and input methods for specific interaction requirements.

INNOVATIONS
This project explores two important domains of interface technologies: multi-modal and perspective-aware.

VISION
In the future, people will use multi-modal interfaces to interact naturally and intuitively with displays located everywhere.

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Massive Action Control System
Massive Action Control System concurrently controls thousands of actions of multiple characters with various motivations, feelings, and personalities.

ENHANCED LIFE
With this system, users can easily create lifelike characters and expand player experiences. For example, non-player characters can become active in massive multi-player role-playing games.

INNOVATIONS
This system can execute massive actions in multiple characters. It continuously selects appropriate fragmentary behavior-control modules, called episode trees, based on the character's inner states (motives, feelings, and personality, for example) and the state of the external world, such as nearby characters and objects.

Massive Action Control System is demonstrated via an application called Spulant World, which displays multiple characters with multiple motivations. When a user adds a new object to the virtual world or touches an object in the virtual world, the characters recognise the object or action and autonomously start new actions. This, in turn, affects the action selection of other characters, creating an opportunity for those characters to change their actions. Users can experience the story not only by tying their actions to changes in the characters' actions, but also by allowing the effect to spread over the long term.

VISION
This system expands the possibilities for lifelike narrative entertainment. Users will be able to build new narratives with lifelike interactive characters in the privacy of their own homes as well as in public spaces (airports, railway stations, shopping malls, etc.).

CONTRIBUTORS
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TransCAIP: Live Transmission of Light Field from a Camera Array to an Integral Photography Display
TransCAIP provides a real-time 3D visual experience by using an array of 64 cameras and an integral photography display with 60 viewing directions. The live 3D scene in front of the camera array is reproduced by the full-color, full-parallax auto-stereoscopic display with interactive control of viewing parameters.

ENHANCED LIFE
This project demonstrates the potential of live 3D TV systems in a prototype system. The core technology is a fast and flexible data-conversion method from the multi-camera images to the integral photography format. Because the conversion method is applicable to general combinations of camera arrays and integral photography (and multi-view 3D) displays, it could be an essential technology for future 3D TV systems.

GOALS
The overall goal is to develop a practical live 3D TV system that reproduces a full-color 3D video of a scene with both horizontal and vertical parallax in real time. The system gives users a perception of observing the 3D scene through a window without requiring them to wear special glasses. The main technical goal is to develop a fast and flexible data conversion method between asymmetric input and output devices, which runs in real time (more than five frames per second) on a single PC with GPGPU techniques and enables users to interactively control viewing parameters of the displayed 3D images for enhancing the 3D visual experience.

INNOVATIONS
1. Live transmission of 3D scenes. TransCAIP transmits light fields [Levoy and Hanrahan 1996; Gortler et al. 1996] from an array of 64 cameras to an integral photography display with 60 viewing directions in real time. It enables users to observe a live 3D video of the scene with both horizontal and vertical parallax.

2. Real-time light-field conversion. To connect the asymmetric input and output devices, TransCAIP performs real-time
light-field conversion between 64 input views of 320 x 240 pixels captured with the camera array and an integral photography image consisting of 60 views of 256 x 192 pixels. Using the 64 input views, it first renders 60 novel views corresponding to the viewing directions of the display by using an image-based rendering method [Taguchi et al. 2008] and then arranges the rendered pixels to produce an integral photography image. For generating high-quality novel views, this method estimates a view-dependent per-pixel depth map at each rendering camera viewpoint based on a layered representation. For real-time processing on a single PC, the conversion algorithm is fully implemented on a GPU with GPGPU techniques.

3. Interactive control of 3D viewing parameters. TransCAIP enhances users’ 3D visual experience by allowing them to interactively control viewing parameters of the displayed 3D images. In the light-field conversion method, the rendering cameras are placed at a regular interval such that their viewing directions converge at the same point. The plane whose depth is equal to that of this point is called the convergence plane. The convergence plane corresponds to the display plane of the integral photography display. Since objects near the display plane are reproduced with a higher resolution than those farther from the plane [Hoshino et al. 1998; Zwicker et al. 2007], the system enables users to set the plane at a desired position in the target scene. The position of an object relative to the display plane is also determined by the convergence plane. Moreover, users can control the amount of depth reproduced on the display by changing the interval of the rendering cameras. Users can also control the location of the part of the scene reproduced on the display by changing the positions and view angles of the rendering cameras. Users can interactively perform the viewing parameter control as a software process without reconfiguring the hardware system.

VISION
Three-dimensional TV is a promising technology for providing a more natural and intuitive perception of 3D scenes than existing two-dimensional TV. In particular, live 3D TV systems, which transmit 3D visual information in real time, could have a significant impact on many applications in communication, broadcasting, and entertainment in the near future.

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Computer Animation Festival

The first edition of the SIGGRAPH Asia Computer Animation Festival illuminates a new horizon of animation and visual effects from around the world.

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Won Il
‘DADRI’

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Jinny H.J. Choo

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SBA Seoul Animation Center

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Jong-Min Hahm

SOUND

Dong-Joo Park
**ELECTRONIC THEATRE**

- Admission only with a valid Electronic Theatre ticket

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</tbody>
</table>

- **It's Mine**
  - Nicolai Fuglsig
  - The Mill
  - USA

- **Appleseed: Ex Machina**
  - Shinji Aramaki
  - Digital Frontier, Inc.
  - Japan

- **Jungle Jail**
  - Bruce Nguyen Van Lan
  - Aymeric Palermo
  - Hugo Cierzniak
  - Mathieu Arnoux
  - Ecole Supérieure des Métiers Artistiques
  - France

- **Guinness**
  - Marc Craste
  - Studio aka

- **Heavy Duty**
  - Jung-Peng Chiou
  - Teddy Yang
  - Digimax, Inc.
  - Taiwan, United Kingdom

- **Fly Out Blue**
  - Jack (Ming-Huei) Shih
  - Red Alien Studio
  - Taiwan

- **Mindplotter**
  - Jan Bitzer
  - Ilija Brunck
  - Tom Weber
  - Filmakademie Baden-Württemberg
  - Germany

- **Replay**
  - Zakaria Boumediane
  - Anthony Voisin
  - Fabien Felicite-Zulma
  - Camille Delmeule
  - Ecole Supérieure des Métiers Artistiques
  - France

- **Blizzard Entertainment's StarCraft II Announcement Teaser**
  - Nick Carpenter
  - Blizzard Entertainment
  - USA

- **The Moment**
  - Verena Fels
  - Csaba Leitay
  - Filmakademie Baden-Württemberg
  - Germany

- **Hugh**
  - Sylvain Nouveau
  - Mathieu Navarro
  - François Pommiez
  - Aurore Turbé
  - Ecole Supérieure des Métiers Artistiques
  - France

- **DELHAIZE**
  - Fragglesboo
  - Chez Eddy
  - France

- **"I Am Legend": Making an Alternate Ending**
  - Jim Berney, Visual Effects Supervisor
  - Sony Pictures Imageworks
  - USA

- **They Will Come to Town**
  - Thilo Ewers
  - Filmakademie Baden-Württemberg
  - Germany

- **Drench "Brains Dance"**
  - Ringan Ledwidge
  - The Mill
  - United Kingdom

- **E.T.A.**
  - Henrik Bjерregaard Clausen
  - Denmark

- **Harmonix “Rock Band”**
  - Pete Candeland
  - Passion Pictures
  - United Kingdom

- **Blind Spot**
  - Johanna Bessiere
  - Nicolas Chauvelot
  - Olivier Cler
  - Cécile Dubois-Herry
  - Yvon Jardel
  - Simon Roub
  - Gobelins, l’école de l’image
  - France

- **Futurisk**
  - Matthijs Van Heijningen
  - The Mill
  - USA

- **Minamitama District**
  - Nobuo Takahashi
  - Nagoya City University
  - Japan

- **The Making of Street Fighter IV**
  - Toshio Ohashi
  - Polygon Pictures Inc.
  - Japan

- **Lawson–Well Done**
  - Timm Osterhold
  - FIFTYEIGHT 3D Animation & Digital Effects GmbH
  - Germany

- **Keep Right**
  - Yang Sunwoo
  - ETRI (Electronics and Telecommunications Research Institute)
  - South Korea

- **Guinness “Tipping Point”**
  - Nicolai Fuglsig
  - The Mill
  - United Kingdom
** ELECTRONIC THEATRE (CONTINUED) **

Thursday, 11 December 19:00–21:00
Friday, 12 December 19:00–21:00
Saturday, 13 December 16:00–18:00, 19:00–21:00

** Hellboy II: The Golden Army **
Guillermo del Toro
Double Negative
United Kingdom

** BBC iPlayer “Penguins” **
Vince Squibb
Darren Walsh
Passion Pictures
United Kingdom

** Oktapodi **
Julien Bocabille
François-Xavier Chanioux
Olivier Delabarre
Thierry Marchand
Quentin Marmier
Gobelins, l’école de l’image
France

** KUDAN **
Taku Kimura
Links DigiWorks Inc.
Japan

** This Way Up **
Smith & Foulkes
Nexus Productions Ltd
United Kingdom
## Computer Animation Festival

### ANIMATION THEATRE I

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Room 201</th>
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<tr>
<td>Thursday, 11 December</td>
<td>15:30–16:30</td>
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<td>Friday, 12 December</td>
<td>09:00–10:00</td>
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<tr>
<td>Saturday, 13 December</td>
<td>13:45–14:45</td>
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</table>

**Kieselstein**
Ellen Hoffmann  
*Filmakademie Baden-Württemberg*
Germany

**Lloyds TSB General Insurance**
Marc Craste  
*Studio aka*
United Kingdom

**The Bird**
Sung-Gil Kim  
Nakyoung Kim  
South Korea

**Oracle**
Flavien Lens  
Tristan Legranché  
Sébastien Buisson  
Michaël Desnoyelles  
*Ecole Supérieure des Métiers Artisiques*
France

**Angkor Ruins – The Bayon Temple and its Faces**
Masaaki Sakata  
*TOPPAN PRINTING CO., LTD.*
Japan

**Burley!**
Dave Edwardz  
Gareth Cowen  
*Rendition Films*
Australia

**Origami**
Jeffrey Plansker  
*The Mill*
USA

**Red Rabbit**
Egmont Mayer  
*Filmakademie Baden-Württemberg*
Germany

### ANIMATION THEATRE II

<table>
<thead>
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<th>Day</th>
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<td>Friday, 12 December</td>
<td>10:00–10:55</td>
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</tr>
<tr>
<td>Saturday, 13 December</td>
<td>14:45–15:40</td>
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</tbody>
</table>

**Orangina “Naturally Juicy”**
Fred & Farid  
*The Mill*
United Kingdom

**Qub**
Guillaume Arvieu  
William Boucher  
Alexandre Colchen  
Hugo Debat-Burkarth  
*Ecole Supérieure des Métiers Artisiques*
France

**Orca**
Gunnar Heiss  
Kai-Florian Franke  
Cristian Kaese  
Karla L. Guameros Juarez  
*Wilhelm Schickard Institut für Informatik an der Universität Tübingen*
Germany

**The Girl Who Cried Flowers**
Umesh Shukla  
*Aryun Inc.*
USA

**Clothfighters**
Karen Weiss  
*Sheridan College*
Canada

**Search And Destroy**
William Boucher  
*Te Papa Tongarewa*
Animation Research Ltd
New Zealand

**My Happy End**
Milen Vitanov  
*HFF - University for Film and TV - Potsdam*
Germany

**Bad Head Day**
Karen Weiss  
*Sheridan College*
Canada

**Slip ON**
GROOVISIONS  
*GRV Co., Ltd*
Japan
## SPECIAL PROGRAMME I

**★ ○ ●**

<table>
<thead>
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<th>Date</th>
<th>Time</th>
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<td>15:45–16:30</td>
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<table>
<thead>
<tr>
<th>Film Title</th>
<th>Director(s)</th>
<th>Production Company</th>
<th>Country</th>
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<tbody>
<tr>
<td>Ghost in the Shell: Promo Series</td>
<td>Junji Munekata Synichi Yamamoto</td>
<td>OMNIBUS JAPAN Inc.</td>
<td>Japan</td>
</tr>
<tr>
<td>Monsieur Cok</td>
<td>Franck Dion</td>
<td>Papy3D Productions</td>
<td>France</td>
</tr>
<tr>
<td>Emily</td>
<td>Kim Leow</td>
<td>Sheridan College</td>
<td>Canada</td>
</tr>
<tr>
<td>The Evil Twin</td>
<td>Yun Wang</td>
<td></td>
<td>Taiwan</td>
</tr>
<tr>
<td>confine(S)</td>
<td>Makoto Yabuki</td>
<td>TANGRAM</td>
<td>Japan</td>
</tr>
<tr>
<td>MTV Our Noise</td>
<td>Fabio Berton</td>
<td>3division</td>
<td>Italy</td>
</tr>
<tr>
<td>Insight</td>
<td>Salvador Simo Busom</td>
<td>The Animation Workshop</td>
<td>Denmark</td>
</tr>
<tr>
<td>Finders Keepers</td>
<td>Robb Gibbs</td>
<td>Ringling College of Art and Design</td>
<td>USA</td>
</tr>
<tr>
<td>Speed Racer: Car Flip</td>
<td>Kevin Mack</td>
<td>Sony Pictures Imageworks</td>
<td>USA</td>
</tr>
<tr>
<td>Tarboy</td>
<td>James Lee</td>
<td>Edible Industries</td>
<td>Australia</td>
</tr>
<tr>
<td>Greenpeace Rainbow Warrior</td>
<td>Johannes Kuemmel</td>
<td>Filmakademie Baden-Württemberg</td>
<td>Germany</td>
</tr>
<tr>
<td>The Turtle and the Shark</td>
<td>Ryan Woodward</td>
<td>Brigham Young University</td>
<td>USA</td>
</tr>
</tbody>
</table>
**Computer Animation Festival**

**SPECIAL PROGRAMME II**

★ ● ○

Thursday, 11 December 13:15–14:00  
Saturday, 13 December 09:00–09:45  
Room 201

**Simulacra**  
Tatchapon Lertwirojkul  
USA

**Renkan**  
Nobuo Takahashi  
Nagoya City University  
Japan

**Big Buck Bunny**  
Sacha Goedegebure  
Blender Foundation  
The Netherlands

**Twisted**  
Heiko Schneck  
Martin Tallosy  
Filmakademie Baden-Württemberg  
Germany

**Distraxion**  
Mike Stern  
USA

**PHONE BRAVER 7**  
Takashi Miike  
OLM Digital, Inc  
Japan

**Out to Play**  
Jessica Lozano  
Ringling College of Art and Design  
USA

**Office Noise**  
Mads Johansen  
Torben Sottrup  
Karsten Madsen  
Lærke Enemark  
The Animation Workshop  
Denmark

**Chronos 1.0**  
Wassim Boutaleb  
Yann Boyer  
Vincent Mahé  
Bruno Mangyoku  
Gobelins, l’école de l’image  
France

**Descendants**  
Heiko van der Scherm  
Patrick S. Cunningham  
Filmakademie Baden-Württemberg  
Germany
## Invited Screenings: Best of SIGGRAPH Award Winners

<table>
<thead>
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<tr>
<td>Thursday, 11 December 09:00–09:55</td>
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<td>Room 201</td>
<td>Room 201</td>
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</tr>
<tr>
<td>Masks</td>
<td>Cubic Tragedy</td>
<td>Dreammaker</td>
</tr>
<tr>
<td>SIGGRAPH 99 Jury Award Piotr Karwas</td>
<td>SIGGRAPH 2005 People’s Choice–</td>
<td>SIGGRAPH 2007 Special Jury Honors Leszek</td>
</tr>
<tr>
<td>Values</td>
<td>Electronic Theater</td>
<td>Plichta Filmakademie Baden-Württemberg</td>
</tr>
<tr>
<td>SIGGRAPH 2001 Best Animated Short Van Phan</td>
<td>Ming-Yuan Chuan National Taiwan University</td>
<td></td>
</tr>
<tr>
<td>University of Southern California Film</td>
<td>of Science and Technology</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Cathedral</td>
<td>Fallen Art</td>
<td>En Tus Brazos</td>
</tr>
<tr>
<td>SIGGRAPH 2002 Best Animated Short Tomasz</td>
<td>SIGGRAPH 2005 Jury Honors Tomasz Baginski</td>
<td>SIGGRAPH 2007 Award of Excellence Francois-</td>
</tr>
<tr>
<td>Baginski Platige Image</td>
<td></td>
<td>Xavier Goby, Edouard Jouret, Matthias</td>
</tr>
<tr>
<td>Tim Tom</td>
<td>La Migration Bigoudenn</td>
<td>Landour Supinfocom</td>
</tr>
<tr>
<td>SIGGRAPH 2003 Jury Honors Romain Segaud,</td>
<td>SIGGRAPH 05 Jury Honors Eric Castaing,</td>
<td></td>
</tr>
<tr>
<td>Christel Pougeoise Supinfocom/One Plus One</td>
<td>Alexandre Heboyan Fafah Togora</td>
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<tr>
<td>Eternal Gaze</td>
<td>Gobelins, l’école de l’image</td>
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<tr>
<td>SIGGRAPH 2003 Best Animated Short Sam</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Chen</td>
<td>SIGGRAPH 2005 Best of Show Shane Acker</td>
<td></td>
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<tr>
<td>Ryan</td>
<td>University of California, Los Angeles</td>
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<tr>
<td>SIGGRAPH 2004 Jury Honors Chris Landreth</td>
<td>458nm</td>
<td></td>
</tr>
<tr>
<td>National Film Board of Canada</td>
<td>SIGGRAPH 2006 Special Jury Honors Jan Bitzer, Iija Brunck, Tom Weber Filmakademie Baden-Württemberg</td>
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<tr>
<td>Birthday Boy</td>
<td>One Rat Short</td>
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<tr>
<td>SIGGRAPH 2004 Best Animated Short Sejong</td>
<td>SIGGRAPH 2006 Best of Show Alex Weil</td>
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<tr>
<td>Park</td>
<td>Charlex</td>
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<tr>
<td>Australian Film, Television and Radio School</td>
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</tbody>
</table>

Winners from previous Computer Animation Festivals

Best of SIGGRAPH Award Winners 1 (1999-2004)

- Masks
  - SIGGRAPH 99 Jury Award
  - Piotr Karwas

- Values
  - SIGGRAPH 2001 Best Animated Short
  - Van Phan
  - University of Southern California Film School

- The Cathedral
  - SIGGRAPH 2002 Best Animated Short
  - Tomasz Baginski
  - Platige Image

- Tim Tom
  - SIGGRAPH 2003 Jury Honors
  - Romain Segaud, Christel Pougeoise
  - Supinfocom/One Plus One

- Eternal Gaze
  - SIGGRAPH 2003 Best Animated Short
  - Sam Chen

- Ryan
  - SIGGRAPH 2004 Jury Honors
  - Chris Landreth
  - National Film Board of Canada

- Birthday Boy
  - SIGGRAPH 2004 Best Animated Short
  - Sejong Park
  - Australian Film, Television and Radio School

Best of SIGGRAPH Award Winners 2 (2005–2006)

- Cubic Tragedy
  - SIGGRAPH 2005 People’s Choice–Electronic Theater
  - Ming-Yuan Chuan
  - National Taiwan University of Science and Technology

- Fallen Art
  - SIGGRAPH 2005 Jury Honors
  - Tomasz Baginski
  - Platige Image

- La Migration Bigoudenn
  - SIGGRAPH 05 Jury Honors
  - Eric Castaing, Alexandre Heboyan, Fafah Togora
  - Gobelins, l’école de l’image

- 9
  - SIGGRAPH 2005 Best of Show
  - Shane Acker
  - University of California, Los Angeles

- 458nm
  - SIGGRAPH 2006 Special Jury Honors
  - Jan Bitzer, Iija Brunck, Tom Weber
  - Filmakademie Baden-Württemberg

Best of SIGGRAPH Award Winners 3 (2007–2008)

- One Rat Short
  - SIGGRAPH 2006 Best of Show
  - Alex Weil
  - Charlex

- Ark
  - SIGGRAPH 2007 Best of Show
  - Grzegorz Jonkajtys

- Our Wonderful Nature
  - SIGGRAPH 2008 Well Told Fable
  - Tomer Eshed
  - Hochschule für Film und Fernsehen “Konrad Wolf”

- Mauvais Rôle
  - SIGGRAPH 2008 Jury Award
  - Alan Barbier, Camille Campion, Dorian Fevrier, Frederic Fourier, Frederic Lafay, Min Ma, Jean-François Macem, Emanual Reperant, Jeremie Rousseau, Olivier Sicot
  - Esra Bretange

- 893
  - SIGGRAPH 2008 Best Student Prize
  - Eric Toubal, Yves D’Incau, Thomas Castellani, Clement Renaudin
  - Supinfocom Arles

- Oktapodi
  - SIGGRAPH 2008 Best of Show
  - Julien Bocabeille, Françoise Xavier Chanioux, Olivier Delabarre, Thierry Marchand, Quentin Marmier, Enrud Mokhberi
  - Gobelins, l’école de l’image
London-based Studio aka is an animation production company known internationally for its idiosyncratic and innovative work.

**INVITED SCREENINGS:**
**STUDIO AKA SPECIAL**

Room 201

<table>
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<th>Thursday, 11 December</th>
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<td>Saturday, 13 December</td>
<td>09:45–10:35</td>
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<tr>
<th>“Varmints” Trailer</th>
<th>Road Monster</th>
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<tbody>
<tr>
<td>Marc Craste</td>
<td>Philip Hunt</td>
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<table>
<thead>
<tr>
<th>Park Football</th>
<th>Redford (to Music by Sufjan Stevens)</th>
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<tbody>
<tr>
<td>Grant Orchard</td>
<td>Grant Orchard</td>
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<table>
<thead>
<tr>
<th>Family</th>
<th>There's Static in my Belly</th>
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<tr>
<td>Steve Small</td>
<td>Grant Orchard</td>
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<th>Roddy</th>
<th>The Big Win</th>
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<td>Grant Orchard</td>
<td>Marc Craste</td>
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<th>Pica Towers x 3</th>
<th>Love Sport “Love Paintballing”</th>
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<td>Marc Craste</td>
<td>Grant Orchard</td>
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<table>
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<th>Love Sport “Love Highbdiving”</th>
<th>Jojo in the Stars</th>
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<td>Grant Orchard</td>
<td>Marc Craste</td>
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<tr>
<th>The Odd Couple–Elephant and Mouse</th>
<th>Will the Summer Make Good for All of Our Sins?</th>
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<td>Mic Graves</td>
<td>Marc Craste</td>
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<table>
<thead>
<tr>
<th>Heart</th>
<th>Love Sport “Love Ping Pong”</th>
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<tr>
<td>Philip Hunt</td>
<td>Grant Orchard</td>
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<th>Seconds From Greatness</th>
<th>Tackle</th>
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<tr>
<td>Marc Craste</td>
<td>Grant Orchard</td>
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<th>Welcome to Glaringly</th>
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<td>Grant Orchard</td>
<td>Marc Craste</td>
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</table>
Invited Screenings:
SCHOOL VS. SCHOOL

★ ● ○

Gobelins, l'école de l'image

Friday, 12 December 14:10–14:55
Saturday, 13 December 11:30–12:15
Room 201

La Migration Bigoudenn
(Bigoudenn Migration)
Eric Castaing, Alexandre Heboyan,
Fafah Togora

The Building
Marco Nguyen, Pierre Peritel,
Xavier Ramonede, Olivier Staphylas

Gnap Gnap
Olivier Daube, Sonia Desmichelis,
Wilfried Pain, Bertrand Piccelle,
Jean-Vincent Sales

Super Tibetan Racer
Christelle Abgrall, Anais Chevillard,
Bernard Ling, Kosal Sok, Jun Violet

Sebastien
Carole Carrion, Genevieve Godbout,
Mourad Seddiki, Samuel Wambre

Pyrats
Yves Bigerel, Bruno Dequier,
Benjamin Fiquet, Nicolas Gueroux,
Julien Le Rolland

Cocotte-Minute (Pressure Cooker)
Thibault Berard, Sylvain Marc,
Loic Miemont, Amandine Pecharman,
Nathalie Robert, Romain Vacher

Burning Safari
Vincent Aupetit, Florent de la Taille,
Jeanne Irzenski, Maxime Maléo,
Aurelien Predal, Claude-William Trebutien

The Omen (Le Presage)
Simon Rouby

Au Bout Du Fil (At the End of the String)
Amandine Pecharman

La Soupe A L’engrais (Fertilizer Soup)
Sylvain Marc

Anima Facta Est
Lucie Arnissolle, Mael Gourmelen,
Leah Ordonia, Celia Riviere,
Stephen Vullimoin

Chronos 1.0
Wassim Boutaleb, Yann Boyer,
Vincent Mahé, Bruno Mangyoku

Emile and the Fabulous Small Gentlemen (Emile et les fabuleux petits monsieurs)
Jean Nicolas Arnoux, Tom Haugomat,
Charles-Andre Lefebvre, Louis Tardivier

Keep Walking
Sophia Chevrier, Cecile Francoia,
Antonin Herveet, Leah Ordonia,
Carlo Vogele

For Sock's Sake
Carlo Vogele

Blind Spot
Johanna Bassiere, Nicolas Chauvelot,
Olivier Cler, Cécile Dubois Henry,
Yvon Jardel, Simon Rouby

Crash-Test
Didier Ah-Koon, Olivier Dusart,
Agnes Fouquart, Etienne Mattera,
Gaelle Rouby-Serieis, Carlo Toselli,
Martin Trystram

Voodoo
Romain Baudy, Ludovic Bouancheau,
Liane-Cho Han, Yann Le Gall, Marietta
Ren, Sebastien Wojda

Oktapodi
Julien Bocabeille, Francois-Xavier Chanioux, Olivier Delabanne, Thierry Marchand, Quentin Marmier, Emud Mokhberi
## Computer Animation Festival

### INVITED SCREENINGS:
SCHOOL VS. SCHOOL (CONTINUED)

<table>
<thead>
<tr>
<th>★ ● ○</th>
<th>Korea National University of Arts (K’ARTS)</th>
<th>Supinfocom</th>
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<tbody>
<tr>
<td></td>
<td>A Cat and I</td>
<td>Overtime</td>
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<td></td>
<td>Dong-Hee An</td>
<td>Oury Atlan, Thibaut Berland, Damien Ferié</td>
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<td></td>
<td>Everybody Lonely Star</td>
<td>Clik Clak</td>
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<td></td>
<td>Byung-a Han</td>
<td>Aurélie Frehinos, Victor-Emmanuel Moulin, Thomas Wagner</td>
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<td></td>
<td>Walking in the Rainy Day</td>
<td>Versus</td>
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<tr>
<td></td>
<td>Hyeon-myeong Choi</td>
<td>François Caffiaux, Romain Noel, Thomas Salas</td>
</tr>
<tr>
<td></td>
<td>Bob Mook Ja</td>
<td>Camera Obscura</td>
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<tr>
<td></td>
<td>Sung-A Min</td>
<td>Matthieu Buchalski, Jean-Michel Drechsler, Thierry Onillon</td>
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<tr>
<td></td>
<td>Look Around</td>
<td>Bolides</td>
</tr>
<tr>
<td></td>
<td>Kyu-tae Lee</td>
<td>François-Xavier Bologna, Théophile Bondoux, Lyonel Charmette, Vincent Le Ster</td>
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<td></td>
<td>The Watermelon Chickes</td>
<td>Marin</td>
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<td></td>
<td>Jong-shik Won</td>
<td>Alexandre Bernard, Pierre Pages, Damien Laurent</td>
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Friday, 12 December 14:55–15:45
Saturday, 13 December 12:15–13:05
Room 201

Friday, 12 December 10:55–11:35
Saturday, 13 December 13:05–13:45
Room 201
INVITED SCREENINGS:
AUSTRALIAN PANORAMA—TASTING THE DIVERSITY
OF AUSTRALIAN ANIMATION

Thursday, 11 December 09:55–10:40
Room 201

Morning Star
Michael Amos
Andrew Davies
Studio Moshi

Carnivore Reflux
Eddie White
James Calvert
The People’s Republic Of Animation

The Goat That Ate Time
Lucinda Schreiber

Gustavo
Jonathan Nix

Fraught
Stephanie Brotchie
Maia Tarrel
Chris Pahlow

An Unusual Circumstance
Hung Lin

INVITED SCREENINGS:
INDIA FOCUS

Friday, 12 December 17:20–17:40
Room 201

Happy Planet
Dhimant Vyas
Tata Interactive Systems

Levis Slim
E. Suresh
Famous House of Animation

Sulekha.com
E. Suresh
Famous House of Animation

Killing the Fittest
Santosh D. Kale
Underground Worm

MTV Cut2Cut
E. Suresh
Famous House of Animation

Happy Dusshera
Kavita Singh Kale
Underground Worm

O’
Kireet Khurana
Climb Media (I) Pvt. Ltd.
INVITED SCREENINGS:
JAPAN MEDIA ARTS FESTIVAL SHOWCASE

★ ● ○
Saturday, 13 December 10:35–11:30
Room 201

Opening Visual Image
Harada Daizaburo

Issey Miyake A-Poc Inside
Masahiko Sato + Euphrates

Musashino Plateau
Takahashi Nobuo

Electric Life Line
Kosakai Shogo

Shatter
Nakama Kouhei

Winning Eleven
Yokozawa Koichiro

Ryukyudisko/Nice Day, featuring Beat Crusaders
Ryukyudisko/Kojima Junji

Lost Utopia
Mizue Mirai

Magnetic UFO
Nishimi Shojiro

The Black Bear Cub and the Forest Train
Tanaka Usagi

After School Midnight
Takekiyo Hitoshi

Award-winning works from the 11th Japan Media Arts Festival.
“Star Wars: The Clone Wars” – Telling the Story on Multiple Platforms
Thursday, 11 December
15:45–17:30
Theatre

The galaxy far, far away takes on both the small screen and the NDS platform with the release of the CG-animated TV series “Star Wars: The Clone Wars” and the game Star Wars: the Clone Wars: Jedi Alliance. Both are produced at Lucasfilm Animation Singapore, in conjunction with Lucasfilm Animation and LucasArts.

Lee Stringer and Matt Aldrich discuss the convergence involved in creating the show and the game, and how assets were shared between the two.

The session includes a question-and-answer session and a sneak preview of one act from an episode of “Star Wars: The Clone Wars.”

Matt Aldrich
Art Director, Games
Lucasfilm Animation Singapore

Lee Stringer
CG Supervisor, “Star Wars: The Clone Wars”
Lucasfilm Animation Singapore

“KUDAN”: Rediscovery of the Fun of Working With 3D
Friday, 12 December
13:00–13:40
Room 201

The producer summarises the production process for the 3D animation short “KUDAN”, which is featured in the Electronic Theatre. The talk reviews the animation’s production history, the animators’ point of view and methodology, and how the design was influenced by traditional Japanese production techniques.

Takashi Fukumoto
Links DigiWorks Inc.

Challenges for High-Quality Production and Training of Staff in Asia
Friday, 12 December
15:45–17:30
Theatre

This panel looks at different approaches to setting up a new studio in Asia and generating high-quality output. Topics include: the challenges of knowledge and technology transfer to Asian staff and studio, handling an international production team spanning across the globe in different time zones, mentorship and training, and how to grow a local CG community and high-quality talent pool.

MODERATOR
Shuzo John Shiota
Polygon Pictures

PANELISTS
Saraswathi Balgam
Rhythm & Hues India

Tim Cheung
Imagi Studios

John Sanders
Lucasfilm Animation Singapore

Tim Smith
Lucasfilm Animation Singapore
## Computer Animation Festival

### SCHEDULE AT A GLANCE

**Electronic Theatre:** ★ ●  
**Animation Theatre/Special Programme/Invited Screenings/Talks & Panels:** ★ ● ○

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**Special Sessions**

**Technical Papers & Sketches Fast Forward Sessions**

Wednesday, 10 December 18:00–20:00

ACM SIGGRAPH’s first back-to-back Technical Papers & Sketches Fast Forward Sessions. Get a preview of the latest research in computer graphics and interactive techniques and select the Technical Papers and Sketches that you need to attend later in the week.

**Star Wars: The Clone Wars—Telling the Story on Multiple Platforms**

Thursday, 11 December 15:45–17:30

The galaxy far, far away takes on both the small screen and the NDS platform with the release of the CG-animated TV series “Star Wars: The Clone Wars” and the game Star Wars: the Clone Wars: Jedi Alliance. Both are produced at Lucasfilm Animation Singapore, in conjunction with Lucasfilm Animation and LucasArts.

Lee Stringer and Matt Aldrich discuss the convergence involved in creating the show and the game, and how assets were shared between the two.

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**Challenges for High-Quality Production and Training of Staff in Asia**

Friday, 12 December 15:45–17:30

This panel looks at different approaches to setting up a new studio in Asia and generating high-quality output. Topics include: the challenges of knowledge and technology transfer to Asian staff and studio, handling an international production team spanning across the globe in different time zones, mentorship and training, and how to grow a local CG community and high-quality talent pool.

**Balancing Act: Blending Left-Brain and Right-Brain Thinking in Solving the Complex Visual Effects Equation**

Saturday, 13 December 10:30–12:15

Companies like Industrial Light & Magic have found success by understanding the importance of blending creative and scientific thinking, and developing good management practices for both. While technical and artistic might seem to be intrinsically separate processes, in visual effects they are highly dependent on each other to put the most realistic imagery on the screen. Using examples from “Indiana Jones and the Kingdom of the Crystal Skull,” “Transformers,” and “The Chronicles of Narnia: The Lion, the Witch and the Wardrobe,” this talk takes an in-depth look at the challenges each show faced and details how ILM blends left-brain and right-brain thinking to overcome them.

**Moderator**

Shuzo John Shiota
Polygon Pictures

**Panelists**

Saraswathi Balgam
Rhythm & Hues India

Tim Cheung
Imagi Studios

**Panelists**

John Sanders
Lucasfilm Animation Singapore

Tim Smith
Lucasfilm Animation Singapore

Jeff White
Associate Visual Effects Supervisor
Industrial Light & Magic
Reception

Get together with the SIGGRAPH Asia 2008 community and enjoy a panoramic view of the Singapore skyline from Marina Barrage, the site of Singapore’s first downtown fresh-water reservoir. Greet old friends, share a toast with colleagues, and meet the thinkers from Asia and around the world who are shaping the future of computer graphics and interactive techniques.

Supported by: 

[Logo for ATI FirePro]
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Learn how the industry is evolving worldwide and collaborate with attendees from five continents. The International Center offers bilingual tours of SIGGRAPH Asia 2008 programmes, informal translation services, and space for meetings, talks, and demonstrations. Throughout the year, the International Resources program facilitates worldwide collaboration in the SIGGRAPH community, provides an English Review Service to help submitters whose first language is not English, and encourages participation in all conference venues, activities, and events.

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**Learn how the industry is evolving worldwide and collaborate with attendees from five continents. The International Center offers bilingual tours of SIGGRAPH Asia 2008 programmes, informal translation services, and space for meetings, talks, and demonstrations. Throughout the year, the International Resources program facilitates worldwide collaboration in the SIGGRAPH community, provides an English Review Service to help submitters whose first language is not English, and encourages participation in all conference venues, activities, and events.**
EVENTS

**Chapters Start-up Meeting**

Friday, 12 December
12:15–13:30
SIGGRAPH Village, Hall 401

The Professional and Student Chapters of ACM SIGGRAPH span the globe. Within their local areas, chapters continue the work of ACM SIGGRAPH on a year-round basis via their meetings and other activities. Each chapter consists of individuals involved in education, research and development, the arts, industry, and entertainment who are interested in the advancement of computer graphics and interactive techniques, related technologies, and their applications. Chapter members gather throughout the year at meetings, site visits, conferences, video screenings, art shows, and special events.

This session explains how to start and run a successful ACM SIGGRAPH Professional or Student Chapter. Topics regarding the process are outlined in detail by members of the Chapters Committee, and the session concludes with a Q&A session.

Scott Lang  
*International Resources Committee Co-chair*
scott_lang@siggraph.org

**SIGGRAPH Asia 2009 Get Involved Session**

Friday, 12 December
17:00–17:45
SIGGRAPH Village, Hall 401

Would you like to make a difference? The opportunity awaits you at SIGGRAPH Asia 2009 in Yokohama, Japan. Come and speak to the programme chairs, get more information, and say “yes” to an exciting and fulfilling experience. Don’t miss it! Visit us at our booth in the SIGGRAPH Village, Hall 401.

Daniel Schmidt  
*SIGGRAPH Asia Conference Manager*
daniel_schmidt@siggraph.org
Days & Hours
Thursday, 11 December 09:30–18:30
Friday, 12 December 09:30–18:30
Saturday, 13 December 09:30–18:30
LOCATION: HALL 401/402

Job Fair

JOBSEEKERS! Visit the Job Fair to meet with employers from the region and around the
globe! Participating studios will be looking for the best “right brain” talent to fill a host of
positions such as Artists, Animators, Programmers, Game Designer, Tech Directors and
many more! Stop by and find the “right job” for YOUR brain!

Careers@Singapore Pavilion
Singapore
BOOTH 3 & 4

CreativeHeads.net
Los Angeles, California USA
BOOTH 11

Double Negative Visual Effects
London, United Kingdom
BOOTH 5

Dr. D Studios
Sydney, Australia
BOOTH 2

Sheridan Institute of Technology
& Advanced Learning
Ontario, Canada
BOOTH 12

Ubisoft Group
Singapore
BOOThS 6 & 7
Days & Hours
Friday, 12 December  17:00–17:45
LOCATION: SIGGRAPH VILLAGE, HALL 401

SIGGRAPH Asia 2009
Get Involved

Would you like to make a difference? You can if you get involved with SIGGRAPH Asia 2009 in Yokohama, Japan. Come and speak to the programme chairs, get more information, and say “yes” to an exciting and fulfilling experience. Complete information is also available throughout the conference at the SIGGRAPH 2009 booth, Hall 401.

For enquiries, contact:
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www.siggraph.org/asia2008
The following societies have cooperative agreements with ACM SIGGRAPH:

**Annecy**
www.annecy.org
Annecy has been showcasing the very best in animation for over 45 years, making it the industry's leading international competitive festival. Its presentation and promotion of animation in all its different forms has made Annecy a worldwide point of reference for the animation industry.

**China Cartoon Industry Forum (CCIF)**
www.ccif.com.cn
Supported by the Chinese government, CCIF was founded by the Cartoon Commission of the China TV Artists Association. As the most influential Chinese animation conference, CCIF promotes industrialisation, internationalisation, and market development. It operates two projects: the Asian Youth Animation & Comics Contest and the China Animation & Comics Game. The youth contest is positioned to be the top annual award for Asian original animation and comics. The game project is building an animation-training system to provide vocational animation and comics training courses.

**Computer Graphics Arts Society (CG-ARTS)**
www.cgarts.or.jp
CG-ARTS, officially recognised by the Ministry of Education, Culture, Sports, Science and Technology in 1992, is a publicly funded body dedicated to promoting Japanese computer graphics education. Its projects range from drafting curricula to development and publication of teaching materials, nurturing instructors, and providing certification tests to evaluate the ability of each individual. It is also dedicated to developing a distinctive Japanese media-arts culture in the 21st century by hosting the Computer Graphics Contest for Students since 1995 and co-organizing the Japan Media Arts Festival in conjunction with the Agency for Cultural Affairs since 1996.

**Digital Content Association of Japan (DCAJ)**
www.dcaj.org/outline/english/index.html
DCAJ is a non-profit organisation supported by companies and approved by the Japanese Government to promote the digital-content industry. It presents the Digital Content Expo (DC EXPO) in Tokyo in October every year in cooperation with the Ministry of Economy, Trade and Industry (METI).

**Eurographics**
www.eg.org
The European Association for Computer Graphics is a professional association that assists members with their work and careers in computer graphics and interactive digital media. Eurographics has members worldwide and maintains close links with developments in the USA, Japan, and other countries by inviting speakers from those countries to participate in Eurographics events and by sending representatives to other events. Eurographics 2009 will be held at the Technischen Universität München, 30 March – 3 April 2009.

**fmx/09 – 14th International Conference on Animation, Effects, Games, and Digital Media**
www.fmx.de
At fmx/09, international speakers provide insight into creation, production, and distribution of digital entertainment, and discuss innovative approaches in the industry and research. Numerous panels, workshops, and presentations draw a discerning audience, two-thirds of whom are professionals, while one-third is made up of students. In an open atmosphere and casual encounters, top industry players present their latest achievements, hardware and software companies demonstrate their innovations, recruiters search for new talent, and schools and universities feature their programs and graduates. fmx/09 takes place in Stuttgart, Germany, 5-9 May 2009.

**IMAGINA**
www.imagina.mc
IMAGINA, at the Grimaldi Forum in Monte-Carlo, 4-6 February 2009, is the major European 3D Community Event, centered on solutions that assist in designing and reaching decisions through visualisation and simulation.

**Laval Virtual**
www.laval-virtual.org
The 11th International Conference on Virtual Reality will be held on 22-26 April 2009, in Laval, France. Laval Virtual is where virtual reality users share the latest techniques from their fields of expertise.

**Seoul International Cartoon & Animation Festival (SICAF)**
http://www.sicaf.org
SICAF focuses on the dynamic new-media environment and presents current trends in cartoons and animation through its exhibition, animated film festival, and SPP Market.

**VIEW Conference**
www.viewconference.it
The VIEW Conference is Italy's premier international event on computer graphics, interactive techniques, animation and VFX, design, and videogames. VIEW presents the most up-to-date insights from world-class experts through lectures, meetings, tributes, exhibits, screenings, and demo presentations.

**China National Center for Developing Animation, Cartoon & Game Industry (NCACG)**
www.ncacg.org
The China National Center for Developing Animation, Cartoon & Game Industry (NCACG) is the first organisation approved by the Ministry of Culture of the People's Republic of China. NCACG is composed of the Culture Research Center of the Chinese Academy of Social Science, East China Normal University, Shanghai Broadband Television Co., Ltd., and Beijing Shengshi JinYing International Media Co., Ltd. Following the direction of the Chinese government, NCACG strives to combine education, research, training, and the latest techniques, domestic or international, with industrial production, and explore a Chinese mode of promoting creative cultural and industrial activities to serve and lead ACG industries in China. The 5th China International Animation, Cartoon & Game Fair will be held 3-6 July 2009 in Shanghai.
Next December, thousands of researchers, developers, and producers of computer graphics and interactive techniques will descend upon Yokohama for the second SIGGRAPH Asia.

Creative City Yokohama
Yokohama’s emphasis on creativity as its foundation for sustainable growth has made the city a thriving center of information technology, digital media, and the arts. Exhibitors of the world’s leading products and services in computer graphics and interactive techniques will find the perfect marketing environment at SIGGRAPH Asia 2009.

Submission details available in March. Register online in August.

To reserve exhibit space, contact:
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ACM SIGGRAPH Organisation Overview

ACM SIGGRAPH
In the span of 35 years, ACM SIGGRAPH has grown from a handful of computer graphics enthusiasts to a diverse group of researchers, artists, developers, filmmakers, scientists, and other professionals who share an interest in computer graphics and interactive techniques. Our community values excellence, passion, integrity, volunteerism, and cross-disciplinary interaction. We sponsor not only the annual SIGGRAPH conference and SIGGRAPH Asia, but also focused symposia, chapters in cities throughout the world, awards, grants, educational resources, online resources, a public policy programme, and the SIGGRAPH Video Review.

Membership
The SIGGRAPH community depends on your support. Help us continue our global efforts in education, communications, and advocacy by joining ACM SIGGRAPH for US $35 per year (US $25 per year for students, US $40 for Pioneers, and US $28 for Eurographics members). Become an ACM SIGGRAPH member and receive a siggraph.org email alias, access to the archive of SIGGRAPH Proceedings in the ACM Digital Library, Computer Graphics e-Quarterly, discounted registrations on ACM SIGGRAPH sponsored programmes and events including the annual SIGGRAPH and SIGGRAPH Asia conferences and partner conferences such as Eurographics, as well as discounts on publications and preferred vendor deals on valuable merchandise. For more details on membership or to join online, visit www.siggraph.org and select “Membership.”

For those of you who are already members, thank you for your continued and loyal support.

ACM
ACM SIGGRAPH’s parent organisation is ACM, the Association for Computing Machinery. ACM is the world’s largest educational and scientific computing society, uniting educators, researchers, and professionals to inspire dialogue, share resources, and address the field’s challenges. ACM strengthens the computing profession’s collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking. Many ACM SIGGRAPH members also join ACM.

The benefits of ACM membership include full access to online books and courses, the ACM Career & Job Center, subscriptions to ACM’s popular email alert news digests TechNews and CareerNews, and the online newsletter MemberNet. ACM members may subscribe to the Digital Library and receive full access to the Guide to Computing Literature, which features more than one million bibliographic citations from the vast world of computing. ACM members also receive discounts on cutting-edge magazines, journals, books, and conferences.

For more information, visit: www.acm.org.

Awards
ACM SIGGRAPH awards the prestigious Steven A. Coons award for lifetime achievement, the Computer Graphics Achievement Award for notable achievements, the Outstanding Service Award for extraordinary service to ACM SIGGRAPH by a volunteer, and the Significant New Researcher Award, for new contributors to our field. Beginning in 2009, SIGGRAPH will also award the Distinguished Artist Award for lifetime achievement in digital art.

For a list of past award recipients, visit: www.siggraph.org/awards.

Education Committee
The ACM SIGGRAPH Education Committee works to support computer graphics education as well as the use of computer graphics in education. Computer graphics education encompasses technical, creative, and developmental studies in curricular areas ranging from computer science to digital arts. The Education Committee undertakes a broad range of projects and activities in support of the CG education community, such as curriculum studies, resources for educators, and SIGGRAPH conference-related activities. This includes the international, juried SpaceTime Student Competition & Exhibition and much more.

For more information, please visit: education.siggraph.org.

Digital Arts Community
The ACM SIGGRAPH Digital Arts Community committee serves to foster the evolution of a strong digital arts community within the international organisation and to promote a dialogue between visual artists and the larger SIGGRAPH community. One of its main projects is the creation of a content-rich interactive Arts Portal, arts.siggraph.org, to provide a central place for artists to share resources, information, artwork, and opportunities, and provide a practical way for all ACM SIGGRAPH members to follow developments in the arts, stay connected, and identify potential collaborators.

For more information, visit: arts.siggraph.org.

External Relations Committee
ACM SIGGRAPH has agreements with a number of organisations and conferences around the world. To see the list of current affiliations or to inquire about what is involved in entering into such a relationship, stop by the ACM SIGGRAPH Membership booth or visit: www.siggraph.org/affiliations.
Where top minds in computer graphics convene for business and learning.

Singapore is proud to host SIGGRAPH Asia 2008, the first Asian edition of the world’s largest event in computer graphics and interactive technologies. Our national commitment towards exploring new digital frontiers creates a dynamic environment for top global talent to exchange knowledge and ideas. In addition, Singapore’s integrated environment and seamless infrastructure allow visitors to make the most of the great business and networking opportunities here. Choose Singapore for your corporate meetings, conferences, exhibitions and incentive travel. visitsingapore.com/businessevents
Professional & Student Chapters
Chapters of ACM SIGGRAPH exist in 65 cities in 16 countries around the world. They form an international multi-cultural network of people who develop, share, continue, and extend the work and achievements presented at the annual conference. Chapter members include those involved in research, development, education, art, gaming, visualisation, and entertainment, just to name a few.

For more information about the ACM SIGGRAPH network of chapters, or if you would like to start a Professional or Student Chapter, visit: www.siggraph.org/chapters.

Publications
ACM SIGGRAPH publications provide the world's leading forums for computer graphics research. Our conference series provides the largest source of citations in computer graphics literature.

Publications are available to ACM SIGGRAPH members for substantial discounts.

See: www.siggraph.org/publications

Small Conferences and Symposia
ACM SIGGRAPH helps organise and sponsor focused conferences, workshops, and other symposia around the world on topics related to computer graphics and interactive techniques. These gatherings enable groups with specific interests to get together and exchange information.

To see the list of symposia or find out how to get help for a conference you’d like to organise, stop by the ACM SIGGRAPH Membership booth or visit: www.siggraph.org/conferences.

SIGGRAPH Asia 2008 Video Review (SVR)
SVR is the world’s most widely circulated video-based publication. Over 160 programmes document the annual SIGGRAPH Computer Animation Festivals, providing an unequaled opportunity to study state-of-the-art computer graphics techniques, theory, and applications. New releases and recent issues available in DVD format. To purchase the SIGGRAPH Asia 2008 Video Review visit the Merchandise Store at the Suntec Singapore International Convention & Exhibition Centre located in Gallery East, Level 3.

For more information, contact: svroders@siggraph.org.

SIGGRAPH 2009
Interested in participating in the SIGGRAPH 2009 Conference to be held in New Orleans, Louisiana, 3–7 August 2009 as a presenter or volunteer? Stop by our booth in the SIGGRAPH Village, Hall 401.

www.siggraph.org/s2009

Volunteers
All of the programmes developed by ACM SIGGRAPH rely heavily on volunteer support.

As a member, you are eligible to serve in some of ACM SIGGRAPH's most visible positions, including leading a professional chapter, chairing the annual conference, or serving on the ACM SIGGRAPH Executive Committee. For more information, see: www.siggraph.org/gen-info/volunteerpositions.html.
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LOCATION: HALL 401/402

Exhibition

A diverse, energetic showcase of everything Asia and beyond have to offer in computer graphics and interactive techniques, from hardware and software developers, production studios, and venture capitalists to government pavilions hosting the established and emerging companies that are shaping the future of digital media. Discover all the products and services you need for another year of creative achievement. Try the latest systems, talk with the people who developed them, and get all the information you need to make budget and purchase decisions.
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Unveiling the Secrets Behind 3D Real-Time Virtual Reality
FORUM8 Co., Ltd
Thursday, 11 December
11:00–12:00

UC-win/Road, an award-winning 3D state-of-the-art, real-time virtual reality solution, allows integration of 3D city models with traffic and environmental variations. This session showcases the Digital Phoenix project, an academic research project at Arizona State University, which uses this platform to create a square mile visualisation of downtown Phoenix, integrating more than 500 buildings and 100 intersections in an interactive VR environment. Navigating through the environment enhances one’s understanding and allows for improved evaluation and comparison studies. Yoshihiro Kobayashi of Arizona State University shares various modelling tips and techniques, and discusses future applications.

Conquering Production Challenges With Houdini
Side Effects Software
Friday, 12 December
10:30–12:00

For years, 3D animators, visual effects artists and technical directors have turned to Houdini to tackle a wide range of production challenges. In this technical presentation, David Robert from Side Effects Software shows you how Houdini’s recent UI overhaul, world-class particles, powerful integrated dynamics, and interoperability tools like FBX and Python, make Houdini the perfect choice for your CG pipeline. He demonstrates how Houdini has been used in real-life production situations by both Hollywood studios and smaller boutique shops who want to raise their game and produce film-quality effects and animation. You will see for yourself how Houdini’s renowned node-based workflow provides a production-savvy approach that gives artists ultimate creative control, while allowing studios to manage costs and meet deadlines.

Are limitations on Power, Cooling, Physical Space an issue in your IT Infrastructure?
IBM solves your problem with iDataPlex—the next-generation internet-scale computing solution.
IBM Singapore Pte Ltd
Thursday, 11 December
13:30–15:00

In the era of high-definition video and content on demand, the next generation of digital media creators and distributors will require more compute power than ever before. At the same time, the digital media marketplace is becoming more competitive, driving the need for greater efficiency and flexibility. IBM digital media solutions are designed to help the digital media community transcend business and technical challenges and restore creative liberty.

Come find out about the next-generation internet-scale computing solutions - IBM System x iDataPlex™. These incredibly efficient servers pack impressive computing power into a unique, space-optimized rack design. With up to twice the compute density of standard 1U racks and up to 40% higher energy efficiency, you can distribute your digital media creations while protecting your budget and the environment.

Developing 3D In-Building Web Applications With Germanium
G Element Pte Ltd
Friday, 12 December
13:15–15:00

With the rapid increase in web mapping applications, users are now able to freely visit cities all over the globe, find places and information, and share information with their friends. However, existing platforms and applications limit users to building exteriors. They do not allow users to enter buildings. Enter Germanium, a new platform for easily creating 3D in-building web applications. Learn how Germanium can help you develop solutions such as building directories, asset-tracking solutions, and building-management solutions, all deployed on the web and rendered in real-time 3D within the web browser. This session is intended for anyone interested in creating in-building web applications. It includes a product presentation and a live demonstration.
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Calling all digital innovators, creative researchers, award-winning producers, provocative artists, energetic executives, adventurous engineers, inquisitive students, exceptional gamers, innovative collaborators, eclectic musicians, and multisensory explorers.

Submit your best work for Art Gallery, Courses, Computer Animation Festival, Emerging Technologies, Panels, Papers, Posters, Talks, and more!
Complete details and online submission available at: www.siggraph.org/s2009
Autodesk Education Summit

Wednesday, 10 December
08:00–12:00
Room 311

Join high-profile industry professionals and Autodesk representatives for an exclusive, half-day event to discuss key industry trends and the best methods to prepare students for success in the professional media industry. The event features a keynote by Barry Weiss, Senior Vice President, Animation and Artist Development, at Sony Pictures Imageworks. Weiss is an animation producer and executive, with extensive experience in feature film, visual effects, and television animation production. His global responsibilities also include developing the studio’s next-generation talent base.

Autodesk Professional Excellence (APEX) Launch Event

Friday, 12 December
08:00–09:00
Room 207

Come hear about the exciting launch of Autodesk’s new line of programmes for professional instructors. Autodesk Professional Excellence (APEX) provides instructors with a range of opportunities to remain current with 3D software and technology trends. Through APEX, instructors can obtain globally recognized accreditation, connect with peers, receive practical, focused training, and even find new career opportunities. Light breakfast and coffee are served.
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THE SEOUL ANIMATION CENTER is an organization operated by the Seoul Business Agency (SBA), and was established by the Seoul Metropolitan Government to support and promote the domestic cartoon, Gaming, Character and Animation Industry.

It is conducting various programs related to the cultural content industry such as planning and operating a variety of educational programs related to cartoons and animation; nurturing new writers and offering production support to generate successes; offering marketing support for advances into overseas markets; operating the Seoul Ani Cinema and library; and hosting various exhibitions and film festivals.
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Any Animation is an animation studio with creative and production capabilities to create a new generation of animations. Anya’s objective is to combine CG technology with creative talent to create animated series and films with memorable characters and great stories.

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www.animationmagazine.net
Animation Magazine Inc. is the only monthly trade magazine covering the animation and vfx industry around the world and publisher of the Animation Industry Directory.

Association of Machinima Arts & Sciences
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www.machinima.org.sg
AMAS is a non-profit organisation committed to evangelise the Machinima movement in Asia and identify and groom the next generation of game makers and animators.
K* ARTS / KNUA

Korea National University of Arts (K’ARTS) is established by Ministry of Culture, Sports and Tourism Republic of Korea. K’ARTS is the unique University that is only specialized in art education in entire Asia. K’ARTS consists of six independent but cumulative colleges: School of Music, School of Drama, School of Film, TV & Multimedia, School of Dance, School of Visual Arts, and School of Korean Traditional Arts. Each college only has major subject centered on practical skills and creation of art without any liberal studies. K’ARTS offers 4-Years Bachelor Degree Course and 2-years Master Degree Courses specialized in whole field of art studies while providing 3years early graduation and run a special education program for the gifted teenager and children.

SFTM School of Film, TV & Multimedia

SFTM: School of Film, TV & Multimedia actively focuses on multimedia literacy as well as visual media literacy as the most influential art media in contemporary art. SFTM consists of Department of Film Making, Department of Cinema Studies, Department of Multimedia, Department of Animation, and Department of Broadcasting. K’ARTS is the another independent art school under the theme of moving images. We produce outstanding moving image professionals with 80 animation and film every year to lead the contemporary visual culture. With its excellent equipment and facilities, SFTM provides a combination of art & technology. SFTM graduates have been produced 900 film since 1996 and the best films will be screened for

U-AT Labs

U-AT Labs at K’ARTS sponsored by the Ministry of Culture, Sports and Tourism Republic of Korea, that is incorporated into Korea’s cutting-edge IT technology and infrastructure as contents producing ability and Art & Technology capacity. U-AT project is divided into 10 labs: Algorithm for Special Sound Lab, Performance Creation & Education Lab, VFX Lab, Digital Media Motion Graphics Lab, U-Smart City Lab, Art & Play Lab, U-AT Clinic Lab, U-AT Media Education Lab, Digital Archiving Lab, Digital Media Content Formatting Lab. U-AT labs organize academic cooperation system encouraging communication in art & technology and harmony of 6 colleges as an advance base.

isAT 2008: Shift to the third space

isAT 2008 held successfully at K’ARTS, Seoul on October 8, 2008. This international symposium continued last year’s success in bringing together internationally renowned scholars, artists, professionals such as Roy Ascott, Jeffrey Shaw, Lynn Hershman, Donald Marinelli, to exchange information on the latest developments in art and technology. isAT 2008 served as an active forum in which the artists and scientists who sought encounter of art and science-technology, deliberate on such question, sharing and exchanging creative views and thought.

SIGGRAPH ASIA 2008: 10-13 Dec. 08

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Autodesk’s media and entertainment solutions empower digital artists to realise their ideas, transforming their most evocative and ambitious visions into reality. Our award-winning products are designed for digital media creation, management, and delivery across all disciplines, from film and television visual effects, colour grading, and editing to animation, game development, and design visualisation.

Autodesk’s Media and Entertainment Division is based in Montréal, Québec. It was established in 1999 after Autodesk, Inc. acquired Discreet Logic, Inc. and merged its operations with Kinetix. In January 2006, Autodesk acquired Alias, a developer of 3D graphics technology. Key media and entertainment products include Autodesk 3ds Max 3D modelling, animation, and rendering software; Autodesk Maya 3D modelling, animation, and rendering software; Autodesk Mudbox 3D digital sculpting software and texture painting solution; Autodesk MotionBuilder 3D character animation software; Autodesk FBX universal asset exchange format; Autodesk Smoke non-linear editing and finishing system; Autodesk Flame visual effects system; Autodesk Toxik visual effects and compositing software; and Autodesk Lustre digital colour grading system.

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CGTantra is the largest online community portal of animation, VFX, and gaming from India that caters to the creative and technical needs of professionals and students of the traditional and digital realms alike.

Chaos Software

Chaos Software
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Chaos Software is the developer of V-Ray for Autodesk 3ds Max. The first release candidate of V-Ray for Autodesk Maya will be out toward the middle of 2009. For information on purchasing Pdplayer, please visit our web site.

Christie Digital Systems USA Inc.

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Christie Digital Systems USA, Inc., a wholly owned subsidiary of Ushio, Inc., Japan, (JP:6925), is a leader in visual solutions for world-class organisations, offering diverse applications for business, entertainment, and industry. A leading innovator in film projection since 1929 and a pioneer in digital projection systems since 1979, Christie has established a global reputation as a total service provider and the world’s single-source manufacturer of a variety of display technologies and solutions.

With the acquisition of Vista Controls Systems, Corp., Christie offers the most complete and advanced solutions for cinema, live venues, control rooms, business presentations, training facilities, 3D and virtual reality, simulation and education, as well as industrial and government environments.

Christie solutions have been recently used at Olympic Games opening and closing ceremonies in Beijing, AT&T Global Network Operations Centre, Cher’s concert tour, the “High School Musical 3: Senior Year” premiere, Discovery World, Alicia Key World Tour, NASDAQ Marketsite, Quebec’s 400th Anniversary celebration, the “Wall•E” premiere, the Rugby World Cup, and many others. More than 5,000 cinemas around the world are now using Christie projectors.

Creative Education Group

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www.cits.com.sg

Headquartered in Singapore, Creative Education Group is a leading private post-secondary institution providing intensive, specialised programmes in entertainment arts and technology.

Crystal Computer Graphics Pte Ltd

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We service VFX and animation in the advertising and film industries.

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www.frameboxx.in
Frameboxx Animation & Visual Effects is a versatile conglomerate with a focus on providing high-end CG, animation and visual effects training, consulting, and IP development services. We have a network of 45+ academic faculties in India and tie-ups with Seneca, Canada and Anglia Ruskin University, UK for accreditation.

Freeform Solution Pte Ltd
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+65 6233 6927
sebastian@freeform.sg
www.freeform.sg
FreeForm Solution Pte Ltd is led by a team of experienced design professionals and users of different solutions throughout their years of experience. We serve customers throughout Singapore and also part of Southeast Asia.

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3. Swissotel The Stamford Hotel

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4. Grand Plaza Park Hotel
5. Carlton Hotel
6. Rendezvous Hotel
7. Parkroyal on Beach Road Hotel
8. Peninsula & Excelsior Hotel
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10. Bayview Hotel
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Museum of Contemporary Art Tokyo
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Animation Magazine reports on the business, technology, and art of animation. In addition to the monthly print publication, we offer a Daily Newsletter for breaking news, contests, animator profiles and special reports.

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CG Arena
www.cgarena.com
CG Arena.com is a leading graphics and animation portal where people come from all walks of life to read news, tutorials, reviews, interviews, and job listings, submit demo reels, and much more.
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Every issue of 3D World features practical training for each of the leading 3D packages. In this 10-page cover tutorial from issue 105, Scott Eaton reveals how to sculpt the female figure in ZBrush.

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CG India
www.cgindia.org/
CG India is an online magazine and CG portal that provides a wealth of information on 3D graphics, animation, computer graphics, and visual effects. CG India was founded in 2005 with a simple idea: providing a dedicated source of information and resources for CG artists. CG India is committed to providing valuable features that help CG artists in their creative pursuits and raising the standards for the entire industry.

CG Society
www.cgsociety.org
Ballistic Media works with artists worldwide to build the digital art community through management of The CGSociety. The CGSociety, offers a wide range of services to artists through forums, portfolios, training, jobs, and event services. Our web site boasts over 100,000 registered members, offers over 55,000 portfolios, hosts over 150,000 individual artworks, and receives as many as 3,000,000 visitors every month.

Ballistic Media was formed in 2003, when it became obvious that artists using the web site to post their work were also anxious to see it in print. Our initial success came from publishing the first digital art annual, EXPOSÉ, which has since grown beyond just a collection of digital art to become a focal point for the greater digital art community. Establishing ourselves as a quality boutique publisher has allowed us to diversify our list to include both multiple and single artist titles as well as tutorial books and DVDs.

Ballistic is proud to be a media partner with SIGGRAPH Asia 2008.

CG Visual
www.cgvisual.com/
CGVisual.com is a pioneer in CG-related web sites and has been serving the online CG community for more than eight years. Since its establishment in 2001, it has become the most popular CG-related website in Hong Kong.

CG Tantra
www.cgtantra.com/
The largest Indian portal of animation, VFX, and gaming that caters to the creative and technical needs of professionals and students in the traditional and digital realms. We also partner with various local and international events such as ABAI, FICCI, NASSCOM, IAD, ANIFEST, FMX, CGOverdrive, ANNECY, SIGGRAPH, etc. CG Tantra also organises CGTEXPO, India’s largest annual animation, VFX, and gaming expo. Witness the rising sun of the Indian animation industry with us.

Animation Reporter
India’s premier magazine devoted to animation, special effects, and gaming. Animation Reporters counts as its readers professionals and students associated with these industries.

Taxi Design
www.designtaxi.com
Taxi Design Network is a daily-updated creative site that attracts 12.9 million page views monthly and features all major creative and design disciplines. It currently has a global readership of over 300,000 creative professionals.

Start Drawing
www.startdrawing.org
A web-resource portal for Asia’s artists and drawings. This site was started with the aim of showcasing and sharing drawings from talented artists in Asia, and in the process, promoting the joys of drawing.
DIGITAL CONTENT EXPO
Planned to be held in October, 2009

ASIAGRAPH
CG festival held through cooperation among Japan, China, Korea and other Asian countries and areas.

ConTEX(Content Technology Expo)
Technology exhibition to introduce next-generation content-related technologies.

International 3D Fair
International event focused on 3D technologies.

Place:
Miraikan (National Museum of Emerging Science and Innovation)
Tokyo, Japan
<www.miraikan.jst.go.jp>

Organizer:
Digital Content Association of Japan (DCAJ)
Contact: info@dcexpo.jp

www.dcexpo.jp
CGINDIA is an online magazine and CG portal which provides wealth of information on 3D, animation, computer graphics and visual effects (VFX).

CGINDIA is founded (in year 2005) with a simple idea of providing dedicated source of information and resource useful for the CG artists. CGINDIA is committed to provide valuable features, which helps CG artists in their creative pursuit and raising standards for the entire industry.
Giving words to India’s doodles…
...bringing the world’s to India

Best source for all information on Indian Animation
Since 2003, AnimationXpress Network has connected with 3,000 companies worldwide and offered services to 100,000+ animation artists, VFX producers, gaming professionals, and students, offering news, jobs, classifieds, events, research, communication solutions, animation tourism, and international perspectives.

Highend 3D
www.highend3d.com
Highend3d is the number-one site in the world where users come to download 3D software, plugins, and scripts. The site has served over 60,000,000 download requests since its launch and is well known as the place to find resources for creative projects. Highend3d is number one on Google for “Maya plugins” and “character rigs”, number two for “3dsmax plugins”, and number one for over 5,000 other direct searches for plugins and scripts.

L33T & GameAxis Unwired
A dual-cover magazine for energized young urban trendsetters that accompanies them from youth to adulthood, provoking and exciting them with unsurpassed experiences. Featuring the latest and best in gear, entertainment, and street style, L33T & GameAxis Unwired transcends mere pop culture to serve as a contemporary resource for youths and young professionals who are looking to stay on the cutting edge. Our readers are the new elite of this age: savvy young consumers whose street and pop-cultured lifestyles are restricted only by their imaginations and the depth of their pockets.
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