PLAN YOUR EXPERIENCE
ADVANCE PROGRAM
SIGGRAPH 2018 offers several events and sessions that are individually chosen by program chairs to address specific topics in computer graphics and interactive techniques. Curated content is not selected through the regular channels of a comprehensive jury.

INTEREST AREAS
SIGGRAPH brings together a wide variety of professionals who approach computer graphics and interactive techniques from different perspectives. Our programs and events align with five broad interest areas (listed below). Use these interest areas to help guide you through the content at SIGGRAPH 2018.

- PRODUCTION & ANIMATION
- RESEARCH & EDUCATION
- ARTS & DESIGN
- GAMING & INTERACTIVE
- NEW TECHNOLOGIES
### SCHEDULE AT A GLANCE

Full Conference One Day registration is available. Includes admission to conference programs and events for the day purchased and the Exhibition (Tuesday-Thursday). It does NOT include Computer Animation Festival - Electronic Theater or Reception.

<table>
<thead>
<tr>
<th>Event</th>
<th>Saturday 11 August</th>
<th>Sunday 12 August</th>
<th>Monday 13 August</th>
<th>Tuesday 14 August</th>
<th>Wednesday 15 August</th>
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<tbody>
<tr>
<td>Registration</td>
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<td>Merchandise Pickup Center/SIGGRAPH Store</td>
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<td>Opening Ceremony and Awards Presentation</td>
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<td>ACM SIGGRAPH Award Talks</td>
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<td>ACM Student Research Competition Final Presentation</td>
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<td>Art Gallery</td>
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<td>Art Papers</td>
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<td>Attendee Lounge</td>
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<tr>
<td>Business Symposium</td>
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<tr>
<td>Computer Animation Festival - Electronic Theater</td>
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<tr>
<td>Computer Animation Festival - VR Theater</td>
<td>2:00 PM-5:00 PM (FP ONLY)</td>
<td>10:00 AM-5:30 PM</td>
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Registration Level:
- Full Conference
- Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies

#SIGGRAPH2018
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S2018.SIGGRAPH.ORG
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<thead>
<tr>
<th>Event</th>
<th>Saturday 11 August</th>
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<tr>
<td>Courses</td>
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<td>Emerging Technologies</td>
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<td>Exhibition Show Floor</td>
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<td>Experience Presentations</td>
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<td>9:00 AM - 12:15 PM AND 3:45 PM - 5:15 PM</td>
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<td>International Resource Center</td>
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<td>Job Fair</td>
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<td>Keynote Session</td>
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<td>Panels</td>
<td>10:45 AM - 12:15 PM AND 3:45 PM - 5:15 PM</td>
<td>10:45 AM - 12:15 PM</td>
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<td>Posters</td>
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<td>Poster Sessions</td>
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<td>Production Gallery</td>
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Registration Level:
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- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies

SCHEDULE AT A GLANCE

SCHEDULE SUBJECT TO CHANGE
## SCHEDULE AT A GLANCE

<table>
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<tr>
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<tr>
<td><strong>Production Sessions</strong></td>
<td>10:45 AM-12:15 PM</td>
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<td><strong>Real-Time Live!</strong></td>
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<td><strong>Reception</strong></td>
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<td><strong>SIGGRAPH Next</strong></td>
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<td><strong>Studio</strong></td>
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<td><strong>Talks</strong></td>
<td>10:45 AM-5:15 PM</td>
<td>9:00 AM-10:30 AM AND 2:00 PM-5:15 PM</td>
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<td><strong>Technical Papers</strong></td>
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<td><strong>Technical Papers Fast Forward</strong></td>
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<tr>
<td><strong>Virtual, Augmented and Mixed Reality (Immersive Pavilion)</strong></td>
<td>1:30 PM-5:30 PM</td>
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1. **Business Symposium Only** registration includes admission to the Computer Animation Festival - Electronic Theater for Monday only.

2. **Computer Animation Festival - VR Theater Ticketing**
   Due to limited space, the VR Theater is available to Full Conference Platinum and Full Conference attendees only. Tickets will be distributed at the Electronic Theater Exchange/VR Theater Ticket desk in Registration one day before each showing (i.e., Monday tickets are available on Sunday, Tuesday tickets on Monday, etc.). Note: For all other attendee levels, kiosks will be set up for individual viewings of select VR Theater content throughout the Immersive Pavilion venue. (Stay tuned for updates on this offering.)
REASONS TO ATTEND

WHY SIGGRAPH?
For more than four decades, SIGGRAPH conferences have been at the center of innovation in computer graphics and interactive techniques. Immerse yourself in a new generation of technology, trends and techniques at SIGGRAPH 2018.

LEARN
The most accomplished minds in research, design and development gather at SIGGRAPH to share their discoveries and innovations. From VFX and animation techniques to VR and game design, SIGGRAPH 2018 features five days of courses, talks, sessions and panels that will blow you away.

CREATE
Roll up your sleeves for hands-on exploration in the Studio. Demo the latest in mixed reality in the Immersive Pavilion. Go behind the VFX of the latest blockbuster game at one of our Production Sessions. Let SIGGRAPH reignite your imagination and then take your inspiration back to your workplace.

DISCOVER
Explore the latest software and hardware that’s changing the workplace for CG and VFX professionals. Learn from visionaries who are pushing the limits of VR and its application to games, healthcare and daily life. Join the brightest minds pushing the boundaries of computer graphics and interactive techniques.

SHARE
What’s your passion? SIGGRAPH gives you access to innovation and information that can’t be found anywhere else. Whether your interests are in research, production, new technologies or somewhere in between, you’re sure to find fresh ideas and technologies that will change the way you work and create.

BOND
Our community is diverse, curious, and passionate. We are artists and researchers, students and pioneers. We come from around the globe, from different disciplines, with various levels of experience and points-of-view. We gather at SIGGRAPH to create, discover and learn from one another.
CONFERENCE OVERVIEW

SIGGRAPH 2018 is a five-day immersion into the latest innovations in Computer Graphics, Animation, VR, Games, Digital Art, Mixed Reality and Emerging Technologies. Experience research, hands-on demos, and fearless acts of collaboration alongside fellow creatives, intellects and innovators.

Conference Registration Categories:
- Full Conference Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Business Symposium

OPENING CEREMONY AND ACM SIGGRAPH AWARDS PRESENTATIONS
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Monday, 13 August, 9-10:30 AM

ACM SIGGRAPH 2018 Award Recipients

The Computer Graphics Achievement Award
Daniel Cohen-Or
Tel Aviv University

ACM SIGGRAPH Outstanding Service Award
G. Scott Owen
Georgia State University

The Significant New Researcher Award
Gordon Wetzstein
Stanford University

The Distinguished Artist Award for Lifetime Achievement in Digital Art
Monika Fleischmann
Fraunhofer IZT Sankt Augustin

The Outstanding Doctoral Dissertation Award
Jun-Yan Zhu
Massachusetts Institute of Technology

ACM SIGGRAPH Practitioner Award
Bill Reeves
Pixar Animation Studios

ACM SIGGRAPH Academy
Induction Inaugural Members of the ACM SIGGRAPH Academy:
Past recipients of the Stephen A. Coons Award, the Distinguished Artist Award for Lifetime Achievement in Digital Art and the Computer Graphics Achievement Award.

ACM SIGGRAPH AWARD TALKS

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Monday, 13 August, 3:45-5:30 PM

The Computer Graphics Achievement Award
This award is given each year to recognize an individual for an outstanding achievement in computer graphics and interactive techniques.

ACM SIGGRAPH Outstanding Service Award
This award is given annually to recognize outstanding service to ACM SIGGRAPH by a volunteer. It recognizes persons who have given extraordinary service to ACM SIGGRAPH, both in the trenches and in positions of more responsibility or visibility, over a significant period of time.

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

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

The Outstanding Doctoral Dissertation Award
Awarded annually to recognize a recent doctoral candidate who has successfully defended and completed a dissertation in computer graphics and interactive techniques.

ACM SIGGRAPH Practitioner Award
This inaugural award will be given annually to recognize outstanding contributions to the practice and advancement of Computer Graphics and Interactive Techniques. It recognizes the very best and most influential applications and practitioners.

ACM STUDENT RESEARCH COMPETITION FINAL PRESENTATION
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Student posters are selected for judging at SIGGRAPH 2018. A panel of distinguished judges selects three semi-finalists in each category (undergraduate and graduate), who present their work to SIGGRAPH 2018 attendees. The competition is sponsored by Microsoft.

APPY HOUR
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Meet the next generation of mobile applications and their creators at Appy Hour. Interact with developers, and experience tomorrow’s mobile media.

ART GALLERY
---

Building upon an exciting and eclectic selection of creative practices mediated through technologies that represent the sophistication of our times, the SIGGRAPH 2018 Art Gallery will embrace the narratives of the indigenous communities near Vancouver and throughout Canada as a source of inspiration.
ART PAPERS

This program invites artists, theorists, historians, and researchers to submit contributions at the intersection of creative and technological innovation. Works cover the processes and theoretical frameworks for making art and contextualizing its place in society.

BIRDS OF A FEATHER (BOF)

Informal presentations, discussions, and demonstrations, designed by and for people who share interests, goals, technologies, environments, or backgrounds. For an updated list of the Birds of a Feather sessions visit: https://s2018.siggraph.org/conference/conference-overview/birds-of-a-feather/

BUSINESS SYMPOSIUM

New in 2018, the SIGGRAPH 2018 Business Symposium provides busy decision-makers with a weekend of insights into the state of the computer graphics industry and its future.

COMPUTER ANIMATION FESTIVAL

Electronic Theater: ● ● (on Monday Only)
VR Theater (Screenings): ●
VR Theater (Kiosks): ● ● ● ● ● 

Electronic Theater
A celebration of storytelling through the prism of computer graphics, with high-tech projection of the finest achievements in animated storytelling, visual effects, and scientific visualization.

VR Theater
The VR Theater is a space for attendees to experience next-generation storytelling in virtual reality.

COURSES

Whether it’s foundational material for researchers and practitioners, or a review of the state-of-the-art in a specific area, SIGGRAPH 2018 Courses offer learning opportunities for everyone.

EDUCATOR’S FORUM

The Educator’s Forum includes curated and juried content specifically targeted to educators, from K-12 through undergraduate and graduate programs. The Educator’s Forum includes a SIGGRAPH Education Committee Town Hall and Educator’s Meet and Greet.

INTERNATIONAL RESOURCE CENTER

Operated by the ACM SIGGRAPH International Resources Committee, the International Resource Center shares resources for our International visitors and offers a place for attendees to meet, collaborate, learn and be inspired. Learn how the industry is evolving worldwide and take advantage of informal translation services and space for meetings, talks, and demonstrations.

EXHIBITION

The largest, most comprehensive exhibition of hardware systems, software tools, and creative services in the computer graphics and interactive marketplace. Established industry leaders and emerging challenges display, discuss, and demonstrate the products, systems, techniques, ideas, and inspiration that are creating the digital future.

EXHIBITOR SESSIONS

Exhibitors demonstrate software, hardware, and systems; answer questions; and host one-on-one conversations about how their applications improve professional and technical performance.

EXPERIENCE PRESENTATIONS

Informal presentations on new ideas that are applicable to techniques, concepts, and strategies related to the Experience Hall (Art Gallery, Emerging Technologies, Studio) and Immersive Pavilion (Village and VR Theater) programs.

EMERGING TECHNOLOGIES

Test-drive the latest interactive and graphic technologies before they transform the way we live and work. SIGGRAPH 2018 includes hands-on demonstrations of research from three core areas of the human experience: health, home and entertainment.

JOBS FAIR

Looking for an opportunity? Interested in meeting with some inspiring companies? Discover your future at SIGGRAPH 2018. In the Job Fair, attendees connect with employers before, during, and after the conference via the CreativeHeads.net job board and candidate profiling system.

KEYNOTE SESSION

Monday, 13 August, 2-3:15 PM
SIGGRAPH 2018 is pleased to welcome Rob Bredow, head of Industrial Light & Magic, to share his unique vision of how media and technological innovation can intersect to tell great stories and create groundbreaking experiences.

PANELS

Expert panelists freely discuss and debate important topics in computer graphics and interactive techniques with each other and the audience.
CONFERENCE OVERVIEW

POSTERS

On display! Experience research and ideas from the global computer graphics community. The Posters Program at SIGGRAPH 2018 is the place to see where the field is headed. Posters may be in-progress research, student projects, or late-breaking work. During the Poster Presentations, authors discuss their work with attendees.

PRODUCTION GALLERY

This one-of-a-kind exhibit recognizes the art, processes, and physical materials involved in the creation of major studio projects — not just the final piece on screen. The gallery features artwork, props, costumes, and more from recent film, VR, or game productions.

PRODUCTION SESSIONS

Where the world’s most talented production teams share their processes and techniques from some of the most exciting content in computer animation, VFX, games and VR.

REAL-TIME LIVE!

It’s the future of interactive techniques, live on stage! Watch the most innovative interactive techniques as they are presented and deconstructed live by their creators.

RECEPTION

Monday, 13 August, 8-10 PM
East Building, Exhibit Hall B, Vancouver Convention Centre
Come Sail Away!
The SIGGRAPH 2018 reception will take place beneath the Canada Place Sails in the Vancouver Convention Centre East Building. Join fellow researchers, scientists, artists, and entrepreneurs to celebrate 45 years of innovation, imagination, and technological breakthroughs - the hallmarks of SIGGRAPH Conferences.
Gather with pioneers from the past and the upcoming generation of dreamers and thinkers who are shaping the future of computer graphics and interactive techniques.

SIGGRAPH NEXT

Brings together high-profile thought leaders to share visionary perspectives on emerging areas within computer graphics and interactive techniques. Topics speak to “What’s Next” for the industry, such as artificial intelligence and other groundbreaking new trends.

STUDIO

Create works of art, items of functionality, or objects of novelty. If you can imagine it, the SIGGRAPH Studio has the resources to help you make it a reality. Attend Studio Workshops that educate attendees on state-of-the-art processes and workflow pipelines.

TALKS

Go behind the scenes and into the minds of the conference creators in all areas of computer graphics technology and interactive techniques.

TECHNICAL PAPERS

The premier international forum for disseminating and discussing new scholarly work in computer graphics technology and interactive techniques.

TECHNICAL PAPERS FAST FORWARD

The world’s leading experts in computer graphics and interactive techniques preview the Technical Papers in provocative, sometimes hilarious summaries of the field’s evolution.

VIRTUAL, AUGMENTED AND MIXED REALITY

Come play with the future. New at SIGGRAPH 2018, Virtual, Augmented and Mixed Reality are on tap in the Immersive Pavilion, as we celebrate the evolution of the medium. The Immersive Pavilion is the place to experience, play, and learn about the latest technological advances. It will host physical spaces to learn about the advancements in immersive realities such as the Vrcade (games and experiences), the Museum and the Village (installations).
# CONFERENCE SCHEDULE

## REGISTRATION
- **Saturday, 11 August**
  5-7 PM
- **Sunday, 12 August**
  8:30 AM-6 PM
- **Monday, 13 August**
  8:30 AM-6 PM
- **Tuesday, 14 August**
  8:30 AM-6 PM
- **Wednesday, 15 August**
  8:30 AM-6 PM
- **Thursday, 16 August**
  8:30 AM-1 PM

## MERCHANDISE PICKUP CENTER/ SIGGRAPH STORE
- **Saturday, 11 August**
  5-7 PM
- **Sunday, 12 August**
  8:30 AM-6 PM
- **Monday, 13 August**
  8:30 AM-6 PM
- **Tuesday, 14 August**
  8:30 AM-6 PM
- **Wednesday, 15 August**
  8:30 AM-6 PM
- **Thursday, 16 August**
  8:30 AM-1 PM

## BUSINESS SYMPOSIUM
- **Saturday, 11 August**
  8 AM-6 PM
- **Sunday, 12 August**
  8:30 AM-1:30 PM

## SUNDAY, 12 AUGUST
- **8:30 AM-6 PM**
  Attendee Lounge

- **9-10:30 AM**
  Courses
  A Conceptual Framework for Procedural Animation

- **9-11 AM**
  Birds of a Feather
  Virtual Reality in Education

- **9 AM-12:15 PM**
  Courses
  - Getting Started with WebGL and Three.js
  - Introduction to the Vulkan Graphics API

- **9 AM-5 PM**
  ACM SIGGRAPH Diversity and Inclusion Summit
  ACM SIGGRAPH Sunday Workshops

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

- **9:30 AM-5:30 PM**
  Exhibitor Session
  NVIDIA

- **10-11 AM**
  Birds of a Feather
  International collegiate Virtual Reality Contest (IVRC)

- **10:45 AM-12:15 PM**
  Panels
  Color Mavens Advise on Digital Media Creation and Tools

  Talks
  - Well Worn
  - Best of SIGCHI

## BUSINESS SYMPOSIUM
- **11:30 AM-12:30 PM**
  ACM SIGGRAPH Theater Event
  CG in Australasia

- **12:30-2 PM**
  Birds of a Feather
  Demoscene Underground Real-Time Art Worldwide

- **1:30-5:30 PM**
  Art Gallery
  Computer Animation Festival: VR Theater Kiosks
  Emerging Technologies
  Immersive Pavilion
  Posters
  Production Gallery
  Studio

- **2-3 PM**
  ACM SIGGRAPH Theater Event
  SIGGRAPH in Japanese + Japan CG Showcase

- **2-3:30 PM**
  Birds of a Feather
  Blender Foundation - Community Meeting

  Courses
  - Story: It’s Not Just for Writers...Anymore!

  Talks
  - Augmenting Your Reality
  - Hares & Hairs
  - It’s a Material World
  - IEEE TVCG Session on Virtual and Augmented Reality

- **2-5 PM**
  Computer Animation Festival: VR Theater
  (Full Conference Platinum Only)
MONDAY, 13 AUGUST

8-8:45 AM
SIGGRAPH Next
The Future’s Waiting

8:30-9 AM
Educator’s Forum
Education Committee Welcome

8:30 AM-6 PM
Attendee Lounge

9-10 AM
Exhibitor Session
Autodesk

9-10:30 AM
Educator’s Forum
Panel: FuturePrep – Industry Views on Education

Opening Ceremony and Awards Presentation

Talks
• Be There or Be Square
• Clean Up Your Room!
• Effects Blender

9-11 AM
Birds of a Feather
The Immersive Visualisation for Science, Research and Art

9 AM-12:15 PM
Courses
• Advances in Real-Time Rendering in Games Part 1
• An Introduction to Physics-Based Animation
• Fundamentals of Color Science

9 AM-5 PM
Exhibitor Session
MPC Film

2-5:15 PM
Courses
Deep Learning: A Crash Course

3-4:30 PM
ACM SIGGRAPH Theater Event
Open Forum of the ACM SIGGRAPH Digital Arts Community

3:30-4:30 PM
Birds of a Feather
Blender Spotlight

3:45-5:15 PM
Experience Presentations
Augmented Reality is Here

Panels
• Design and Implementation of Modern Production Renderers
• Interactive Dance Club ‘98 - a Legend in the Making!

Talks
• En Masse
• IEEE TVCG Session on Advances in Data Visualization
• Olaf’s Image Capture Adventure!

4-4:30 PM
Birds of a Feather
Spanish Speakers in Animation and VFX Meetup

4:30-5:30 PM
ACM SIGGRAPH Theater Event
SIGGRAPH for Beginners - General View

6-8 PM
Technical Papers Fast Forward
9 AM–6 PM
International Center

9:30 AM–12:30 PM
Exhibitor Session
NVIDIA

9:30 AM–6 PM
Posters

10 AM–5:30 PM
Art Gallery
Computer Animation Festival: VR Theater
Emerging Technologies
Immersive Pavilion
Production Gallery
Studio
Studio Workshops

10:15–11:45 AM
Studio Workshop
3D Printing

10:30 AM–12 PM
Birds of a Feather
• Massive Collaborative Animation Projects
• MaterialX: An Open Standard for Network-Based CG Object Looks

Exhibitor Session
Shotgun Software (Autodesk) - Class: Toolkit Administration

10:45 AM–12:15 PM
Educator’s Forum
Groovy Graphic Assignments I
Panel
VR@50: Celebrating Ivan Sutherland's 1968 Head-Mounted 3D Display System
Production Session
DNEG, Framestore, and MPC Present: The Visual Effects of "Blade Runner 2049"

10:45 AM–12:35 PM
Technical Papers
• A Race to the Bottom (of the Geometric Energy Plot)
• An Immersion in Computational Geometry
• Computational Photography

10:45 AM–12:35 PM
Technical Papers
• The Massive Collaborative Animation Projects & the Student Experience

11 AM–12 PM
ACM SIGGRAPH Theater Event
CG in Asia

12–1:30 PM
Birds of a Feather
ACM SIGGRAPH Cartographic Visualization (Carto)

12–2 PM
Exhibitor Session
Foundry (lunch included)

12:15–1:15 PM
Poster Sessions

12:30–1:30 PM
Birds of a Feather
Meet the Candidates for the ACM SIGGRAPH Executive Committee

1–2 PM
Birds of a Feather
Open Shading Language

2–3:15 PM
Keynote Session
Rob Bredow, Industrial Light & Magic

2–3:30 PM
Talks
Potpourri

Technical Papers
• Cloth Encounters of the Shirt Kind
• Smart Integration for Real-Time Rendering
• Virtually Human

2–5:15 PM
Courses
• Advances in Real-Time Rendering in Games Part 2
• Applications of Vision Science to Virtual and Augmented Reality

3–5 PM
Birds of a Feather
Web3D Korea Chapter Standardization Meeting

3:30–4:30 PM
Birds of a Feather
• ACM SIGGRAPH Discussion of New Communities and New Frontiers
• AliceVision: an Open Source Photogrammetry Pipeline in Visual Effects Production
• The Massive Collaborative Animation Projects & the Student Experience

Exhibitor Session
Autodesk

3:45–5:15 PM
ACM SIGGRAPH Award Talks
Educator’s Forum
Groovy Graphics Assignments II
Experience Presentations
• Alternative Multiviewer Visual Displays
• Creating Virtual Realities

Studio Workshop
Imverse Livemaker – 1
Talk
Production Junction
**3:45-5:35 PM**
Talk
Gouging the Surface

**4-5 PM**
ACM SIGGRAPH Theater Event
Origins of SIGGRAPH: The History of Innovation, Community, and Creative Expression

**4-6 PM**
Exhibitor Session
Foundry

**5:30-8:30 PM**
Birds of a Feather
UW CSE Reunion Gathering

**6-8 PM**
Birds of a Feather
The 31st Anniversary, Kawaguchi’s Sake Party at SIGGRAPH
Computer Animation Festival: Electronic Theater

**8-10 PM**
Conference Reception
Come Sail Away!

**TUESDAY, 14 AUGUST**

**8-8:45 AM**
SIGGRAPH Next
Connections: The Intersection of Graphics and Medicine

**8:30-9 AM**
Educator’s Forum
Education Committee Welcome

**8:30 AM-6 PM**
Attendee Lounge

**9-10 AM**
Exhibitor Session
Pixit Media, Jellyfish Pictures, and Microsoft

**9-10:30 AM**
ACM SIGGRAPH Theater Event
Introduction to the Digital Arts Community Online Exhibitions
Educator’s Forum
Talks: VR/AR in Education
Talks:
For the Love of Tech Art
Technical Papers
• Cleaning Up the Mesh We Made
• Computational Photos and Videos
• Interaction/VR

**9 AM-5 PM**
Exhibitor Sessions
• Amazon Web Services
• Autodesk

**9 AM-6 PM**
International Center

**9:30 AM-12:30 PM**
Exhibitor Session
NVIDIA

**9:30 AM-6 PM**
Exhibition Show Floor
Job Fair
Posters
StudioXperience

**10-11 AM**
Exhibitor Session
Chaos Group

**10-11:30 AM**
Birds of a Feather
Leonardo: Where Ideas Don’t Take Sides

**10 AM-12 PM**
Exhibitor Sessions
• Foundry
• Walt Disney Company

**10 AM-5:30 PM**
Art Gallery
Computer Animation Festival: VR Theater
Emerging Technologies
Immersive Pavilion
Production Gallery
Studio

**10:15-11:45 AM**
Studio Workshop
LEDs as Sensors

**10:30-11:30 AM**
Birds of a Feather
Emphasizing Empathy in the Pipeline Process
Exhibitor Session
Mr. X and Microsoft

**10:30 AM-12 PM**
Birds of a Feather
CesiumJS: 3D Globes on the Web
## Conference Schedule

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

**Courses**
Color in Advanced Displays: HDR, OLED, AR, and VR

**Educator’s Forum**
Talks: SIGCSE Reprise

**Production Session**
“Wreck-It Ralph 2”: Visualizing the Internet

**Talks**
- Ski
- USD Certified Lean, Eh?

### 10:45 AM-12:35 PM

**Technical Papers**
- Image & Shape Analysis With CNNs
- Layers, Glints and Surface Microstructure

### 11 AM-12 PM

**Exhibitor Session**
- Chaos Group
- Pixar Animation Studios

### 12-1 PM

**ACM SIGGRAPH Theater Event**
CG in Canada: Education to Industry

### 12-1:30 PM

**ACM SIGGRAPH Theater Event**
Women in CG
**Birds of a Feather**
- Maps, Urban Data, and Geocoding in Graphics
- OpenColorIO Meetup
- Teaching Virtual Reality

**Exhibitor Session**
- Pixar Animation Studios

### 1-3 PM

**Exhibitor Session**
- Foundry

### 1:30-2:30 PM

**Birds of a Feather**
- Sharing Ideas in Teaching 3D Animation

### 2-3 PM

**Birds of a Feather**
- Going Cloud Native

**Exhibitor Sessions**
- Chaos Group
- Panasas, Inc.

### 2-3:30 PM

**ACM SIGGRAPH Theater Event**
Thesis Fast Forward
**Educator’s Forum**
Course: Bringing 3D Printing to the Classroom

**Experience Presentations**
- Stories in Virtual Reality - Part 1
- Technologies in Near Eye Displays

**Panel**
Future Artificial Intelligence and Deep Learning Tools for VFX

**Production Session**
“Game of Thrones” Season 7: Orchestrating Sea Battles and Blowing Up a Big Wall

**Reception**
Leonardo, Art Papers, and Art Gallery

**Studio Workshop**
Unity Games 1: Scriptable Render Pipeline From Scratch

**Technical Papers**
- Cutting, Zipping and Folding Surfaces
- That’s Elastic
- Volume Rendering and Global Illumination

### 3-4 PM

**Birds of a Feather**
- Cloud Rendering
- OpenTimelineIO: Official Open-Source Meet Up

**Exhibitor Sessions**
- Chaos Group
- Pixar Animation Studios

### 3-4:30 PM

**Birds of a Feather**
- Autonomous Driving Simulation and Visualization

### 12:15-1:15 PM

**Poster Sessions**

### 12:15-1:45 PM

**Art Gallery Opening Sessions and Session #1**

### 12:30-1:30 PM

**Exhibitor Session**
- Microsoft
3:30-4:30 PM
ACM SIGGRAPH Theater Event
Creative BC - Levering Incentives in Animation, VFX & Film

Birds of a Feather
Online Collaboration with Virtual Studio Production

Exhibitor Session
Isotropix

3:45-5:15 PM
Courses
Digital Typography Rendering

Educator’s Forum
Talks: Animation in Education

Production Session
LAIKA’s “Missing Link”: Raising the VFX Bar

Studio Workshop
Imverse Livemaker - 2

Talks
• Creating the Unreal
• Tripping the Light VR

3:45 - 5:30 PM
Art Papers Session #1
Technical Papers
• Fluids 1: Raiders of the Lost Volume
• Taking Flight

4-5 PM
Exhibitor Session
Chaos Group

4-6 PM
Birds of a Feather
USD and OpenSubdiv: Official Open-Source Meet Up

Exhibitor Sessions
• Foundry
• Pixar Animation Studios

4:30-6 PM
ACM SIGGRAPH Theater Event:
CG in Latin America

6-7:45 PM
Real-Time Live!

6-11 PM
Birds of a Feather
StudioSysAdmins 10 Year Anniversary Studio Mingle

9-11 PM
Computer Animation Festival:
Electronic Theater

WEDNESDAY, 15 AUGUST

8-8:45 AM
SIGGRAPH Next
NextGen Education Models

8:30 AM-7 PM
Attendee Lounge

9-10 AM
Birds of a Feather
Paving the Way: Digital Art at SIGGRAPH 1980 - 1999

9-10:30 AM
Experience Presentations
Designing for a Digital World

Talks
Light it Up

Technical Papers
• Fields and Remeshing
• Fluids 2: Vortex Boogaloo
• Sketching

9-11 AM
ACM SIGGRAPH Theater Event
ACM SIGGRAPH Chapters Fast Forward and Startup Meeting

9 AM-12:15 PM
Courses
• 3D User Interfaces for Virtual Reality and Games: 3D Selection, Manipulation, and Spatial Navigation
• Monte Carlo Methods for Physically Based Volume Rendering

9 AM-6 PM
Exhibitor Session
Autodesk Vision Series

9 AM-6 PM
International Center
CONFERENCE SCHEDULE

9:30 AM-12:30 PM
Exhibitor Session
NVIDIA

9:30 AM-6 PM
Exhibition Show Floor
Job Fair
Posters

10-11 AM
Birds of a Feather
Openscenegraph
Exhibitor Session
Chaos Group

10 AM-12 PM
Birds of a Feather
Creating Compelling CG Worlds at the Jet Propulsion Laboratory

10 AM-5 PM
Exhibitor Session
Blue Sky Studios

10 AM-5:30 PM
Art Gallery
Computer Animation Festival: VR Theater
Emerging Technologies
Immersive Pavilion
Production Gallery
Studio

10:15-11:45 AM
Studio Workshop
Designing Mini-Skateboard Designs for Laser Etching

10:30 AM-11:30 AM
Exhibitor Session
Deep Vision Data

10:30 AM-12:30 PM
VR/MR/AR 4 Good: Creating with a Purpose

10:45 AM-12:15 PM
Production Session
Three Keys to Creating the World of “Ready Player One” - Visual Effects & Virtual Production

10:45 AM-12:35 PM
Art Papers Session #2
Technical Papers
• 3D Capture
• Flattening, Unflattening and Sampling
• Sounds Good!

11 AM-12 PM
Birds of a Feather
• Gaffer: Open Source Lookdev, Lighting, and Automation
• Immersive Media
Exhibitor Sessions
• Chaos Group
• Pixar Animation Studios

11 AM-12:30 PM
Birds of a Feather
Design Printing and Scanning: Web3D Makers Making More!

12-1 PM
Birds of a Feather
Mobile VR/AR Meetup

12-1:30 PM
Birds of a Feather
VFX Reference Platform - A Common Target for Building VFX Software
Exhibitor Session
Nimble Collective and Microsoft

12:30-2 PM
Birds of a Feather
• Berthouzoz Women in Research Lunch
• ISEA International Open Forum
• Material Definition Language (MDL): Application Independent PBR Materials
• WebVR Evolution for a Larger Web

1-1:30 PM
Birds of a Feather
Make a Difference - Get Involved with the SIGGRAPH Education Committee

1-2 PM
Exhibitor Session
Pixar Animation Studios

1-2 PM
Exhibitor Session
Walt Disney Company

2-3 PM
Birds of a Feather
• DCAJ Presentation “Advanced Content Technology in Japan”
• It’s Time to Kill the Demo Reel
Exhibitor Session
Chaos Group

12:15-1:15 PM
Poster Session
2-3:30 PM
Art Gallery Session #2
Experience Presentations
Birds of a Feather
• British Columbia Virtual and Augmented Reality BOF Gathering
• Computer Graphics for Simulation
• Scaling Up 3D Medical Applications for People Everywhere
Experience Presentations
• Experiencing Realities - Part 1
• Let’s Get Physical
Panels
The Present and Future of Real-Time Graphics for Film
Production Session
“The Incredibles 2”: Suit Up, It Might Get Weird!
Studio Workshop
Unity Games 2: Customizing a Production Render Pipeline
Technical Papers
• Computational Cameras
• Decision & Style
• Deep Thoughts on How Things Move

2-5 PM
Exhibitor Session
NVIDIA

2-5:15 PM
Courses
Pathtracing in Production

3-4 PM
Exhibitor Sessions
• Chaos Group
• Pixar Animation Studios

3:30-4:30 PM
Emerging Technologies Award Ceremony

3:45-5:15 PM
ACM Student Research Competition Final Presentation
Art Gallery Session #3
Experience Presentations
Games in Multiple Realities
Panels
Visual Effects in the Age of the Cloud
Production Session
Generations of Houdini in Film
Studio Workshop
Inverse Livemaker – 3
Technical Papers
Perception & Haptics

3:45-5:35 PM
Technical Papers
• Learning for Rendering and Material Acquisition
• Textiles & Microstructures

4-5 PM
Birds of a Feather
Undergraduate Research Alliance
Exhibitor Session
Chaos Group

4-6 PM
Birds of a Feather
ACCAD / Ohio State University Gathering

5-7 PM
Appy Hour

8-10 PM
Computer Animation Festival: Electronic Theater

THURSDAY, 16 AUGUST
8:30 AM-3:30 PM
Attendee Lounge

9-10:30 AM
Experience Presentations
• Paddles, Swords, Rubber Arms, and Other Haptic Tools
• Stories in Virtual Reality - Part 2
Technical Papers
• Design
• New Additions (and Subtractions) to Fabrication
• Pipelines and Languages for the GPU

9 AM-12:15 PM
Courses
• Moving Mobile Graphics
• Topics in Real-Time Animation

9 AM-3:30 PM
International Center

9:30 AM-12:30 PM
Exhibitor Session
NVIDIA

9:30 AM-3 PM
StudioXperience

9:30 AM-3:30 PM
Exhibition Show Floor
Posters

10 AM-3:30 PM
Art Gallery
Computer Animation Festival: VR Theater
Emerging Technologies Immersive Pavilion Production Studio
10:45 AM-12:15 PM  
Production Session  
“Crow: The Legend” - Bringing a Native American Legend into VR  
Talk  
Sampling the Product  

10:45 AM-12:35 PM  
Technical Papers  
- Animation Control  
- Disorder Matter: From Shells to Rods and Grains  
- Shape Analysis  

12-1:30 PM  
Studio Workshop  
Creating an Immersive Scene Using Amazon Sumerian  

12:30-2 PM  
Birds of a Feather  
French Schools Screening  

2-3:30 PM  
Courses  
Cage-Based Performance Capture  
Panels  
The Past, Present and Future of the Video Game Cinematic  
Production Session  
Making the Kessel Run in Less Than 12 Parsecs - The VFX of “Solo: A Star Wars Story”  
Studio Workshop  
Unity Games 3: Creating a Custom Production Ready Render Pipeline  
Talks  
Ohooo Shiny!  
Technical Papers  
- An Atlas for the World and Other Surfaces  
- Fabrication for Color and Motion  
- Portraits & Speech  

2-5:15 PM  
Courses  
Machine Learning and Rendering  

3:45-5:15 PM  
Experience Presentations  
Experiencing Realities - Part 2  
Production Session  
The Making of Marvel Studios’ “Avengers: Infinity War”  
Talks  
Blow it Up Real Good  
Technical Paper  
Bodies in Motion Human Performance Capture  

COME SAIL AWAY AT THE SIGGRAPH 2018 RECEPTION!  

Gather with pioneers from the past and the upcoming generation of dreamers and thinkers who are shaping the future of computer graphics and interactive techniques.  

When: Monday, 13 August, 8-10 PM  
Where: East Building, Exhibit Hall B, Vancouver Convention Centre
During Appy Hour, the latest mobile app creations are on tap for attendees to test drive and share their feedback with the independent app developers who created them.

**WEDNESDAY, 15 AUGUST, 5-7 PM**

**Augmented Reality Interfaces for the Internet of Things**
- An overview of several augmented reality Interfaces for the Internet of Things, from virtual pets to ambient temperature awareness is presented.
  
  Yosun Chang  
  AReality3D, Permute.xyz

**Game Environment**
- This is my personal open world game environment project that includes Lamborghini hurricane driving around the city.
  
  Rudraksh Jain  
  Arena Animation Ajmer

**HoloSensor for Smart Home, Health**
- HoloSensor combines two emerging technologies, augmented reality and Internet of Things, to enhance the visual analytics of sensor data. With its minimalist design and intuitive UI, it allows users to create and interact with holograms that display meaningful information about sensors in your home in real-time and in any device.
  
  Jisun Jang  
  CSIRO Data61, The University of Sydney
  Tomasz Bednarz  
  CSIRO Data61, UNSW EPICentre

**Kid-Friendly Digital Mirror for Education and Exercise**
- REALITEER Corp. created a cross-platform and kid-friendly digital mirror that can be used for education and body exercise utilizing AR/VR technologies. In a gamified manner, we take users through educational research-based exercises that will not only tackle the psychiatric and physical conditions but better overall well-being.
  
  Fangwei Lee  
  Janet Yu-Jung Lin  
  Eliot Segal  
  REALITEER Corp.

**MaeSTrO: Mobile-Style Transfer Orchestration Using Adaptive Neural Networks**
- This mobile app enables users to direct, edit, and perform on-device neural style transfers for interactively transforming photos into artistic renditions. At this, multi-style generative and adaptive neural networks can be locally controlled by on-screen painting metaphors to direct a semantics-based composition and perform location-based filtering.
  
  Max Reimann  
  Amir Semmo  
  Hasso Plattner Institute, University of Potsdam for Digital Engineering gGmbH
  Sebastion Pasewaldt  
  Mandy Klingbeil  
  Digital Masterpieces GmbH  
  Jurgen Döllner  
  Hasso Plattner Institute, University of Potsdam for Digital Engineering gGmbH

**Mobile Inside-Out VR Tracking Now Available on Your Phone**
- VR is all about immersion, and tracking the user’s position is a fundamental element of VR. To date, this has only been available in desktop and console VR. This app shows that it is possible to achieve inside-out tracking for mobile VR in the latest devices incorporating Google ARCore.
  
  Roberto Lopez Mendez  
  Arm Ltd.

**SuperD: Fast Organic Modeling on Your Mobile**
- The SuperD app is a conceptual modeler, with a SubD-like interface but better surfacing; it also runs quickly on mobiles. It has an easy intuitive interface with finger gestures, resulting in sophisticated shapes that are watertight for 3D printing. Content and a segue for VR/AR are provided.
  
  Alyn P. Rockwood  
  Boulder Graphics LLC

**The Hiatus System**
- The Hiatus System is a mobile VR project that utilizes a mixture of modern and ancient Buddhist meditation techniques in an effort to teach an individual how to better cope with and manage stress. This work combines the disciplines of design, art, psychology, emerging technology and neuroscience.
  
  Kevin Bruggeman  
  KJ Studio, Ohio State University
  Skylar Wurster  
  Ohio State University

**WallText: Augmented Reality Messaging Platforms**
- Augmented reality can be an expressive platform for text-based augmentations. We will show several apps, from graffiti to annotations built on AReality3D WallText platform.
  
  Yosun Chang  
  AReality3D, Permute.xyz
Building upon an exciting and eclectic selection of creative practices mediated through technologies that represent the sophistication of our times, the SIGGRAPH 2018 Art Gallery will embrace the narratives of the indigenous communities near Vancouver and throughout Canada as a source of inspiration.

LEONARDO

A special issue of Leonardo, The Journal of the International Society of the Arts, Sciences and Technology includes visual documentation of the works exhibited in the Art Gallery. Publication of this special issue coincides with SIGGRAPH 2018.

RECEPTION: LEONARDO, ART PAPERS, AND ART GALLERY

Tuesday, 14 August, 2-3:30 PM
Mix and mingle with artists, researchers, and authors whose works were selected for SIGGRAPH 2018. Meet the Leonardo team and members of the SIGGRAPH 2018 committee. Sponsored by Leonardo/ISAST and The MIT Press.

EXPERIENCE PRESENTATIONS

Artist talks will be presented in the Art Gallery at the following times:

Art Gallery Opening Session and Session #1: Artist Talks
Tuesday, 14 August, 12:15 - 1:45 PM
Skawennati Fragnito
Shawn Hunt, Andy Klein, and Microsoft Garage
Dima Veryovka and Amy Fredeen
Moderator: Andres Burbano

During Leonardo Reception in the Art Gallery
Tuesday, 14 August, 2-3:30 PM
Ernest Edmonds
Roger Malina
Nicole L’Huillier
Mirjana Prpa
Moderator: Erica Hruby
Coordinators: Angus Forbes, Andres Burbano

Session #2: Artist Talks
Wednesday, 15 August, 2-3:30 PM
Daniel Cardoso
Ozge Samanci
Milton Sagobe and Fernando Fogliano
Moderator: Nik Apostolides

Session #3: Artist Talks
Wednesday, 15 August 3:45-5:15 PM
Marko Peljhan
Ruth West
Alex Beim
Moderator: Daniel Cardoso

FEATURED WORKS

Art Systems: 1968 to 2018
This project showcases Ernest Edmonds’ (UK) 2017 ACM SIGGRAPH Lifetime Achievement Award in Digital Art, featuring the following artworks: Nineteen (1968), Datapack (1969), Communications Game (1972), and Shaping Form (2002). All these artworks are directly related to papers published in Leonardo since 1973, from issue 3 until now.
Ernest Edmonds
De Montfort University

She Falls For Ages
This sci-fi retelling of the Haudenosaunee (Iroquois) creation story reimagines Sky World as a futuristic utopia and Sky Woman as a brave astronaut and world-builder. When she learns that her planet is dying, Sky Woman volunteers to become the seed of the new world, an Earth covered in water. Produced using the new media technique known as machinima, She Falls For Ages boldly mixes ancient storytelling with science fiction to connect the deep past with the far future.
Skawennati Fragnito
Aboriginal Territories in Cyberspace
He Ao Hou (A New World)

"He Ao Hou" is a point-and-click adventure game set in the far future, when your people (Native Hawaiians) have attained the next level of navigation: space travel. It is the result of a unique workshop: Skins Workshops on Aboriginal Storytelling and Video Game Design, offered by an Aboriginal-determined team.

Nā 'Anae Mahiki
Aboriginal Territories in Cyberspace

Transformation Mask

The Raven, the ultimate trickster, has become a cyborg. In this collaboration with Microsoft Vancouver, Shawn Hunt moves away from engaging with the handmade, exploring authenticity and our expectations of what it means to be indigenous through the removal of the hand-carved surface. The mask appropriates the traditional aspects of metamorphosis with the transformation from bird mask to human; yet in this adaptation, the human mask has been altered, upgraded, and merged with the machine. Incorporating aspects of technology, sound, and space, each part of the work reflects Hunt's interest in how we understand and identify with the term "indigenous."

Shawn Hunt
Independent Artist
Robert Butterworth
Jeremy Kersey
Andy Klein
Julia Taylor-Hell
Jonathan Cobb
Brent Silk
Brendan O’Rourke
Stacey Mulcahy
Microsoft Garage

Never Alone: The Art and the People of the Story

We paired world-class game makers with Alaska Native storytellers and elders to create a game that delves deeply into the traditional lore of the Inupiat people to present an experience like no other. Never Alone is our first title in an exciting new genre of "World Games," which draws fully upon the richness of unique cultures to create complex and fascinating game worlds for a global audience.

Amy Fredeen
Cook Inlet Tribal Council, E-Line Media
Dima Veryovkina
Oculus VR, E-Line Media

Sombrium

SUMNIUM is a cybernetic installation that provides visitors with the ability to sensorily, cognitively and emotionally contemplate and experience exoplanetary discoveries, their macro and micro dimensions, and the potential for life in our galaxy.

Danny Bazo
Meow Wolf
Marko Peljhan
University of California Santa Barbara, Projekt Atol Institute
Karl Yerkes
University of California Santa Barbara

Archeology of CAD I: Interactive Software Reconstructions of the ‘Coons Patch’ and ‘Sketchpad’

Two interactive software reconstructions allow gallery visitors to experience two seminal developments in Computer-Aided Design (CAD) history: Steven A. Coons’ “Patch” (1967) and Ivan Sutherland’s “Sketchpad” (1963). Based on archival research, and custom software and hardware design, these interactive systems offer access beyond the visual into sensual, gestural, and interactive aspects of these landmark computational design techniques. Along with the two reconstructions, a selection of rare handwritten notes by original authors Coons and Sutherland are displayed to offer additional context about the origins of CAD.

Daniel Cardoso-Llach
Carnegie Mellon University

You are the Ocean

You are the Ocean, an interactive installation, generates ocean waves and clouds in response to brain waves of a participant. Water, light, clouds, and lightning are realistically simulated by computer code. A participant wears an EEG (Electroencephalography) headset that measures the user’s approximate attention and meditation levels via brain waves. Through relaxation and concentration, the subject can control the water and sky. Attention level affects storminess: With higher concentration, the waves get higher and the clouds thicken. By calming their mind, the subject can create a calm ocean.

Ozge Samanci
Gabriel Caniglia
Northwestern University

Sopro and Toque (The Blow and Touch)

Considering the discussion on sustainable sources of energy, Sopro (The Blow) and Toque (Touch) seek to aesthetically use the audience’s body energy to interact and animate the artworks.

Milton Sugabe
São Paulo State University
Fernando Luiz Fogliano
University of São Paulo
Fabio Oliveira Nunes
Carolina Peres
Soraya Braz
Rodrigo Dorta
Cleber Gazana
Mirian Steinberg
Melina Furquin
Daniel Malva
São Paulo State University

Diastrophisms

Diastrophisms is a sound installation with a modular system that sends images through rhythmic patterns. It is built on a set of debris from the Alto Río building that was destroyed by the 27F earthquake in 2010 in Chile. With Diastrophisms, we were looking for a poetical, critical, and political crossing between technology and matter in order to raise questions on the relationship between human beings and nature, and to consider the construction of memory in a community by questioning the notion of monument, as well as to imagine new forms of communication in times of crisis.

Nicole L’Huillier
Yasushi Sakai
Massachusetts Institute of Technology / Media Lab
Thomas Sanchez Lengeling
Massachusetts Institute of Technology
INSTRUMENT | One Antarctic Night

INSTRUMENT | One Antarctic Night lets you jam to the rhythm of 817,373 stars through the power of VR. Created from starlight reaching robotic telescopes in Antarctica after a 160,000-year journey, the experience transports players inside of a star field from the heart of the Large Magellanic Cloud. We're transforming over 758 million data points about 817,373 astronomical objects into a virtual world of light and sound. Inside this luminous space, multiple players collaboratively create new visual and sound remixes from data about the stars and bring to life the rhythms of the cosmos in an endless remix instrument.

Ruth West
Violet Johnson
I Chen Yeh
Zach Thomas
University of North Texas, xREZ Art + Science Lab
Eitan Mendelowitz
Mount Holyoke College
Lars Berg
Independent Artist

Cocoons

Cocoons produce a place of security and tranquility. Like a mother’s womb, they are the ultimate comfort zone: the place of origin, where it all begins. Our installation, also named Cocoons, lets you stop, find yourself, and maybe come out and start your day again. A new beginning. We created two organic-shaped inflatables that allow people to go inside and be present at an event while also having a personal, meditative experience. Designed as meta balls, spheres that blend together in a natural configuration, each maintains shape with an electric fan. To enter, guests simply go through a zippered doorway.

Alex Beim
Tangible Interaction

Origins + Journeys

Origins + Journeys is a juried online exhibition organized by the ACM SIGGRAPH Digital Arts Community and conceived alongside the Original Narratives on-site exhibition at SIGGRAPH 2018. The origins and journeys of the selected works are imagined thematically and conceptually, through both the medium and content of the work, which ranges from exploration of the history of digital art, to reflections on personal and collective memories and identities, to provocations towards possible, techno-mediated futures.

List of Projects:
Topography of the Unseen
Volker Kuchelmeister
UNSW University of New South Wales
Occupation
Esteban Gutiérrez
FUBA
Roots, Journeys, Diaspora and Refuge
Leslie Nobler
William Paterson University
Deconstruct to Reconstruct
Jennifer Zaylea
University of the Arts
Structural Analogy
Yuan-Yi Fan
yuanyifan.com
Algorithmic Signs-Five Pioneers of Computer Art in Conversation
Francesca Franco
De Montfort University
Dot
Anna Ursyn
Robert Ehle
University of Northern Colorado
Robert Ehle
University of Northern Colorado
The Zero-Gravity Band
Albert Barqué-Durán
Marc Marzenit
Quo Artis Foundation
Elisa Ferré
Vestibular Multisensory Embodiment
Royal Holloway University of London
A Brief History of Computer Graphics
Daniel Pillis
Carnegie Mellon University
Embodied Distortion
Ella Husbands
Quo Arts Foundation

Zodici in the Lower East Side
Cynthia Beth Rubin
C B Rubin studio
Kris Tonski
Fusion Design
Yona Verwer
YV Studio
Unsettled Interlude | Origin: 45.79835°, -92.36738°
Carlos Rosas
The Pennsylvania State University
Unsettled Drift | Origin 44.981397°, -93.150807°
Carlos Rosas
The Pennsylvania State University
Quetzalcoatl 2.0.1.2
Yucef Merhi
Independent Artist
This program invites artists, theorists, historians, and researchers to submit contributions at the intersection of creative and technological innovation. Works cover the processes and theoretical frameworks for making art and contextualizing its place in society.

**Art Papers Posters Session Presentation**
Wednesday, 15 August, 12:15-1:15 PM

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**LEONARDO**

In collaboration with Leonardo/ISAST, the Art Papers are published in a special issue of Leonardo, *The Journal of the International Society of the Arts, Sciences and Technology.* The issue also includes visual documentation of the works exhibited in the Art Gallery. Publication of this special issue coincides with SIGGRAPH 2018.

**RECEPTION: LEONARDO, ART PAPERS, AND ART GALLERY**

Tuesday, 14 August, 2-3:30 PM

Mix and mingle with artists, researchers, and authors whose works were selected for SIGGRAPH 2018. Meet the Leonardo team and members of the SIGGRAPH 2018 committee. Sponsored by Leonardo/ISAST and The MIT Press.

**SESSION 1**

Tuesday, 14 August, 3:45-5:35 PM

**Augmented Fauna and Glass Mutations: A Dialogue Between Material and Technique in Glassblowing and 3D Printing**

The two presented artworks, Augmented Fauna and Glass Mutations, were created during an artist residence at the Pilchuck Glass School. They are examples of the qualities and methods established through a synthesis between digital workflows and traditional craft processes, and thus formulate the notion of Digital Craftsmanship.

Tobias Klein
City University of Hong Kong

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**Holojam in Wonderland: Immersive Mixed Reality Theater**

“Holojam in Wonderland” is a prototype of a new type of performance activity, “Immersive Mixed Reality Theater,” with unique and novel properties possessed neither by cinema nor traditional theater, and offering exciting new expressive possibilities for multi-user, participatory, immersive digital narratives.

David Gochfeld
Corinne Brenner
Clara Fernández-Vara
Ken Perlin
New York University

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**Entropy and FatFinger: Challenging the Compulsiveness of Code with Programmatic Anti-Styles**

Coding reinforces a compulsive thought process, as described by Joseph Weizenbaum. Two projects by the author, Entropy (2010) and FatFinger (2017), challenge this through gestural approaches to code. In Entropy, data decays the more often it’s used. FatFinger encourages the coder to typo code and strategically guesses the programmer’s intent.

Daniel Temkin
Independent Artist

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**Inhabitat: An Imaginary Ecosystem in a Children’s Science Museum**

This paper describes a mixed reality artwork for a children's science museum in which participants become part of an imaginary ecology through three simultaneous perspectives of scale and agency. We document motivations, design contributions, and accounts of visitors’ playful engagements within the complex interconnectivity of an artificial nature.

Graham Wakefield
York University, Toronto

Haru Hyunkyung Ji
Ontario College of Art and Design, Toronto

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**Alienating the Familiar with CGI: A Recipe for Making a Full CGI Art House Animated Feature**

This paper explores the process of making and funding an arthouse feature film using full CGI in a marketplace where this has never before been attempted. It explores cutting-edge technology and production approaches, as well as routes to successful fundraising.

Paul Charisse
Alex Counsell
University of Portsmouth

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**BEST ART PAPER AWARD**
The Best Art Paper Award recognizes excellence in contributions to the literature on digital arts, computer graphics, and/or interactive techniques. The winner will be announced during Art Papers Session #1, Tuesday, 14 August, 3:45-5:35 PM.
Data Materialization: A Hybrid Process for Crafting a Teapot

Data materialization is a workflow to create 3D objects from data-informed designs. This digital workflow expresses conceptually relevant data through tangible form. The process utilizes the subtle application of data in visual art, allowing the aesthetic allure of the art object or installation to inspire intellectual intrigue.

Courtney L. Starrett
Seton Hall University

Susan Reiser
University of North Carolina at Asheville

Tom Pacio
Vassar College

Diastrophisms

Diastrophisms is a sound installation that explores a poetical, critical, and political crossing between technology and matter, in order to raise questions on the relationship between human beings and nature, and to consider the construction of memory in a community by questioning the notion of monument.

Nicole L’Huillier
Massachusetts Institute of Technology / Media Lab

Valentina Montero
Curator, Media Arts Biennial Chile, University of Valparaiso

SESSION 2

Wednesday, 15 August, 10:45 AM-12:35 PM

Robotype: Studies of Kinetic Typography by Robot Display for Expressing Letters, Time, and Movement

Humans use letters, which are two-dimensional static symbols. To write these letters, we have to move our body and spend some time; therefore, it can be said that a letter is the trajectory of movement and time. Based on this notion, we studied three types of kinetic typography using robots.

Yuichiro Katsumoto
Smart Systems Institute, National University of Singapore

Digital Heritage: Bringing New Life to the Montreux Jazz Festival’s Audio-Visual Archives with Immersive Installations

Millions of hours of cultural archives have been digitized, but how can we revive them? In partnership with the Montreux Jazz Festival, the EPFL+ECAL Lab brings a UNESCO audio-visual world heritage back to life. Their installations propose a new methodology based on principles of physicality, augmentation, and interaction.

Nicolas Henchoz
Alison Crank
Ecole Polytechnique Fédérale de Lausanne

Here and Now: Indigenous Canadian Perspectives in New Media Works by Ruben Komangapik, Kent Monkman, and Adrian Duke

This paper examines the work of three contemporary artists who employ new media to examine indigenous storytelling and identity. Their practices incorporate new media to challenge those stories that have been told about Canada’s indigenous peoples, and to assert indigenous presence in both the digital and physical landscapes.

Brittany Myburgh
University of Toronto

CASTING: Site-Specific Projection Mapping Installation

This paper investigates CASTING (2016), Yiyun Kang’s projection mapping installation at the Victoria and Albert Museum (V&A, London), and the acquisition of the piece by the V&A. It identifies how CASTING developed distinctive properties in projected moving image installation artworks and how these novel characters were reflected in the acquisition.

Yiyun Kang
Royal College of Art

Advertising Positions: Data Portraiture as Aesthetic Critique

Advertising Positions integrates 3D-scanning, motion-capture, novel image/texture mapping algorithms, and custom animation to create data portraits from the targeted advertisements served by online trackers. Ads are collected from volunteers and mapped onto the textured skin of their virtual avatars. Outcomes have been displayed as 2D/3D images, animations, and interactive installations.

Daniel C. Howe
School of Creative Media, City University Hong Kong

Qianxun Chen
Brown University

Zong Chen
School of Creative Media, City University Hong Kong

Cop to Conductor: Negotiating and Remapping Meaning in Existing Public Art

Battles are being fought around existing public artworks and monuments, such as the recent actions in Charlottesville, Virginia. The author surveys the strategies artists have used to remediate contested works and presents an interactive art piece that suggests useful approaches in this realm.

Todd Berreth
North Carolina State University

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Yiyun Kang
Royal College of Art
The SIGGRAPH 2018 Business Symposium brings together business strategists, creatives, and academics from around the world for two days of networking and technological exploration. Attendees experience interdisciplinary collaboration through a series of thought-provoking panels, roundtables, keynotes, and an interactive survey chatbot from Rival.

CONVERSATIONAL CHATBOTS

Capture your ideas and sentiments via the Business Symposium chatbots! Insights are published post-conference.

SATURDAY, 11 AUGUST

The Hidden Costs of AI
9:20-10:15 AM
Andrew Glassner shares AI’s social and business implications.
Andrew Glassner
Imaginary Institute

SIGGRAPH Generations Panel
10:45-11:30 AM
Pioneers and thought leaders from the 1970s to present day come together to discuss key moments in the history of computer graphics.
Jim Foley
Georgia Tech College of Computing
Carolina Cruz Neira
University of Arkansas Little Rock
Ethan Miller
Facebook
Sara Bly
Sara Bly Consulting

Leading at the Intersection of Technology and Creativity
2-2:45 PM
Cheryl Bayer shares how she has continued to stay creative, innovative, and adaptable throughout her career.
Cheryl Bayer
Living Pops, former SVP of Fox Comedy

The New UI/UX
3-3:45 PM
This panel explores interfaces of the future with experts in chatbot, holographic, machine learning, and AR technology.
Eugen Winshel
SAP, Global VP of Product Management
Jon Karafin
Lightfield Labs
Armando Kirwin
Artie
Sonu Durgia
Walmart Labs

Keynote: VR and the Next Generation of Immersive Experiences
3:45-4:30 PM
Explore what’s next in AR/VR.
Clive Downie
Unity Technologies

SUNDAY, 12 AUGUST

The Role of Design
9-9:45 AM
Learn how design research (on objects, interactions, and systems) dictate different future outcomes.
Stan Ruecker
University of Illinois

Women Disrupting Tech
10:30-11:15 AM
Get to know three female startup leaders who are revolutionizing the education, health, and AR spaces.
Spandana Govindgari
Hype AR Inc. | Ex Snapchat and Apple
Lee Brighton
Argotian
Angela Robert
Conquer Mobile

Technology That Is Changing Business Models
11:15 AM-12 PM
This panel brings together industry leaders in animation, VFX, gaming, and hardware to explore what’s changing and up next for business models and production.
Ben Havey
Head of Disney Technology Innovation Group
Stephen Garrad
Method
Rajiv Chilaka
Green Gold Animation
COMPUTER ANIMATION FESTIVAL: ELECTRONIC THEATER

High-tech projection of the finest achievements in animated feature and short films, games, advertising, visual effects, real-time effects, real-time graphics, and scientific visualization.

SCREENINGS

Monday, 13 August  
6-8 PM
Tuesday, 14 August  
9-11 PM
Wednesday, 15 August  
8-10 PM
Ticket required for entrance.

ADAM: Episode 2
Afterwork
Animation General
Avengers: Infinity War
Bao
Beyond Good and Evil 2 Cinematic Trailer
Bilby
Book of the Dead
Death Van
Far Cry 5: Pastor Jerome
Geometry of Artificial Intelligence
Ghost in the Shell
Hearth and Home

Hybrids
Miazmat
A New Multi-Dimensional View of a Hurricane
One Small Step
Overrun
Paddington 2
Space Between Stars
Solo: A Star Wars Story
Twin Islands
Voyagers
Weeds
1 Metre/heure

Registration Level:
- Full Conference
- Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies
In its second year, the VR Theater will present next-level, interactive stories in virtual reality from innovative creators and offer on-demand content at individual kiosks.

**SCREENINGS**

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**Sunday, 12 August, 2-5 PM (● only)**
**Monday, 13 August, 10 AM-5:30 PM**
**Tuesday, 14 August, 10 AM-5:30 PM**
**Wednesday, 15 August, 10 AM-5:30 PM**
**Thursday, 16 August, 10 AM-3:30 PM**

- **Arden’s Wake: Expanded**
  Eugene YK Chung
  Penrose Studios
  (United States)

- **Ashes to Ashes**
  Steye Hallema, Jamille van Wijngaarden, Ingejan
  Lighart Schenk
  Submarine Channel
  (Netherlands)

- **Blue Bird**
  Parnaz Rad, Seth Greenwood, Nicole Tylor, Vinod Krishnan, Armando Brown, Belen Saenz de Viteri, Chuzhong Xie, Miranda Conway, Allie Perdomo
  Savannah College of Art and Design
  (United States)

- **Kinch & The Double World**
  Colin Arnold, Steve Cholerton
  Figment Productions
  (United Kingdom)

- **Space Explorers: A New Dawn**
  Félix Lajeunesse, Paul Raphaël
  Felix & Paul Studios, Oculus
  (Canada)

**The Legend of Hanuman**
Charuvi Agrawal, Sharad Devarajan
Graphic India
(India)

**Trans-Dimensional Designer**
Erdong Gao, Siyi Zhao
Beijing Film Academy
(China)

**Trinity**
Patrick Boivin
UNLTD-INC
(Canada)

**Under Neon Lights**
Jono Brandel, Zach Richter
WITHIN
(United States)

**KIOSKS**

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**Sunday, 12 August, 1:30-5:30 PM**
**Monday, 13 August, 10 AM-5:30 PM**
**Tuesday, 14 August, 10 AM-5:30 PM**
**Wednesday, 15 August, 10 AM-5:30 PM**
**Thursday, 16 August, 10 AM-3:30 PM**

- **Across Dark: Beyond 4th Dimension**
  Park Dong-hi, Lee Jeon-Hyoung
  Hotel Lotte Co., Ltd., Lotte World, 4th Creative Party Co., Ltd.
  (South Korea)

- **Back to the Moon**
  Fx Goby, Hélène Leroux
  Google Spotlight Stories
  (United States)

- **Beyond the Fence**
  Goro Fujita
  Facebook
  (United States)

- **Flying Over NanJing**
  Yu Jin
  Nanjing Naked Light Digital Technology Co., Ltd.
  (China)

- **’Isle of Dogs’ Behind the Scenes (In Virtual Reality)**
  Félix Lajeunesse, Paul Raphaël
  Felix & Paul Studios, Fox Searchlight Pictures, FoxNext VR Studio
  (United States)
Whether it’s foundational material for researchers and practitioners, or a review of the state-of-the-art in a specific area, SIGGRAPH 2018 Courses offer learning opportunities for everyone.

Full Conference Platinum and Full Conference registration allows attendees access to all SIGGRAPH 2018 Courses. Seating is on a first-come, first-served basis. Please arrive early for the course you wish to attend.

**SUNDAY, 12 AUGUST**

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**A Conceptual Framework for Procedural Animation**

- **9-10:30 AM**  
  **Level:** Beginner  
  Conceptual Framework for Procedural Animation (CFPA) provides guidelines for designing procedural animation timings. It allows users to set up procedural animation rigs and tools in a highly organized manner by reducing complexity. It also helps users make their procedural animation developments more modularized, shareable, and compatible.

  Dong Joo Byun  
  Walt Disney Animation Studios

**Getting Started with WebGL and Three.js**

- **9 AM-12:15 PM**  
  **Level:** Beginner  
  This course is an introduction to WebGL and three.js, the two most widely used APIs for creating interactive 3D graphics applications that run through a web browser. Participants will be able to run and modify examples during the presentation.

  Edward Angel  
  University of New Mexico  
  Eric Haines  
  NVIDIA, Inc.  
  Dave Shreiner  
  Unity Technologies, Inc.

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**MONDAY, 13 AUGUST**

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**An Introduction to Physics-Based Animation**

- **9 AM-12:15 PM**  
  **Level:** Beginner  
  Physics-based animation has emerged as a core area of computer graphics finding widespread application in films, video games, and virtual reality. This course introduces students and practitioners to fundamental concepts in physics-based animation, placing an emphasis on breadth of coverage and seeking to impart practical knowledge and intuitive understanding.

  Adam Bargteil  
  University of Maryland, Baltimore County  
  Tamar Shinar  
  University of California, Riverside

**Fundamentals of Color Science**

- **9 AM-12:15 PM**  
  **Level:** Intermediate  
  Color is a fundamental aspect of our visual experience. Color science is the discipline that studies the relationships between the physical and perceptual aspects of color. This course introduces students to the fundamentals of color science and its applications in graphics and imaging.

  James Ferwerda  
  Chester F Carlson Center for Imaging Science  
  Dave Long  
  Rochester Institute of Technology

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**Introduction to the Vulkan Graphics API**

- **9 AM-12:15 PM**  
  **Level:** Intermediate  
  Vulkan is a new generation graphics and compute API that provides high-efficiency, cross-platform access to modern GPUs used in a wide variety of devices from PCs to mobile phones and embedded platforms. This course will be of interest to anyone who writes high-performance interactive graphics programs.

  Mike Bailey  
  Oregon State University

**Story: It’s Not Just for Writers... Anymore!**

- **2-3:30 PM**  
  **Level:** Beginner  
  We present an introductory course on the elements of classic story structure and development, which is found in the top animations and VR today. This course is visually designed specifically for technical directors, animators, and VR creators whose work makes “the story” come to life.

  Craig Caldwell  
  University of Utah

**Deep Learning: A Crash Course**

- **2-5:15 PM**  
  **Level:** Beginner  
  Deep learning is a revolutionary technique for discovering patterns from data. See how this technology works and what it offers us for computer graphics. There won’t be any math. Attendees learn how to use these tools to power their own creative and practical investigations and applications.

  Andrew Glassner  
  The Imaginary Institute
Advances in Real-Time Rendering in Games Part 1
9 AM-12:15 PM
Level: Intermediate
This course brings state-of-the-art and production-proven rendering techniques for fast, interactive rendering of complex and engaging virtual worlds of video games. Includes speakers from the makers of several innovative game companies, such as Ubisoft, Sledgehammer Games, Activision, Lucasfilm, NVIDIA, Unity Technologies, and Epic Games.
Natalya Tatarchuk
Unity Technologies

Advances in Real-Time Rendering in Games Part 2
2 PM-5:15 PM
Level: Intermediate
This course brings state-of-the-art and production-proven rendering techniques for fast, interactive rendering of complex and engaging virtual worlds of video games. Includes speakers from the makers of several innovative game companies, such as Ubisoft, Sledgehammer Games, Activision, Lucasfilm, NVIDIA, Unity Technologies, and Epic Games.
Natalya Tatarchuk
Unity Technologies

Applications of Vision Science to Virtual and Augmented Reality
2 PM-5:15 PM
Level: Intermediate
An understanding of vision science is vital in designing technology and applications for future mixed-reality HMDs. Our course provides an overview of the impact of human perception to MR applications, an introduction to human visual perception, and several case studies of using perceptual insights in improving MR experiences.
Anjul Patney
NVIDIA
Marina Zannioli
Facebook Reality Labs
Joohwan Kim
NVIDIA
Robert Konrad
Stanford University
Frank Steinicks
Universitat Hamburg
Martin S. Bands
University of California, Berkeley

TUESDAY, 14 AUGUST

Introduction to DirectX Raytracing

9 AM-12:15 PM
Level: Intermediate
This course is an introduction to Microsoft’s DirectX Raytracing API suitable for students, faculty, rendering engineers, and industry researchers. The first half focuses on ray tracing basics and incremental, open-source shader tutorials accessible for novices. The second half covers API specifics for developers integrating ray tracing into existing raster-based applications.
Chris Wyman
NVIDIA
Shawn Hargreaves
Microsoft
Peter Shirley
NVIDIA
Colin Barré-Brisebois
SEED

Realistic Rendering in Architecture and Product Visualization
9 AM-12:15 PM
Level: Beginner
The course focuses on physically-based, realistic rendering in architectural and product visualization. The goal is to acquaint the SIGGRAPH audience with the specific technical needs in this segment and their impact on the employed rendering technology. We also highlight the differences from the technology used in the movie industry.
Jaroslav Křivánek
Charles University, Prague, Render Legion
Ondřej Karlík
Render Legion
Vladimir Koylazov
Chaos Group
Henrik W. Jensen
Luxion
Thomas Ludwig
Glare Technologies
Christophe Chevallier
Norm Li

Color in Advanced Displays: HDR, OLED, AR & VR
10:45 AM-12:15 PM
Level: Beginner
This course addresses color and tone reproduction in advanced displays, including HDR, OLED, and HMDs. Display types, including emissive, light-filtering, and projection displays; characteristics such as color gamut, dynamic range, and EOTF; and viewing environment will be discussed. Attendees should have a basic understanding of color perception.
Michael Murdoch
Munsell Color Science Laboratory

Digital Typography Rendering
3:45-5:15 PM
Level: Intermediate
This course is an introduction to digital typography rendering, providing key concepts of typography as well as introducing several computer graphics techniques to render text, from the oldest and most common techniques (texture based) to the latest methods taking full advantage of shaders with quasi flawless rendering.
Nicolas Rougier
Inria
Behdad Esfahbod
Google

Registration Level:
- Full Conference
- Platinum
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- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies
WEDNESDAY, 15 AUGUST

3D User Interfaces for Virtual Reality and Games: 3D Selection, Manipulation, and Spatial Navigation

9 AM-12:15 PM
Level: Intermediate
By participating in two consecutive and logically interlinked sessions covering diverse 3D selection/manipulation and spatial navigation topics, participants will acquire necessary knowledge and skills to design, develop, and validate 3D interfaces and techniques for virtual reality and gaming systems.

Bernhard E. Riecke
Simon Fraser University
Joseph LaViola Jr.
University of Central Florida, Brown University
Ernst Kruijff
Bonn-Rhein-Sieg University, Simon Fraser University

Monte Carlo Methods for Physically Based Volume Rendering

9 AM-12:15 PM
Level: Advanced
This course surveys methods that utilize Monte Carlo integration to simulate light transport in scenes with participating media. The course is an extension of a Eurographics 2018 state-of-the-art report and expands on the details of individual techniques, acceleration data structures, and other insights relevant to CG practitioners.

Jan Novák
Disney Research
Iliyan Georgiev
Solid Angle
Johannes Hanika
Karlsruhe Institute of Technology
Jaroslav Křivánek
Charles University
Wojciech Jarosz
Dartmouth College

Pathtracing in Production

2-5:15 PM
Level: Advanced
This course offers a brief introduction to Monte Carlo path tracing for photo-realistic image synthesis followed by a practical perspective on existing algorithms and their performance as well as essential tricks used in the challenging daily work of rendering professionals. The speakers cover diverse backgrounds such as animation and VFX.

Johannes Hanika
Weta Digital, KIT
Luca Fiascone
Weta Digital
Rob Pieke
MPC
Manuel Gamito
Framestore
Christophe Hery
Ryusuke Villemin
Pixar Animation Studios
Luke Emrose
Animal Logic
André Mazzone
Industrial Light & Magic

THURSDAY, 16 AUGUST

Moving Mobile Graphics

9 AM-12:15 PM
Level: Intermediate
A half-day course providing a technical introduction to mobile graphics and mobile XR, spanning the hardware-software spectrum and exploring the state of the art with leading practitioners. We look at the impact of XR, quantified best practices in real-time rendering and computer vision research on mobile devices.

Sam Martin
Arm
Andrew Garrard
Samsung SRUK
Rob VanReenen
Qualcomm
Hans-Kristian Arntzen
Arm
Victor Prisacariu
Oxford University
Felipe Lira
Unity
Jiwen Cai
Google

Topics in Real-time Animation

9 AM-12:15 PM
Level: Intermediate
Animation in games and real-time applications presents a frontier of technical challenges as we advance toward higher fidelity and more believable performances and interactivity. In this area we continue to see new advances and discover best practices to empower artists to efficiently craft the highest quality animation content.

David Hunt
Unity
Richard Lico
Polyarc
Michael Buttner
Unity

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Interest Areas:
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- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies
Cage-Based Performance Capture

2-3:30 PM
Level: Intermediate

This course addresses techniques to achieve performance capture using cage-based shapes in motion. We define cage-based performance capture as the non-invasive process of capturing non-rigid surface of actors from multi-view in the form of sparse control deformation handles trajectories and a laser-scanned template shape.

Yann Savoye
Robert Gordon University

Machine Learning and Rendering

2-5:15 PM
Level: Advanced

Machine learning recently enabled dramatic improvements in both real-time and offline rendering. We review the principles and their relations to rendering. Besides fundamentals like the identity of reinforcement learning and the rendering equation, we cover efficient solutions to light transport simulation, participating media, noise removal, and future directions of research.

Alexander Keller
NVIDIA
Jaroslav Klivánek
Charles University
Jan Novák
Disney Research
Anton Kaplanyan
Oculus Research
Marco Salvi
NVIDIA
The Educator’s Forum includes curated and juried content specifically targeted to educators from K-12, undergraduate, and graduate programs. The forum is devoted entirely to content for educators because education is a tremendously important part of the total SIGGRAPH experience.

**MONDAY, 13 AUGUST**

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**Educator’s Forum Education Committee Welcome**

- 8:30-9 AM

**Educator’s Forum Panel: FuturePrep – Industry Views on Education**

- 9-10:30 AM

A cross-section of industry representatives from diverse sub-disciplines in computer graphics and interactive techniques discuss preparation, training, and attributes students need to enter the workforce. Examining both short- and long-term needs, the panelists will step back and look at trends and changes that have taken place and may take place.

Glenn Goldman  
New Jersey Institute of Technology

Nathan Carr  
Adobe Research

Roula Lainas  
Zoic Studios

Brenna MacLean  
EA Vancouver

Derek Ng-Cummings  
Kabarr

Javier Romero  
Ilium Animation Studios

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**Educator’s Forum Groovy Graphic Assignments I**

10:45 AM-12:15 PM

- **Boids: Learning Vector Arithmetic Through Animation**
  
  Boids is an excellent example of emergent behavior. Coding some simple rules creates complex behavior. The groovy graphics assignment consolidates students’ learning of C++, OpenGL, GLM, and vector arithmetic. Students also learn about the careful balances that must be made to ensure a simulation behaves in a realistic way.

  Neil A. Dodgson  
  Victoria University of Wellington

**Real-Time Rocks: Shader-Based Labradorite**

Great assignments in computer graphics rock! Mining ideas for learning graphics, representing something as visually complex as labradorite in GLSL can be unearthed as a gem of an assignment, and one can learn a fragment of shading while procedurally chipping away at the assignment.

  Eric Patterson  
  Jessica Baron  
  Clemson University

**A Bouncing Ball Game for First-Year Computer Graphics**

A bouncing ball game is a great way to grab students’ attention early in a computer graphics course. This Groovy Graphics assignment is accessible to any student with basic programming and high school algebra, while teaching some basics of animation, simulation, and data management.

  Neil A. Dodgson  
  Victoria University of Wellington

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**Miscellany Drawer**

The Miscellany Drawer is an introductory project for learning modeling in 3D software for CGI animation that incorporates collaboration and 3D printing.

Richard Lewis  
Middle Tennessee State University

**Educator’s Forum Groovy Graphic Assignments II**

3:45 PM-5:15 PM

- **Walking Through a Maze**
  
  The core of the assignment is to create a maze that can be walked through via the mouse or other interactive tools. The maze starts with a 2D maze in which the walls are then extruded. The project combines modeling, geometry, transformations, and interaction. It also allows for a multitude of extensions.

  Edward Angel  
  University of New Mexico

**Hybrid Creature Project**

This groovy assignment is actually a multi-staged assignment going from concept through creation to animated presentation of a hybrid creature that could plausibly exist on Earth. Each stage has its own challenges and learning goals and, as such, could be broken out to be standalone assignments in their own rights.

Dave Mauriello  
Drexel University
Teapot Rendering Competition

Teapot Rendering Competition is the final assignment of the “Ray Tracing for Graphics” course at the University of Utah. In this course, students develop their own renderers using ray tracing. This final assignment gives students a chance to explore the kind of visually appealing images they can produce with their renderers.

Cem Yuksel
University of Utah

Ray-Traced Transmission

This Groovy Graphics assignment introduces transmissive rays to a basic reflective ray tracer.

Andrew Duchowski
Clemson University

TUESDAY, 14 AUGUST

Educator’s Forum Education Committee Welcome

8:30 AM - 9 AM

Educator’s Forum Talks: VR/AR in Education
9 AM - 10:30 AM

Creating Compelling Virtual Reality and Interactive Content for Higher Education

How does Carnegie Mellon University integrate immersive technologies for the humanities, including the process for building up a library of unique content? Professor Vituccio and team will discuss challenges they faced during this process, what worked in production, and the future of immersive technology in higher education.

Jaehee Cho
Stitchbridge, Carnegie Mellon University

Real-Time Motion Capture for Performing Arts and Stage

How effectively can software engineers and artists work together to create a real-time CG for performing arts on stage? We answer that with ISSv2/OpenISS and a possible live demo.

Serguei Mokhov
Amandeep Kaur
Mehak Talwar
Keerthana Gudavalli
Miao Song
Sudhir Mudur
Concordia University

Educator’s Forum Talks: SIGCSE Reprise
10:45 AM - 12:15 PM

Thinking Seriously About Game Design

We report on our experiences teaching game development at two colleges at a public university. We discuss the merits of using serious games as a focus in game programming, including the benefits for students without a strong background in gaming. We also showcase some of our student serious games projects.

Devorah Kletenik
Brooklyn College, City University of New York

Deborah Sturm
College of Staten Island, City University of New York

Brain-Computer Interface for All

This talk highlights our recent experiences introducing students to basic brain-computer interface (BCI) application development using NeuroBlock. Neuroblock is a visual programming environment that allows users to build BCI applications driven by electroencephalography (EEG) data.

Chris Crawford
University of Alabama

Christina Gardner-McCune
Juan E. Gilbert
University of Florida

VFX to Teach Religion? Learning from Immersive Media

As Generation X shifts to millennials, there is a growing need to adjust the way we teach. Utilizing modern technology, we continue to explore various types of immersive media to teach religion. Our in-house VFX Team is the perfect puzzle piece that pushes our new teaching methods.

Tucker Dansie
Doug Stewart
LDS Motion Picture Studio
Sound Design for Video Games: An Interdisciplinary Course for Computer Science and Art Students

The Sound Design for Video Games course was an effort to bridge the gap between computer science and art students. Overall, the goals of the course were met based on student surveys and observations. Suggestions on improvements to the course are discussed.

Richert Wang  
University of California, Santa Barbara  
Vincent Olivieri  
University of California, Irvine

Updating Introductory Computer Science with Creative Computation

A multi-year project identified pedagogy and curriculum for computing foundations through Creative Computation with Processing. The curriculum aligns with standards at the bridge between American high school and college, supports pedagogies from lecture to inquiry-based projects, attracts diverse student populations, and suggests sustained communication between teachers and mentors is essential.

Dianna Xu  
Bryn Mawr College  
Ursula Wolz  
Bennington College, RiverSound Solutions, LLC  
Deepak Kumar  
Bryn Mawr College  
Ira Greenberg  
Southern Methodist University

Educator’s Forum Course: Bringing 3D Printing to the Classroom

2 PM-3:30 PM

Learn to identify, troubleshoot, and prevent common pitfalls that programs encounter when incorporating additive manufacturing into their curriculum. Explore curriculum-building strategies for all academic levels as well as scheduling hurdles for collaborative productions.

Lance Winkel  
University of Southern California

Educator’s Forum Talks: Animation in Education

3:45 PM-5:15 PM

Science Cartooning: The Ideal Couple

Hired by the University of British Columbia (UBC) Digital Emergency Medicine team, I helped create an awesome interactive graphic novel for the BC curriculum called “The Adventures of Patoo,” which covers topics in physical and mental health for students in grades 4–7.

Armin Mortazavi  
The University of British Columbia

El Oro: Animating Humanities Research

Animating El Oro explores animation as a means of communicating historical research arguments without prose while broadening audience potential.

Todd Fechter  
Sean McComber  
University of Texas at Dallas

Massive Collaborative Animation Projects – Changing Paradigms in Animation Education

MCAP (The Massive Collaborative Animation Projects) is a unique intercollegiate, multi-year, global animation production currently entering its third year of production. MCAP’s purpose is to allow students and faculty from institutions around the world to join together in the creation of an original computer animation.

William Joel  
Western Connecticut State University  
Miho Aoki  
University of Alaska Fairbanks  
Johannes DeYoung  
Yale University  
Anna Ursyn  
University of Northern Colorado  
Wei-Chung Chang  
National Taiwan University of Arts  
Jacob Pollak  
Ferris State University
See, learn, touch, and try the state of the art in human-computer interaction and robotics. Emerging Technologies presents work from many sub-disciplines of interactive techniques, with a special emphasis on projects that explore science, high-resolution digital-cinema technologies, and interactive art-science narratives.

**A Full-Color Single-Chip-DLP Projector with an Embedded 2400-fps Homography Warping Engine**

Nitish Padmanaban  
Robert Konrad  
Gordon Wetzstein  
Stanford University

This installation presents a 24-bit full-color projector that achieves over 2400-fps motion adaptability using single-chip DLP technology, which will be useful for projection mapping applications in highly dynamic scenes. The projector can be interfaced with a host PC via standard HDMI and USB without need of high computational burden.

Shingo Kagami  
Koichi Hashimoto  
Tohoku University

**Aerial-Biped: A New Physical Expression by the Biped Robot Using a Quadrotor**

Yong-Ho Lee  
Mincheol Kim  
Hwanyoun Kim  
Dongmyoung Lee  
Bum-Jae You  
Center of Human-centered Interaction for Coexistence

This project aims to augment the physical expression of the robot. Aerial-Biped can generate bipedal walking motions interactively according to the motion of the quadrotor by using the novel foot trajectory generation method.

Azumi Maekawa  
Ryuma Niiyama  
Shunji Yamanaka  
The University of Tokyo

**AutoFocals: Gaze-contingent Eyeglasses for Presbyopes**

Sidney Fels  
University of British Columbia  
Ian Stavness  
University of Saskatchewan  
Qian Zhou  
University of British Columbia  
Dylan Fafard  
The University of Saskatchewan

Austofocals is a hardware and software solution for presbyopes (those with an age-related loss of accommodation) that externally mimics the natural accommodation response. By combining data from eye trackers and a depth sensor and then automatically driving focus-tunable lenses, users can refocus by simply looking around.

Shingo Kagami  
Koichi Hashimoto  
Tohoku University

**CHICAP: Low-Cost Hand Motion Capture Device Using 3D Magnetic Sensors for Manipulation of Virtual Objects**

Nitish Padmanaban  
Robert Konrad  
Gordon Wetzstein  
Stanford University

This exoskeleton motion capturing device leads you to a special interaction experience in the virtual world.

Yong-Ho Lee  
Mincheol Kim  
Hwanyoun Kim  
Dongmyoung Lee  
Bum-Jae You  
Center of Human-centered Interaction for Coexistence

**CoGlobe - a Co-Located Multi Person FTVR Experience**

Sidney Fels  
University of British Columbia  
Ian Stavness  
University of Saskatchewan  
Qian Zhou  
University of British Columbia  
Dylan Fafard  
The University of Saskatchewan

CoGlobe uses an advanced spherical, fish-tank virtual reality multi-projector display and additional mobile displays to provide users a highly interactive, collaborative, co-located 3D mixed reality experience.

Yu Matsuura  
The University of Electro-Communications  
Naoya Koizumi  
The University of Electro-Communications  
JST PRESTO

**FairLift: Interaction with Mid-air Images on Water Surface**

FairLift is an interaction system involving mid-air images, which are visible to the naked eye under and on a water surface. The system provides an experience for users to scoop up a mid-air image with their palms.

**Fusion: Full Body Surrogacy for Collaborative Communication**

Fusion, a novel telecollaboration system that allows two participants to share the same point of view and physical space for remote operation and collaboration. The system is designed as a backpack, and is operated in three different modes: direct collaboration, enforced body guidance, and induced body motion, enabling effective communication.

MHD Yamen Saraiji  
Keio University Graduate School of Media Design  
Tomoya Sasaki  
Reo Matsumura  
The University of Tokyo  
Kouta Minamizawa  
Keio University Graduate School of Media Design  
Masahiko Inami  
The University of Tokyo

**Registration Level:**
- Full Conference  
- Select Conference  
- Exhibits Plus  
- Exhibits Only  
- Exhibitors  
- Business Symposium

**Interest Areas:**
- Production & Animation  
- Research & Education  
- Arts & Design  
- Gaming & Interactive  
- New Technologies

**Emerging Technologies Hours:**
- Sunday, 12 August, 1:30-5:30 PM  
- Monday, 13 August, 10 AM-5:30 PM  
- Tuesday, 14 August, 10 AM-5:30 PM  
- Wednesday, 15 August, 10 AM-5:30 PM  
- Thursday, 16 August, 10 AM-3:30 PM
Gum-Gum Shooting

This work is to unleash the physics limitation of a human body and inducing a sense of arm elongation in virtual reality. We mainly utilize the stimuli of touch, vision to reproduce this sensation. In addition, we designed a VR shooting game for users to enjoy the superhuman combat experience.

Hsueh-Han Wu
Tokyo Institute of Technology, Hasegawa Shoichi Laboratory

Hands-Free Augmented Reality for Vascular Interventions

We demonstrate how a virtual 3D anatomical model can be rotated, scaled, and translated using small head movements and voice commands. This enables easy hands-free manipulation by a physician during a vascular intervention—a type of minimally invasive surgical procedure in which catheters and wires are guided through a patient’s body.

Alon Grinshpoon
Shirin Sadri
Gabrielle Loeb
Carmine Elvezio
Samantha Siu
Steven Feiner
Columbia University

HapCube: A Tactile Actuator Providing Tangential and Normal Pseudo-Force Feedback on a Fingertip

HapCube is a small-size tactile actuator which provides tangential and normal pseudo-force feedback on user’s fingertip. The tangential feedback simulates frictional force in any tangential directions, and the normal feedback simulates tactile sensations when pressing various types of button. HapCube supports user’s clicking and dragging behaviors on GUIs of VR/AR.

Hwan Kim
HyeonBeom Yi
Richard Chiuwoo Park
Woohun Lee
KAIST

HeadLight: Ego-centric Visual Augmentation by Wearable Wide Projector

HeadLight is a wearable projector system that provides wide ego-centric visual augmentation. This provides projection angle with approx. 105 deg. horizontal and 55 deg. vertical from the point of view. With HeadLight, the three-dimensional virtual space that is consistent with the physical environment is rendered in the real world.

Shunichi Kasahara
SonyCSIL

Human Support Robot (HSR)

Curated Content

HSR is a compact mobile manipulator for family members in the home, providing support to improve the overall quality of life. HSR can move around the house, keep watch over family members, and fetch objects. Goal is to make HSR beneficial to all people in the near future.

Takashi Yamamoto
Hideki Kajima
Mitsunori Ohta
Koichi Ikeda
Tamaki Nishino
Toyota Motor Corporation
Andrew Custer
Yutaka Takaoka
Toyota Research Institute

LevioPole: Mid-Air Haptic Interactions Using Multirotor

LevioPole, a rod-like device that provides mid-air haptic feedback for full-body interaction in virtual reality and augmented reality. The device is constructed from two rotor units allowing portability and ease of use. These rotors generate both rotational and linear forces that can be driven according to the target application.

Tomoya Sasaki
Richard Sahana Hartanto
The University of Tokyo
Kao-Hua Liu
National Cheng Kung University
Keitarou Tsuchiya
Atsushi Hiyama
Masahiko Inami
The University of Tokyo

Make Your Own Retinal Projector: Retinal Near-Eye Displays via Metamaterials

We propose a novel design method for retinal image projection by using the metamaterial mirror (plane symmetric transfer optical system). Using this projection method, the designing of retinal projection becomes easy. It would be possible to construct an optical system that allows quick follow-up of retinal projection hardware.

Yoichi Ochiai
Kazuki Oto
Yuta Itoh
Shouki Imai
Kazuki Takazawa
Hirokazu Osno
Atsushi Mori
Ippei Suzuki
University of Tsukuba, Pixie Dust Technologies, Inc.

Real-Time Non-Line-of-Sight Imaging

A confocal scanning technique solves the reconstruction problem of non-line-of-sight imaging to give fast and high-quality reconstructions of hidden objects.

Matthew O'Toole
David B. Lindell
Gordon Wetzstein
Stanford University
SEER: Simulative Emotional Expression Robot

SEER (Simulative Emotional Expression Robot) is an animatronic humanoid robot that generates gaze and emotional facial expressions to improve animativity, lifelikeness, and impressiveness by the integrated design of modeling, mechanism, materials, and computing. The robot can simulate a user's movement, gaze, and facial expressions detected by a camera sensor.

Takayuki Todo
Independent

Spherical Full-Parallax Light-Field Display Using Ball of Fly-eye Mirror

We proposed an optical system design for a full-parallax spherical light-field display based on the time-division multiplexing method. The proposed system offers features that are distinct from existing systems that make it suitable for specific uses, such as a digital signage and art exhibitions.

Hiroaki Yano
Tomohiro Yendo
Kohei Matsumura
Akane Temochi
Masaki Yamauchi
Hiroaki Matsunaga
Nagaoka University of Technology

Steerable Application-Adaptive Near-Eye Displays

This augmented reality display uses interchangeable 3D printed optical components to provide content-specific accommodation support and presents high-resolution imagery in a gaze-contingent manner by implementing a lens actuation based foveation mechanism.

Kishore Rathinavel
Praneeth Chakravarthula
University of North Carolina - Chapel Hill,
NVIDIA Corporation

Kaan Akşit
Josef Spjut
Ben Boudaoud
NVIDIA Corporation

Turner Whitted
University of North Carolina - Chapel Hill,
NVIDIA Corporation

David Luebke
NVIDIA Corporation

Henry Fuchs
University of North Carolina - Chapel Hill

Taste Controller: Galvanic Chin Stimulation Enhances, Inhibits, and Creates Tastes

The purpose of our demonstration is to introduce the galvanic jaw stimulation (GJS) which is a technology used to induce, inhibit, and enhance taste sensation with electrical stimulation. In our demonstration, users will experience the taste changing without additional chemical materials.

Kazuma Aoyama
The University of Tokyo

Transcalibur: Weight Moving VR Controller for Dynamic Rendering of 2D Shape using Haptic Shape Illusion

Transcalibur is a dynamic weight moving VR controller for 2d haptic shape rendering using haptic shape illusion. This allows users to perceive the feeling of various shape in virtual space with a single controller. Our user study showed that the system succeeded in providing shape perception over a wide range.

Jotaro Shigeyama
Takeru Hashimoto
Shigeo Yoshida
Taju Aoki
Takuji Narumi
Tomohiro Tanikawa
Michitaka Hirose
The University of Tokyo

Transmissive Mirror Device based Near-Eye Displays with Wide Field of View

We present a transmissive mirror device (TMD) based near-eye see-through displays with a wide viewing angle for augmented reality. We develop a simple see-through display that easily setup from a combination of off-the-shelf HMD and TMD. We demonstrate a prototype with a diagonal viewing angle of 100 degrees.

Kazuki Otao
Yuta Itoh
Kazuki Takazawa
Yoichi Ochiai
University of Tsukuba, Pixie Dust Technologies, Inc.
**Verifocal: A Platform for Vision Correction and Accommodation in Head-Mounted Displays**

We present a varifocal platform for head-mounted displays. This platform eliminates the vergence-accommodation conflict and corrects the user's vision by dynamically adjusting the focus inside a head-mounted display. We introduce a varifocal rendering pipeline and compare multiple varifocal optical systems for adjusting focus.

Pierre-Yves Laffont  
Ali Hasnain  
Pierre-Yves Guillemet  
Samuel Wirajaya  
Liqiang Khoo  
Teng Deng  
Jean-Charles Bazin  
Lemnis Technologies

**VPET - Virtual Production Editing Tools**

Curated Content

Using wearable propellers, Wind-Blaster allows the wearer to experience ungrounded haptic force feedback, increasing immersion in virtual environments without restricting movement.

Seungwoo Je  
Hyeilip Lee  
Myung Jin Kim  
Andrea Bianchi  
KAIST

**Wind-Blaster: A Wearable Propeller-based Prototype that Provides Ungrounded Force-Feedback**

Using wearable propellers, Wind-Blaster allows the wearer to experience ungrounded haptic force feedback, increasing immersion in virtual environments without restricting movement.

Seungwoo Je  
Hyeilip Lee  
Myung Jin Kim  
Andrea Bianchi  
KAIST

**VPET - Virtual Production Editing Tools**

Curated Content

The work on intuitive virtual production technology at Filmakademie led to an open platform tied to existing film pipelines. The Virtual Production Editing Tools (VPET) are open-source and constantly updated on Github. We introduce an intuitive environment where augmented reality extends real sets with modifiable virtual scenes.

Simon Spielmann  
Volker Helzle  
Andreas Schuster  
Jonas Trottnow  
Kai Goetz  
Filmakademie Baden-Württemberg GmbH  
Animationsinstitut

Patricia Rohr  
Filmakademie Baden-Württemberg GmbH  
Animationsinstitut, FMX
EXPERIENCE PRESENTATIONS

Informal presentations on new ideas that are applicable to techniques, concepts, and strategies related to the Experience Hall and Immersive Pavilion programs. Art Gallery, Emerging Technologies, Studio, VRcade, Village and VR Theater.

SUNDAY, 12 AUGUST

Augmented Reality is Here
Sunday, 12 August, 3:45 PM-5:15 PM

BroadcastAR: A Cinematic Augmented Reality Experience
Ferenc Czuczor
Norbert Kovacs
Tamas Matuszka
Alexandra Pittiglio
INDE R&D

We AR Sight: An Open Source Augmented Reality Wearable Device to Assist Visually Impaired Individuals
Sarang Nerkar
Ambarish Gurjar
Innosapien Technologies Pvt. Ltd., Nerkar Education and Research Trust

The AI-Powered Magic Mirror: Building Immersive AR/VR Experiences with Only Webcams and Deep Learning
Paul A. Kruszewski
Thomas Jan Mahamad
wrnch

Collaborative Exploration of Urban Data in Virtual and Augmented Reality
Carmine Elvezio
Frank Ling
Jen-Shuo Liu
Columbia University
Barbara Tversky
Teachers College
Steven Feiner
Columbia University

MONDAY, 13 AUGUST

Alternative Multiviewer Visual Displays
Monday, 13 August, 3:45 PM-5:15 PM

CoGlobe: A Co-Located Multi-Person FTVR Experience
Sidney Fels
University of British Columbia
Ian Stavness
University of Saskatchewan
Qian Zhou
University of British Columbia
Dylan Fafard
University of Saskatchewan
Georg Hagemann
Andrew Wagemakers
University of British Columbia
Chris Chamberlain
University of Saskatchewan

A Full-Color Single-Chip-DLP Projector with an Embedded 2400-fps Homography Warping Engine
Shingo Kagami
Koichi Hashimoto
Tohoku University

FairLift: Interaction with Mid-air Images on Water Surface
Yu Matsuura
The University of Electro-Communications
Naoya Koizumi
The University of Electro-Communications, JST PREST

Creating Virtual Realities
Monday, 13 August, 3:45 PM-5:15 PM

AnimVR: Animation Unleashed
Dario Seyb
Milan Grajetzki
NVRMIND IVS
Joe Daniels
TinyCo Games

Creating Lifelike Reactive Characters for VR
Joaquin Ruiperez
Gonzalo Ruipérez
ESTUDIOFUTURE

Elastic Time: Voxel-Based Mixed Reality Documentary, Real-Time Volumetric Capture, and VFX
Javier Bello Ruiz
Robin Mange
IMVERSE

Demonstration of Gaze-Aware Video Streaming Solutions for Mobile VR
Pietro Lungaro
Firdose Saeik
Konrad Tollmar
Royal Institute of Technology - KTH

Registration Level:
- Full Conference
- Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies

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#SIGGRAPH2018
TUESDAY, 14 AUGUST

**Stories in Virtual Reality - Part 1**
Tuesday, 14 August, 2 PM-3:30 PM

**Wolves in the Walls: Chapter 1**
Peter Billington
Fable Studio

** Becoming Homeless: A Human Experience**
Fernanda Herrera
Elise Ogle
Tobin Asher
Jeremy Bailenson
Stanford University

**Scrapy VR: Creating “A Show of Kindness” in eight weeks using Tilt Brush**
Jeremy Cowles
Peter Chan
Tilt Brush by Google

**Space Explorers: A New Dawn**
Sebastian Sylwan
Felix & Paul Studios

**Technologies in Near Eye Displays**
Tuesday, 14 August, 2 PM-3:30 PM

**Transmissive Mirror Device Based Near-Eye Displays with Wide Field of View**
Kazuki Otao
Yuta Itoh
Kazuki Takazawa
Hiroyuki Osone
Yoichi Ochiai
University of Tsukuba; Pixie Dust Technologies, Inc.

**Make Your Own Retinal Projector: Retinal Near-Eye Displays via Metamaterials**
Yoichi Ochiai
Kazuki Otao
Yuta Itoh
Shouki Imai
Kazuki Takazawa
Hiroyuki Osone
Atsushi Mori
Ippei Suzuki
University of Tsukuba; Pixie Dust Technologies, Inc.

Manufacturing Application-Driven Near-Eye Displays
Kaan Akşit
NVIDIA
Praneeth Chakravarthula
NVIDIA, UNC

Verifocal: A Platform for Vision Correction and Accommodation in Head-Mounted Displays
Pierre-Yves Laffont
Ali Hasnain
Pierre-Yves Guillemet
Samuel Wirajaya
Liqiang Khoo
Teng Deng
Jean-Charles Bazin
Lemnis Technologies

WEDNESDAY, 15 AUGUST

**Designing for a Digital World**
Wednesday, 15 August, 9 AM-10:30 AM

**Immersive Previz: VR Authoring for Film Previsualization**
Quentin Galvane
INRIA
I-Sheng Lin
NCCU
Marc Christie
University of Rennes
Tsai-Yen Li
NCCU

**Lightform: Procedural Effects for Projected AR**
Brittany Factura
Laura LaPerche
Phil Reyneri
Brett Jones
Kevin Karsch
Lightform, Inc.

**Raymarching Toolkit for Unity**
Kevin Watters
Independent

**Real-Time Motion Generation for Imaginary Creatures Using Hierarchical Reinforcement Learning**
Kenan Bektaş
University of Zurich and ETH Zurich, ZHAW, Zurich

**Experiencing Realities - Part 1**
Wednesday, August 15th, 2 PM-3:30 PM

**IKEA Immerse Interior Designer**
Ken Waagner
Isobar

**ELI in VR: Embodied Limbic Interaction for Piloting a Virtual Hang Glider**
Kenan Bektaş
University of Zurich and ETH Zurich, ZHAW, Zurich
**Augmented Reality Task Guidance for International Space Station Stowage Operations**
Hiroshi Furuya  
Columbia University
Lui Wang  
NASA
Carmine Elvezio  
Steven Feiner  
Columbia University

**Let’s Get Physical**  
Wednesday, 15 August, 2 PM-3:30 PM

**Metamaterial Devices**
Alexandra Ion  
Patrick Baudisch  
Hasso Plattner Institute, University of Potsdam

**Design Engine Community Project - Generate Quick Adhoc Inventions to Explore at SIGGRAPH and in the Studio**
Matthew Griffin  
Lizabeth Arum  
Ultimaker

Wataru Date  
Keio University
Yasuaki Kakehi  
The University of Tokyo, Keio University

**Design Method of Digitally Fabricated Spring Glass Pen**
Kengo Tanaka  
Kohei Ogawa  
Tatsuya Minagawa  
Yoichi Ochiai  
University of Tsukuba

**Games in Multiple Realities**  
Wednesday, 15 August, 3:45 PM-5:15 PM

**Making a Splash In VR: How We Created an Interactive Ocean for Vacation Simulator**
Devin Reimer  
Ben Hopkins  
Graeme Borland  
Owlchemy Labs

**Multiplayer Augmented Reality: the Future is Social, presented by Niantic**
Diana Hu  
Niniane Wang  
Niantic

**Museum of Symmetry**
Paloma Dawkins

**Augmented Reality Game with Unique Semi-Transmissive Rendering Method**
Daiki Taniguchi  
Akatsuki Inc.

**THURSDAY, 16 AUGUST**

**Paddles, Swords, Rubber Arms, and Other Haptic Tools**  
Thursday, 16 August, 9 AM-10 AM

**LevioPole: Mid-Air Haptic Interactions Using Multirotator**
Tomoya Sasaki  
The University of Tokyo

**Wind-Blaster: A Wearable Propeller-Based Prototype That Provides Ungrounded Force-Feedback**
Seungwoo Je  
Hyelip Lee  
Myung Jin Kim  
Andrea Bianchi  
KAIST

**Transcalibur : Weight Moving VR Controller for Dynamic Rendering of 2D Shape Using Haptic Shape Illusion**
Jotaro Shigeyama  
Takeru Hashimoto  
Shigeo Yoshida  
Taiju Aoki  
Takji Narumi  
Tomohiro Tanikawa  
Michitaaka Hirose  
The University of Tokyo

**Stories in Virtual Reality - Part 2**  
Thursday, 16 August, 9 AM-10 AM

**Arden’s Wake: Expanded - VR Technical and Artistic Challenges**  
Kevin Yong Qu  
Penrose Studios

**Experiencing Racism in VR: A 1000 Cut Journey**
Courtney D. Cogburn  
Dominic Cathey  
Columbia University

**I Am a Man: Communicating the Civil Rights Struggle Through VR**
Derek Ham  
NC State College of Design
**Experience Presentations**

Queerskins: A Love Story  
Illya Szlak  
Fancy Rainbow  
Cyril Tsiboulski  
Cloudred Studio

Experiencing Realities - Part 2  
Thursday, 16 August, 3:45 PM-5:15 PM

Chorus  
Adam Rogers  
Tyler Hurd  
Gentle Manhands

Voyage  
Sharan Shodhan  
Julian Korzeniowsky  
Sija He  
Na-yeon Kim  
Rajeev Mukundan  
Carnegie Mellon University

Sherpa: The Helping Hands of the Himalaya  
Dimosthenis Gkantzos  
Christian Greitmann  
Martin Koegel  
Filmakademie Baden-Wuerttemberg GmbH
SIGGRAPH 2018 Panels offer a space where discussion and debate on important topics in computer graphics and interactive techniques can freely flow.

Full Conference Platinum and Full Conference Access registration allows attendees access to all SIGGRAPH 2018 Panels.

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

SUNDAY, 12 AUGUST

Color Mavens Advise on Digital Media Creation and Tools

Sunday, 12 August, 10:45 AM-12:15 PM

Designing and capturing color schemes for digital media composition are important steps in the creation pipeline. A group of color experts, “Color Mavens”, from X-Rite/Pantone, Adobe Systems, Rochester Institute of Technology, and Pixar Animation Studios to highlight their methods with discussion about optimal colorization approaches to follow.

Moderator
Theresa-Marie Rhyne
Consultant

Panelists
Nicholas Bazarian
X-Rite/Pantone

Jose Echevarria
Adobe Systems

Michael Murdoch
Rochester Institute of Technology

Danielle Feinberg
Pixar Animation Studios

Interactive Dance Club ’98 - a Legend in the Making!

Sunday, 12 August, 3:45-5:15 PM

IDC ’98 brought together the SIGGRAPH community in a grand social experiment. Attendees gathered to participate in creating a dynamic confluence of music, computer graphics and lighting. This panel discusses IDC’s conceptualization, visual and technology development and ground rules for multi-participatory experiences - all while examining current day applications.

Moderator
Judith Crow
SideFX

Panelists
David Bianciardi
AV&C

Greg Hermanovic
Derivative, Inc.

Ryan Ulyate

Design and Implementation of Modern Production Renderers

Sunday, 12 August, 3:45-5:15 PM

A discussion among developers of five of the most significant production renderers for film, going into technical detail about the design goals and implementations of their renderers and comparing their respective designs.

Moderator
Matt Pharr
Google

Panelists
Per Christensen
Pixar

Brent Burley
Walt Disney Animation Studios

Luca Fascione
Weta Digital

Christopher Kulla
Sony Pictures Imageworks

Marcos Fajardo
Solid Angle
MONDAY, 13 AUGUST

VR@50: Celebrating Ivan Sutherland’s 1968 Head-Mounted 3D Display System

Monday, 13 August, 10:45 AM-12:15 PM
This panel celebrates the first fully functioning 3D AR/VR system: real-time, see-through, stereo, perspective display; and two different head trackers: ultrasonic and mechanical (the “Sword of Damocles”). Ivan Sutherland (“father of Computer Graphics”), and team members Charles Seitz, Robert Sproull, Quintin Foster present. Graphics pioneer Fred Brooks reviews the system’s impact and legacy.

Moderator
Henry Fuchs
University of North Carolina, Chapel Hill

Panelists
Ivan E. Sutherland
Portland State University
Robert F. Sproull
University of Massachusetts Amherst
Charles L. Seitz
Consultant
Frederick P. Brooks
University of North Carolina, Chapel Hill
H. Quintin Foster Jr.
Retired Engineering Manager

TUESDAY, 14 AUGUST

Future Artificial Intelligence and Deep Learning Tools for VFX

Tuesday, 14 August, 2-3:30 PM
This panel discusses trends and prospects for using AI tools in the VFX pipeline. Panel experts talk about the current AI tools that work in the industry, give answers to questions and their vision of their technology development.

Moderator
Dmytro Korolov
MPC

Panelists
Jean-Charles Bazin
Korea Advanced Institute of Science and Technology
Doug Roble
Digital Domain
Rob Pieke
MPC
Renaldas Zima
Unity Technologies
Jeff Kember
Google
David Luebke
NVIDIA Corporation

WEDNESDAY, 15 AUGUST

The Present and Future of Real-Time Graphics for Film

Wednesday, 15 August, 2-3:30 PM
How are real-time graphics used in the movie industry today? How can they be used in the coming years? This panel brings together voices representing various areas of expertise to provide information about how real-time graphics are being used and how they foresee the future of real-time graphics in film.

Moderator
Pol Jeremias-Vila
Pixar Animation Studios

Panelists
Jean-Charles Bazin
Korea Advanced Institute of Science and Technology
Doug Roble
Digital Domain
Rob Pieke
MPC
Renaldas Zima
Unity Technologies
Jeff Kember
Google
David Luebke
NVIDIA Corporation

Visual Effects in the Age of the Cloud

Wednesday, 15 August, 3:45-5:15 PM
The Visual Effects industry is presently grappling with how to best take advantage of cloud computing, a technology which has transformed the practice of software in many industries. This panel discusses cloud computing in Visual Effects, how it is trending, and how it changes production.

Moderator
Mark Wiebe
Amazon

Panelists
Jason Fotter
FuseFX
Dan Wexler
Zorroa
Panos Zompolas
Redshift
Phil Peterson
Technicolour Production Services
THURSDAY, 16 AUGUST

The Past, Present and Future of the Video Game Cinematic

Thursday, 16 August, 2-3:30 PM
Top creatives in video game cinematics will discuss the processes and technology that makes their work possible, along with the creative and economic context that underpins this work. They will reveal the "who", "what", and "why" of cinematics, shedding light on a genre that is often applauded but rarely analyzed.

Moderator
Stuart Aitken
Axis Studios

Panelists
Franck Balson
Blur Studio
Phillip Hillenbrand
Blizzard Entertainment
Thomas Vu
Riot Games
Matthew Ward
BUNGIE
Jakub Jablonski
Platige Image
Alex S. Rabb
Digic Pictures
SIGGRAPH 2018 hosts Production Sessions, where the world’s most talented production teams share their processes and techniques from some of the most exciting content in computer animation, VFX, games and VR. Following each presentation, attendees ask questions about the challenges and issues associated with complex productions.

### PRODUCTION GALLERY

- **Sunday, 12 August, 1:30-5:30 PM**
- **Monday, 13 August, 10 AM-5:30 PM**
- **Tuesday, 14 August, 10 AM-5:30 PM**
- **Wednesday, 15 August, 10 AM-5:30 PM**
- **Thursday, 16 August, 10 AM-3:30 PM**

This one-of-a-kind exhibit recognizes the art, processes, and physical materials involved in the creation of major studio projects — not just the final piece on screen. The gallery features artwork, props, and more from recent film, VR, or game productions for an exclusive behind-the-scenes look at some of Hollywood’s biggest blockbusters.

### “JURASSIC PARK” 25TH ANNIVERSARY SCREENING (WITH STEVE “SPAZ” WILLIAMS INTRODUCTION)

- **Sunday, 12 August, 8:30-11:15 PM**

We’re celebrating 25 years of one of a handful of films that can say it changed movies forever: “Jurassic Park” (1993). Join us for this special screening with an introduction from Steve “Spaz” Williams, a legendary pioneer in computer graphics who helped develop Jurassic’s infamous dinosaurs — the first-ever digital animals! Williams’ impressive career spans several other landmark movie moments, including the Oscar-nominated face contortion in “The Mask” and Oscar-winning “Terminator 2” (first CG main character) and “The Abyss” (first “soft surface” CG character).

### DNEG, Framestore, and MPC Present: The Visual Effects of “Blade Runner 2049”

- **Monday, 13 August, 10:45 AM-12:15 PM**

35 years after the release of the original “Blade Runner” film, the visual effects teams behind “Blade Runner 2049” were tasked with the challenge of crafting a dystopian world in the next phase of one of the most-beloved sci-fi films of all time. Set 30 years after the first film, the sequel follows a new blade runner as he unearths a long-buried secret that has the potential to plunge what’s left of society into chaos. From the creation of the LA cityscapes, Las Vegas, and Trash Mesa environments to the development of a holographic Joi and the return of Rachael, join the filmmakers from DNEG, Framestore, and MPC as they discuss their Academy-Award winning work that paid tribute to the original picture while creating a film of the future.

Axel Akesson
MPC
Richard Hoover
Framestore
Chris McLaughlin
DNEG

### “Wreck-It Ralph 2”: Visualizing the Internet

- **Tuesday, 14 August, 10:45 AM-12:15 PM**

In “Ralph Breaks the Internet: Wreck-It Ralph 2,” Vanellope von Shweetz and Wreck-It Ralph leave Litwak’s video arcade behind, venturing into the uncharted, expansive and thrilling world of the internet on a quest to save Vanellope’s video game. Building the metropolis of the internet was no small feat: its smallest buildings are the size of the Empire State Building, and tens of thousands of dynamic, digital signs can be seen in one city shot. The world then needed to be populated with characters, ranging from the everyday citizens of the internet - netizens - to service workers and algorithms who run the world wide web. Throughout the making of the film, the production team was challenged to push the boundaries both artistically and technically in visualizing a world that is ever-changing and seemingly endless - a concept as familiar as the internet executed in a way that has never been seen before.

Ernest Petti
Larry Wu
David Komorowski
Walt Disney Animation Studios
“Game of Thrones” Season 7: Orchestrating Sea Battles and Blowing Up a Big Wall

Tuesday, 14 August, 2-3:30 PM

In this production session, we will share our story of working on the legendary show, “Game of Thrones”, since the series’ fourth season, detailing the learnings and knowledge we have gained from our multi-season experience on the groundbreaking show. We will go in depth on two of season 7’s most intense sequences, starting from the concept art and working through the processes that got us to the final shots.

Our long-term relationship with the filmmakers helped us anticipate their hands-on approach for art directing, which we took into consideration when planning for the Sea Battle scene in episode two and the dramatic fall of The Wall in the season finale.

At the session, we will share how we prepared to give the filmmakers freedom to play with the art direction, including how we set up a master scene file for the Sea Battle for this purpose. This nighttime battle contained a plethora of challenges, from simulations, to CG environments, the CG ocean, and CG background ships mixed with compositing fire elements, which we will look at in the session.

For the season’s climatic finale, we created the first full view of The Wall at Eastwatch-by-the-Sea and then blew it to pieces, earning the 2018 VES Award for Outstanding Effects Simulations in an Episode. At the session, we will discuss the process of creating a flexible asset - The Wall - allowing for various possibilities for the art direction and simulation. We will also present the techniques we used to score the wall up to its dramatic collapse.

Thomas Hullin
Isabelle Langlois
Rodeo FX Inc.

LAIKA’s “Missing Link”: Raising the VFX Bar

Tuesday, 14 August, 3:45-5:15 PM

LAIKA is a studio whose mission is to realize the potential of stop-motion animation by fusing old-school artisan-ship with cutting-edge technology. This production session will highlight the work done by LAIKA’s in-house visual effects team on the studio’s fifth film, “Missing Link” (in theaters spring 2019).

During this session, the LAIKA team will highlight its unique production pipeline and how its digital efforts were created in concert with the puppet-makers and set builders at the studio. The team will discuss their adoption of RenderMan’s RIS and how LAIKA was able to leverage new workflows to quadruple their output of photo-real, design-intensive background puppets, props and environments for the film.

“Missing Link” required a great deal of collaboration between the studio’s on-set camera team and visual effects. This session will also underscore the challenges faced when fusing boundless digital scenes with camera setups dictated by an animator’s ability to reach a puppet. The team will show examples of how camera data was shared, scaled and augmented during the film’s production.

Eric Wachtman
Rick Sevy
Michael Cordova
LAIKA

Three Keys to Creating the World of “Ready Player One” - Visual Effects & Virtual Production

Wednesday, 15 August, 10:45 AM-12:15 PM

In this deep dive into Steven Spielberg’s “Ready Player One,” teams from Industrial Light & Magic and Digital Domain will showcase the breakthrough virtual production techniques and technology deployed for the film and the visual effects involved in bringing the film’s dystopian vision of life in 2045 to the screen. In addition, the teams will delve into the immense artistic and technical challenges of designing, building, and animating every aspect of the expansive virtual universe known as the OASIS.

Grady Cofer
David Shirk
David Dally
Industrial Light & Magic
Jose Astacio
Digital Domain
"The Incredibles 2": Suit Up, It Might Get Weird!

Wednesday, 15 August, 2-3:30 PM

In a conversation that will not only span multiple disciplines, but also multiple years of technological advancement at Pixar, the team behind "Incredibles 2" - many of whom also worked on the first film - will compare and contrast the filmmaking process then and now. With a sequel, there's always the challenge of making a film true to the original, yet different in every detail. In building the world of "Incredibles 2," the team tackled one of the most technically daunting films in Pixar’s canon, all while needing it to hark back to the familiar tone established by the first film. Hear from this supergroup as they examine how they used the past to inform the present and, incredibly, achieved the near-impossible.

Mahyar Abousaeedi
Beth Albright
Evan Bonifacio
Chris Burrows
Gordon Cameron
Ralph Eggleston
Nathan Fariss
Fran Kalal
Paul Kanyuk
Ted Mathot
Philip Metschan
Tom Nettleship
Bret Parker
Darwyn Peachey
Reid Sandros
Rick Sayre
Stephen Schaffer
Erik Smitt
Esdras Varagnolo
Bill Watral
Bill Wise
Pixar

Generations of Houdini in Film

Wednesday, 15 August, 3:45-5:15 PM

For more than 20 years, Houdini artists have been pushing boundaries in films, TV and games. This session features some of the best film professionals whose careers span from the early days to more recent projects.

Ian Failes
VFX Blog
Rob Bredow
Industrial Light & Magic
Matt Estela
UTS Animal Logic Academy
Mark Hodgkins
DNEG
Michael Kaschalk
Walt Disney Animation Studios
Andy Hayes
Framestore

“Crow: The Legend” - Bringing a Native American Legend into VR

Thursday, 16 August, 10:45 AM-12:15 PM

Inspired by a Native American myth, Baobab Studio’s “Crow: The Legend” tells a story with themes of diversity, inclusion, sacrifice and self-acceptance. Director Eric Darnell and the team behind the Emmy-winning VR animations “Invasion!” and “Asteroids!,” share insights from their most ambitious VR project to date.

In this production session, we will answer the following questions and more as well as showcase our work: What are the differences between creating a VR animated experience versus a 2D animated film? How do we blend original music, interactivity with a VR storybook visual style to capture the mythical quality from the Native American folktale? How do we balance audience participation against focused narrative? As the audience plays the role of the “Spirit of the Seasons”, how does the viewer interact with and affect change on the characters and their world? What creative and technical challenges arise by integrating user agency and interactivity into the narrative? How do we direct the viewer’s eyes when we no longer have a frame? How do storyboarding, staging, and animation change when the viewer can look anywhere and be part of the story?

Larry Cutler
Kane Lee
Scott Peterson
Baobab Studios
Sarah Eagle Heart
Native Americans in Philanthropy
Making the Kessel Run in Less Than 12 Parsecs - The VFX of “Solo: A Star Wars Story”

Thursday, 16 August, 2-3:30 PM
Join the visual effects team as they take you behind the scenes on one of 2018’s biggest films. The team will showcase the innovative shooting techniques developed for the film and the unique collaboration with Director Ron Howard that allowed this chapter in the Star Wars universe to be brought to the screen. The team will also pull back the curtain on how they took old school methodologies and combined them with cutting edge technologies to create the film’s groundbreaking visual effects work.

Rob Bredow
Patrick Tubach
Greg Kegel
Industrial Light & Magic
Joseph Kasparian
Hybride

The Making of Marvel Studios’ “Avengers: Infinity War”

Thursday, 16 August, 3:45-5:15 pm
Four years after the events of “Guardians of the Galaxy Vol. 2,” the Avengers have been torn apart following the events of “Captain America: Civil War”. When Thanos arrives on Earth to collect the Infinity Stones for a gauntlet that will allow him to bend reality to his will, the Avengers must join forces with the Guardians of the Galaxy to stop him. Marvel Studios, ILM, Weta Digital, and Digital Domain take SIGGRAPH audiences through their VFX journey as they created some of the movie’s most heart-stopping moments.

Victoria Alonso
Dan DeLeeuw
Jen Underdahl
Swen Gillberg
Marvel Studios
Kelly Port
Digital Domain
Russell Earl
Industrial Light & Magic
Matt Aitken
Weta Digital
REAL-TIME LIVE!

Tuesday, 14 August 6-7:45 PM
Real-Time Live! showcases the latest trends and most innovative interactive techniques, presented and deconstructed live by their creators.

Deep Learning-Based Photoreal Avatars for Online Virtual Worlds in iOS

- A deep learning-based technology for generating photo-realistic 3D avatars with dynamic facial textures from a single input image is presented. Real-time performance-driven animations and renderings are demonstrated on an iPhone X and we show how these avatars can be integrated into compelling virtual worlds and used for 3D chats.

Koki Nagano
Pinscreen, USC Institute for Creative Technologies
Jaewoo Seo
Kyle San
Aaron Hong
Mclean Goldwhite
Pinscreen
Jun Xing
USC/ICT
Stuti Rastogi
Pinscreen, USC
Jiale Kuang
Aviral Agarwal
Hanwei Kung
Caleb Arthur
Carrie Sun
Stephen Chen
Jens Fursund
Pinscreen
Hao Li
Pinscreen, USC

Demonstrating Mocap: Real-Time Full-Performance Motion Capture with an iPhone X, Xsens, and Maya

- Kite & Lighting reveals how Xsens inertial mocap technology, used in tandem with an iPhone X, can be used for full body and facial performance capture – wirelessly and without the need for a mocap volume – with the results live-streamed to Autodesk Maya in real time.

Cory Strassberger
Kite & Lighting
Remco Sikkema
Xsens

Gastro Ex: Real-Time Interactive Fluids and Soft Tissues on Mobile and VR

- Enter Gastro Ex for on smartphones and VR. The entire environment surrounding you is interactable and “squishy,” featuring advanced soft-body physics and 3D interactive fluid dynamics. Grab anything. Cut anything. Inject anywhere. Unleash argon plasma. Enjoy emergent surgical gameplay, rendered with breathtaking real-time GI and subsurface scattering.

Sam Glassenberg
Matthew Yaeger
Andy Saia
Steve Kane
Level Ex

IKEA Immerse Interior Designer

- IKEA Immerse is available in select IKEA stores in Germany. This application enables consumers to create, experience, and share their own configurations in a virtual living and kitchen room set. With seamless e-commerce integration, a high level of detail, and real-time interaction, the VR experience represents an engaging, valuable touch-point.

Tobias Soffner
Christopher Baumbach
Demodern GmbH

Mixed Reality 360 Live: Live Blending of Virtual Objects into 360° Streamed Video

- An interactive mixed reality system using live streamed 360° panoramic videos is presented. A live demo for real-time image-based lighting, light detection, mixed reality rendering, and composition of 3D objects into a live-streamed 360° video of a real-world environment with dynamically changing real-world lights is shown.

Taehyun Rhee
Andrew Chalmers
Ian Loh
Ben Allen
Lohit Petikam
CMIC, Victoria University of Wellington, DreamFlux
Stephen Thompson
Tom Revill
CMIC, Victoria University of Wellington

Best Real-Time Graphics and Interactivity Award
Developers create and showcase the best real-time graphics and interactivity applications possible using today’s technologies. The winning team is announced from the Real-Time Live! stage.
Oats Studios VFX Workflow for Real-Time Production with Photogrammetry, Alembic, and Unity

Come see how Oats Studios modified their traditional VFX pipeline to create the breakthrough real-time shorts ADAM Chapter 2 & 3 using Photogrammetry, Alembic, and the Unity real-time engine.

Chris Harvey
Mike Blomkamp
Oats Studios
Isabelle Riva
Unity Technologies
Neill Blomkamp
Oats Studios

The Power of Real-Time Collaborative Filmmaking

PocketStudio is designed to allow filmmakers to easily create, play, and stream 3D animation sequences in real time using real-time collaborative editing, a unified workflow, and other real-time technologies, such as augmented reality.

Jean-Colas Prunier
Armelle Bauer
Yvain Raeymaekers
Stephane Tayeb
PocketStudio

Virtual Production in ‘Book of the Dead’: Technicolor’s Genesis Platform, Powered by Unity

We demonstrate a Unity-powered virtual production platform that pushes the boundaries of real-time technologies to empower filmmakers with full multi-user collaboration and live manipulation of whole environments and characters. Special attention is dedicated to high-quality real-time graphics, as evidenced by Unity’s “Book of the Dead.”

Francesco Giordana
Moving Picture Company
Veselin Efremov
Unity Technologies
Gael Sourimant
Technicolor RRI
Silvia Rasheva
Unity Technologies
Callum James
Moving Picture Company

Wonder Painter: Turn Anything into Animation

Xiaoxiaoniu’s unique patented Wonder Painter™ technology turns anything into a vivid cartoon animation at a click of your camera. First, draw something, make something (clay, origami, building blocks, etc.), or find something (toy, picture book, etc.). Then take a photo of it and see it come alive!

Xiang Cao
Xiaoxiaoniu Creative Technologies

The ‘Reflections’ Ray-Tracing Demo Presented in Real Time and Captured Live Using Virtual Production Techniques

Epic Games, Nvidia, and ILMxLAB would like to present 2018’s GDC demo, “Reflections,” set in the “Star Wars” universe. In addition, we will record a character performance live using virtual production/virtual reality directly into Unreal Engine Sequencer, and then play the demo with real-time ray tracing live at 24fps.

Gavin Moran
Epic Games
Mohen Leo
ILMxLAB

Registration Level:
- Full Conference
- Platinum
- Full Conference
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- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies
SIGGRAPH NEXT

SIGGRAPH has long been a pioneer in computer graphics research and emerging technologies. SIGGRAPH Next continues that tradition by offering a series of plenary speakers on topics that speak to “What’s Next” for the industry.

The Future’s Waiting

Monday, 13 August, 8 AM-8:45 AM
We know that change generally takes five to 10 years at best to become realized within society. With that being true, predictors were in place five years ago that could have given us insight into what our world might look like today. This talk discusses current trends in place today that might tell us what the future could look like in five to 10 years. The future is waiting.

Bob Nicoll
Blizzard Entertainment

Dylan Hendricks
IFTF (Institute for the Future)

Connections: The Intersection of Graphics and Medicine

Tuesday, 14 August, 8 AM-8:45 AM
As CG reaches a cusp where we can mimic visual reality, we are challenged to use it for solving complex analytical problems in the world around us. Intersecting deep learning and artificial intelligence with advanced graphics provides groundbreaking new approaches. Specifically in the field of Biomed, this session discusses examples ranging from computer vision in microscopy to computer learning to recognize cancer cell anomalies in a pathology dashboard of the future.

Daniel Szecket
Michel Nederlof
Quantitative Imaging Systems (Qi)

NextGen Education Models

Wednesday, 15 August, 8-8:45 AM
With decades of experience in developing programs to help make math, science and engineering education more inspiring and relevant for middle and high school students, Tony is at the forefront of inventing new educational models. From the Young Makers Program to Pixar in a Box, in partnership with Khan Academy, creating hands on problem solvers and original thinkers is key to the foundation of his initiatives, as well as the future of all educational models.

Tony DeRose
Pixar Research Group Emeritus
Create works of art, items of functionality, or objects of novelty. If you can imagine it, the SIGGRAPH Studio has the resources to help you make it a reality. Attend Studio Workshops that educate attendees on state-of-the-art processes and workflow pipelines.

Building a Feedback Loop Between Electrical Stimulation and Percussion Learning

We apply electrical muscle stimulation (EMS) to the learning of rhythm. By the movement of muscles stimulated using EMS, users are able to acquire what kind of arms and legs to move at what timing and play the rhythm of drums that require the simultaneous movement of the limbs.

Ayaka Ebisu
Satoshi Hashizume
Digital Nature Group, University of Tsukuba
Yoichi Ochiai
Digital Nature Group, University of Tsukuba Pixie Dust Technologies, Inc.

Design Engine Community Project: Generate Quick Adhoc Inventions to Explore at SIGGRAPH and in the Studio

We’re hosting a brand new SIGGRAPH edition of “The Design Engine” card game, a constantly revolving series of design challenges hosted within the Studio. Participants can join for a short startup round, or stick around to design and develop their projects using the tools available in the SIGGRAPH Studio Workshop.

Matthew Griffin
Lizabeth Arum
Ultimaker

Design Method of Digitally Fabricated Spring Glass Pen

We present a method to create a pen that suits people’s preferences easily by using a 3D printer. Elasticity can be reproduced by giving the spring structure, and a capillary phenomenon occurs by applying a fine gap to the pen tip.

Kengo Tanaka
Kohei Ogawa
Tatsuya Minagawa
Yoichi Ochiai
University of Tsukuba Digital Nature Group

Immersive Previz: VR Authoring for Film Previsualisation

One Man Movie is a VR authoring system that enables the crafting of filmic sequences with no prior knowledge in 3D animation. The system is designed to reflect the traditional creative process in film pre-production through stages like scene layout, animation of characters, placement of cameras, and editing.

Quentin Galvane
INRIA Rennes
I-Sheng Lin
NCCU
Marc Christie
IRISA/INRIA Rennes Bretagne
Tsai-Yen Li
NCCU

Lightform: Procedural Effects for Projected AR

Lightform LF1 is a hardware device that enables fast and convenient projected AR for any projector. Through a novel visible structured light technique, the LF1 allows users to apply procedural effects automatically and quickly create projected AR content.

Kevin Karsch
Lightform, Inc.

Lightwork: Infinity Alley

Lightwork is an open source application that simplifies the mapping of addressable LEDs in 2D and 3D spaces. Infinity Alley is an interactive and volumetric LED environment where participants can learn how to use Lightwork to map LEDs to create custom visualizations.

Derek Gaw
Tim Rolls
Edward Budiman
Paul Reimer
MakerLabs

Metamaterial Devices

Traditionally, metamaterials were understood as materials with deformation properties that are defined by their inner structure. We, however, don’t think of them as materials, but rather as devices. We present metamaterial devices, such as analog or digital machines, and software tools that assist novice users in designing and fabricating them.

Alexandra Ion
Patrick Baudisch
Hasso Plattner Institute University of Potsdam

We present a system that makes paper through additive manufacturing process by using a dispenser mounted on XY plotter. By using this system, graphic designers can design and output paper itself, which is difficult in an existing paper production process.

Wataru Date
Keio University
Yasuaki Kakehi
The University of Tokyo

Raymarching Toolkit for Unity

Raymarching Toolkit for Unity is a Unity 3D plugin enabling artists and non-programmers to create scenes using raymarching, a graphics technique previously limited to experts and hackers in the demoscene. Unusual effects like blending shapes, reflecting geometry into kaleidoscopic patterns, and applying magical distortions all become within reach.

Kevin Watters
Fernando Ramalho
Independent

Real-Time Motion Generation for Imaginary Creatures Using Hierarchical Reinforcement Learning

Describing the motions of imaginary original creatures is an essential part of animations and computer games. In this system, virtual creatures learn to move using hierarchical reinforcement learning. By combining reinforcement learning and simple exploration, we can achieve a light learning system capable of being operated on mobile devices.

Keisuke Ogaki
Masayoshi Nakamura
DWANGO Co., Ltd.

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**Monday, 13, August**

**Troubleshooting and Cleanup Techniques for 3D Printing**

Learn hands-on techniques for identifying and cleaning up geometry for 3D printing. Explore the most commonly encountered problems, discover how they are created and how they can be fixed, and develop a fluent understanding of the best practices to avoid them.

Lance Winkle
University of Southern California

**IMVERSE LiveMaker - Create a 3D Model From a Single 2D Photo Inside VR**

Easy and fast process to transform a single 360-degree 2D picture, from any commercial camera, into a 3D room-scale experience with live hologram actors and real-time VFX.

Robin Mange
Kepa Iturrioz Zabala
Imverse SA

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Tuesday, 14, August

LEDs as Sensors
Curated Content
Tuesday, 14 August, 10:15 AM-11:45 AM
Imagine an LED that turns itself on and off in response to light levels, or one that you can blow out like a candle. These are circuits you can build with just an Arduino, a resistor, an LED and a little code. In this workshop, we examine some surprising properties of LEDs to create systems that sense light, temperature and even wind speed.

Paul H. Dietz
Misapplied Sciences, Inc.
Jennifer Ginger Alford
Trinity Valley School

A Processing Primer for Artists
Curated Content
Tuesday, 14 August, 12 PM-1:30 PM
Processing is an open source programming language and Integrated Development Environment (IDE) developed by Casey Reas and Ben Fry. This is the second offering of this workshop – a hands-on programming primer for artists and designers who are interested in using programming and computational thinking as creative tools.

Elgin-Skye McLaren
Simon Fraser University
Susan Reiser
UNC Asheville
Ginger Alford
Trinity Valley School, Fort Worth Museum of Science and History

Unity Games 1: Scriptable Render Pipeline From Scratch
Curated Content
Tuesday, 14 August, 2 PM-3:30 PM
Rendering allows you to control many aspects of a scene, how it looks, what tone is conveyed, and how it is stylized. In this workshop attendees learn the basics of the Unity Scriptable Render Pipeline by creating a renderer from scratch. This renderer includes opaque and transparent rendering as well as simple lighting.

Peter Bay
Unity3d

Unity Games 2: Customizing a Production Render Pipeline
Curated Content
Wednesday, 15 August, 2 PM-3:30 PM
Now that you know how to write a Scriptable Render Pipeline we will delve deeper into a more advanced pipeline. This workshop is a case study of a fully featured project ready pipeline. After learning about targeting specific hardware levels and the tradeoffs that you have to make when writing a pipeline you will get the opportunity to extend this pipeline and add a number of custom effects.

Felipe Lira
Unity3d

IMVERSE LiveMaker - Create a 3D Model From a Single 2D Photo Inside VR
Tuesday, 14 August, 3:45 PM-5:15 PM
Robin Mange
Imverse

IMVERSE LiveMaker - Create a 3D Model From a Single 2D Photo Inside VR
Wednesday, 15 August, 3:45 PM-5:15 PM
Robin Mange
Imverse

Designing Mini-Skateboard Designs for Laser Etching
Curated Content
Wednesday, 15 August, 10:15 AM-11:45 AM
Through this workshop attendees learn how to design illustrations with the final outcome of a laser etched skateboard. Design principles like line quality, composition, and balance are discussed with laser etching in mind. All attendees of this workshop receive a mini-skateboard with their design on it the day following the workshop.

Chris Williams

Creating a Virtual Host Experience Using Sumerian Hosts
Curated Content
Wednesday, 15 August, 12 PM-1:30 PM
In this hands-on workshop, participants create an interactive, immersive application incorporating Sumerian Hosts, the virtual character service developed by AWS. You will learn what are Sumerian Hosts, be taught how Hosts can integrate with a variety of AWS speech and translate services to create dynamic, interactive avatars. Each participant learns how to work with Cristine, Preston and Luke – the three Sumerian Hosts. They will design, build and publish their own scene which includes a virtual host.

Leo Chan
Amazon

Creating an Immersive Scene Using Amazon Sumerian
Curated Content
Thursday, 16 August, 12 PM-1:30 PM
Amazon Sumerian is a web-based interactive developer environment, editor, and asset repository that can be used to easily and quickly create AR, VR and 3D applications. In this workshop, participants are introduced to the Sumerian console, learn to navigate the dashboard, and get hands-on experience creating their own immersive experience. Each participant has an opportunity to design, develop and publish their own creation.

Leo Chan
Amazon

Using Total Appearance Capture to Create Physically Accurate 3D Characters
Curated Content
Monday, 13 August, 10:15 AM-11:45 AM
Character service development for interactive and dynamic, interactive avatars. Each participant learns how to work with Cristine, Preston and Luke – the three Sumerian Hosts. They will design, build and publish their own scene which includes a virtual host.

Leo Chan
Amazon

IMVERSE LiveMaker - Create a 3D Model From a Single 2D Photo Inside VR
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Wednesday, 15 August, 12 PM-1:30 PM

Designing Mini-Skateboard Designs for Laser Etching
Curated Content
Wednesday, 15 August, 10:15 AM-11:45 AM

Creating an Immersive Scene Using Amazon Sumerian
Curated Content
Thursday, 16 August, 12 PM-1:30 PM

Using Total Appearance Capture to Create Physically Accurate 3D Characters
Curated Content
Monday, 13 August, 10:15 AM-11:45 AM
Go behind the scenes and into the minds of the conference creators in all areas of computer graphics technology and interactive techniques.

Full Conference Platinum and Full Conference registration allows attendees access to all SIGGRAPH 2018 Talks. Seating is on a first-come, first-served basis. Please arrive early for the talk you wish to attend.

**SUNDAY, 12 AUGUST**

**I Can See Clearly Now**
Sunday, 12 August, 9-10:30 AM

**Confocal Non-Line-of-Sight Imaging**
Matthew O’Toole
David B. Lindell
Gordon Wetzstein
Stanford University

**Real-Time Muography Simulator for ScanPyramids Mission**
Benoit MARINI
Whatever The Reality, HIP Institute

**Divergence Projection with Electrostatics**
Jeff Lait
Side Effects Software Inc

**DeepFocus: Learned Image Synthesis for Computational Displays**
Lei Xiao
Anton Kaplanyan
Alexander Fix
Douglas Lanman
Facebook Reality Labs

**Best of SIGCHI**
Sunday, 12 August, 10:45 AM-12:15 PM

**Extending Manual Drawing Practices with Artist-Centric Programming Tools**
Jennifer Jacobs
Stanford University
Joel Brandt
Snap, Inc.
Radomir Mech
Adobe Research
Mitchel Resnick
MIT Media Lab

**Pinpointing: Precise Head- and Eye-Based Target Selection for Augmented Reality**
Mikko Tuomo Kytö
Aalto University, University of South Australia
Barrett Ens
Monash University, University of South Australia
Thammathip Plumsomboon
Gun A. Lee
University of South Australia
Mark Billinghurst
University of South Australia, University of Auckland

**ChromaGlasses: Computational Glasses for Compensating Colour Blindness**
Tobias Langlotz
Jonathan Sutton
Stefanie Zollmann
University of Otago
Yuta Itoh
Tokyo Institute of Technology, RIKEN
Holger Regenbrecht
University of Otago

**DataInk: Direct and Creative Data-Oriented Drawing**
Haijun Xia
University of Toronto
Nathalie Riche
Microsoft
Fanny Chevalier
Bruno Araujo
Daniel Wigdor
University of Toronto

**Well Worn**
Sunday, 12 August, 10:45 AM-12:15 PM

**Collaborative Costume Design and Construction on ‘Incredibles 2’**
Aimei Kutt
Fran Kalal
Trent Crow
Beth Albright
Pixar Animation Studios

**Dressed for Saving the Day: Finer Details for Garment Shading on ‘Incredibles 2’**
Trent Crow
Junyi Ling
Michael Kilgore
Pixar Animation Studios

**Coco AnimSim: Increasing Quality and Efficiency**
Emron Grover
Jacob Brooks
Kristopher Campbell
Bret Parker
Pixar Animation Studios

**Better Collisions and Faster Cloth for Pixar’s ‘Coco’**
David Eberle
Pixar

**Augmenting Your Reality**
Sunday, 12 August, 2-3:30 PM

**Augmented Reality, Art, and Public Space**
BC Biermann
Heavy Projects, CAVAD
Augmented Reality for Virtual Set Extension
Simon Spielmann
Volker Heizle
Filmakademie Baden-Württemberg GmbH, Animationsinstitut

Creating Great Augmented Reality Experiences Using ARKit 2
Christopher Figueira
Apple, ARKit Engineering

Hares & Hairs
Sunday, 12 August, 2-3:30 PM

Hair Today, Cloth Tomorrow: Automating Character FX on Peter Rabbit
Miles Green
Animal Logic
Rogier Fransen
Weta Digital
Brian Kranz
FlyBoyz
Damien Gray
Animal Logic

Simulating Woven Fabrics with Weave
Bryan Smith
Roman Fedotov
Sang N. Le
Matthias Frei
Alex Labyshhev
Luke Emrose
Jean Pascal leBlanc
Animal Logic

Hierarchical Controls for Art-Directed Hair at Disney
Avneet Kaur
Maryann Simmons
Walt Disney Animation Studios
Brian White
Riot Games

Engineering Full-Fidelity Hair for ‘Incredibles 2’
Andrew Butts
Mark Hessler
Ben Porter
Dirk Van Gelder
Venkateswaran Krishna
Gary Monheit
Pixar

IEEE TVCG Session on Virtual and Augmented Reality
Sunday, 12 August, 2-3:30 PM

Gaze-Aware Streaming Solutions for the Next Generation of Mobile VR Experiences
Pietro Lungaro
Royal Institute of Technology - KTH
Rickard Sjöberg
Ericsson
Alfredo José Fanghella Valero
Ashutosh Mittal
Konrad Tollmar
Royal Institute of Technology - KTH

Parallax360: Stereoscopic 360° Scene Representation for Head-Motion Parallax
Bicheng Luo
School of Software, Tsinghua University
Feng Xu
School of Software, Tsinghua University
Christian Richardt
University of Bath
Jun-Hai Yong
School of Software, Tsinghua University

Saliency in VR: How Do People Explore Virtual Environments?
Vincent Sitzmann
Stanford University
Ana Serrano
Universidad de Zaragoza
Amy Pavel
University of California, Berkeley
Maneesh Agrawala
Stanford University
Diego Gutierrez
Belen Masía
Universidad de Zaragoza
Gordon Wetzstein
Stanford University

MRTouch: Adding Touch Input to Head-Mounted Mixed Reality
Robert Xiao
Carnegie Mellon University, Microsoft Research
Julia Schwarz
Nick Thom
Microsoft
Andrew D. Wilson
Hrvoje Benko
Microsoft Research

It’s a Material World
Sunday, 12 August, 2-3:30 PM

Plausible Iris Caustics and Limbal Arc Rendering
Matt Jen-Yuan Chiang
Brent Burley
Walt Disney Animation Studios

A Compact Representation for Multiple Scattering in Participating Media Using Neural Networks
Liangsheng Ge
Shandong University
Beibei Wang
Nanjing University of Science and Technology
Lu Wang
Shandong University
Nicolas Holzschuch
University of Grenoble Alpes, Inria, CNRS, Grenoble INP, LJK

Perceptually Validated Analytical BRDFs Parameters Remapping
Dar’ya Guarnera
Giuseppe Claudio Guarnera
NTNU
Matteo Toscani
Justus-Liebig-Universität Gießen
Mashhuda Glencross
SwitchThat Technologies Ltd.
Baihua Li
Loughborough University
Jon Yngve Hardeberg
NTNU
Karl R. Gegenfurtner
Justus-Liebig-Universität Gießen
TALKS

PreLit Materials: Light Transport for Live-Action Elements in Production Rendering
Steve Agland
Daniel Heckenberg
Animal Logic Pty Ltd

En Masse
Sunday, 12 August, 3:45-5:15 PM

Other-Worldly Crowds in ‘Coco’
Stephen Gustafson
Aaron Lo
Lana Sun
Jane Yen
J.D. Northrup
Pixar Animation Studios

Up Close with Simulated Crowds
Justin Bisceglio
Mark Adams
Blue Sky Studios

Automating the Handmade: Shading Thousands of Garments for ‘Coco’
Byron Bashforth
Fernando de Goes
Athena Xenakis
Jacob Kuenzel
Pixar Animation Studios

Taming the Swarm: Rippers on ‘Pacific Rim Uprising’
Martin Prazak
Double Negative

IEEE TVCG Session on Advances in Data Visualization
Sunday, 12 August, 3:45-5:15 PM

Globe Browsing: Contextualized Spatio-Temporal Planetary Surface Visualization
Alexander J. Bock
New York University, Center for Data Science

InterActive Dynamic Volume Illumination with Refraction and Caustics
Jens G. Magnus
Stefan Bruckner
University of Bergen

The Topology ToolKit
Julien Tierny
CNRS, Sorbonne Universite
Guillaume Favelier
Sorbonne Universite
Joshua Levine
University of Arizona
Charles Queunet
Kitware, Sorbonne Universite
Michael Michaux
Sorbonne Universite

ActiVis: Visual Exploration of Industry-Scale Deep Neural Network Models
Minsuk Kahng
Georgia Institute of Technology
Pierre Andrews
Aditya Kalro
Facebook
Polo Chau
Georgia Institute of Technology

Olaf’s Image Capture Adventure!
Sunday, 12 August, 3:45-5:15 PM

DIY Absolute Tele-Colorimeter Using a Camera-Projector System
Giuseppe Claudio Guarnera
NTNU–Norwegian University of Science and Technology
Simone Bianco
Raimondo Schettini
University of Milan-Bicocca

Adidas TAPE: 3D Footwear Concept Design
Mario Pörner
adidas AG

Sword Tracer: Visualization of Sword Trajectories in Fencing
Masaki Takahashi
Japan Broadcasting Corporation (NHK), Science and Technology Research Laboratories

The Handiwork Behind ‘Olaf’s Frozen Adventure’
Josh Staub
Alessandro Jacomini
Walt Disney Animation Studios

MONDAY, 13 AUGUST

Be There or Be Square
Monday, 13 August, 9-10:30 AM

Animation to Games, Virtual Department of Games in Tokyo University of the Arts
Norihito Ueno
Tomohiro Hasegawa
Luminous Productions Co., Ltd.
Takashi Kiyiyma
Tokyo University of the Arts
Prasert Prasertvityakarn
Isamu Hasegawa
Luminous Productions Co., Ltd.
Mitsuko Okamoto
Tokyo University of the Arts

Making of “Out of the Cradle”
Isamu Watamori
Ryuhei Ozai
Tomohiro Hasegawa
Isamu Hasegawa
Luminous Productions Co., Ltd.

Clean Up Your Room!
Monday, 13 August, 9-10:30 AM

Denoising at Scale for Massive Animated Series
Tamy Boubekeur
Malik Boughida
Telecom ParisTech
Laurent Noël
Jerémie Defaye
Farhad Bidgolirad
Ubisoft Motion Pictures

Practical Denoising for VFX Production Using Temporal Blur
Daniel Dresser
Image Engine Design Inc

Achieving and Maintaining Real-Time Rigs
Rebecca Hallac
Christopher Moore
Blue Sky Studios

Registration Level:
● Full Conference Platinum
● Full Conference
● Select Conference
● Exhibits Plus
● Exhibits Only
● Exhibitors
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Interest Areas:
● Production & Animation
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  David Lally  
  David Munier  
  Kristen Lester  
  Farhez Rayani  
  Pixar Animation Studios

- **DNEG at 20 - Creative Milestones**  
  Peter Chiang  
  DNEG

- **Gouging the Surface**  
  Monday, 13 August, 3:45-5:35 PM

- **Making Space for Cloth Simulations Using Energy Minimization**  
  David Minor  
  Digital Domain 3.0

- **Clean Cloth Inputs: Removing Character Self-Intersections with Volume Simulation**  
  Audrey Wong  
  Pixar Animation Studios  
  David Eberle  
  Adobe Systems  
  Theodore Kim  
  Pixar Animation Studios

- **Patch-Based Surface Relaxation**  
  Fernando de Goes  
  Michael Comet  
  Alonso Martinez  
  Aimei Kutt  
  Pixar Animation Studios

- **Regularization of Voxel Art**  
  David Coeurjolly  
  CNRS, LIRIS  
  Jacques-Olivier Lachaud  
  Université de Savoie Mont Blanc

- **Procedural Fluid Textures**  
  Sean C. McDuffee  
  Blue Sky Studios

**Potpourri**  
Monday, 13 August, 2-3:30 PM

- **A Holistic Approach to Asset Quality and Efficiency**  
  Julien Fabrice Cohen Bengio  
  Kaori Ogino  
  Barnaby Thomas Orlando Robson  
  Industrial Light & Magic

- **Lighting Pipeline for One – Or How to Keep Sane in a Discworld**  
  Bjørn Siegert  
  Troll Bridge

- **Fast, High-Precision Ray/Fiber Intersection Using Tight, Disjoint Bounding Volumes**  
  Nikolaus Binder  
  NVIDIA

- **Efficient Hybrid Volume and Texture-Based Clouds**  
  Laura Murphy  
  Martin Sebastian Senn  
  Matthew Webb  
  Pixar Animation Studios

**TUESDAY, 14 AUGUST**

- **For the Love of Tech Art**  
  Tuesday, 14 August, 9-10:30 AM

- **Technical Art of Sea of Thieves**  
  Valentine Kozin  
  Rare Ltd, Microsoft

- **Reinterpreting Memorable Characters in ‘Incredibles 2’**  
  Nancy Tsang  
  Jacob Speirs  
  Rich Hurrey  
  Salvatore Melluso  
  Mark Piretti  
  Lou Hamou-Lhadj  
  Kevin Singleton  
  Pixar Animation Studios

- **Making ‘Coco’s Pepita**  
  Alonso Martinez  
  KC Roeyer  
  Athena Xenakis  
  Laura Hainke  
  Pixar Animation Studios

- **Skinny & Flexible**  
  Tuesday, 14 August, 10:45 AM-12:15 PM

- **Making Mrs. Incredible More Flexible**  
  Kevin Singleton  
  Trent Crow  
  Edgar Rodriguez  
  Pixar Animation Studios

- **Robust Skin Simulation in ‘Incredibles 2’**  
  Ryan Kautzman  
  Gordon Cameron  
  Theodore Kim  
  Pixar Animation Studios

- **Mobilizing Mocap, Motion Blending, and Mayhem: Rig Interoperability for Crowd Simulation on ‘Incredibles 2’**  
  Paul Kanyuk  
  Patrick Coleman  
  Jonah B. Laird  
  Pixar Animation Studios

- **Bringing Skeletons To Life for Coco**  
  Christian Hoffman  
  Jonathan Hoffman  
  Pixar Animation Studios

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**Page Array Data Structures for Flexibility and Performance**  
Neil G. Dickson  
Side Effects Software, Inc.

**Effects Blender**  
Monday, 13 August, 9-10:30 AM

**The Robots of LAIKA**  
Steve Switaj  
LAIKA

**The Greatest Showman: Crafting a Period New York City With Scaled Miniatures and Painterly Backgrounds**  
Luc Comtois  
Alexandre Ménard  
Martin Lipmann  
Rodeo FX Inc.

**Pacific Rim: Uprising - Developing the Mega Kaiju Transformation**  
Aaron Gilman  
DNEG

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**Registration Level:**
- Full Conference  
- Platinum

**Interest Areas:**
- Production & Animation  
- Research & Education  
- Arts & Design  
- Gaming & Interactive  
- New Technologies

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USD Certified Lean, Eh?
Tuesday, 14 August, 10:45 AM-12:15 PM

Zero to USD in 80 Days: Transitioning Feature Production to Universal Scene Description at DreamWorks
Alan Blevins
Mike Murray
DreamWorks

Forging a New Animation Pipeline with USD
Aloys Baillet
Eoin Murphy
Miguel Gao
Oliver Dunn
Animal Logic

The ‘Extra’ Touch on ‘Incredibles 2’
Kiki Mei Kee Poh
Michael Kilgore
Tom Wichitsripornkul
Gary Monheit
Pixar Animation Studios

Walter: An Open Source VFX Framework for USD and Alembic
Guillaume Laforge
Rodeo FX

Visual Visage
Tuesday, 14 August, 2-3:30 PM

Digital Albert Einstein, a Case Study
Volker Helzle
Kai Goetz
Filmakademie Baden-Württemberg, Animationsinstitut

Avengers: Capturing Thanos’s Complex Face
Darren Hendler
Digital Domain

High-Quality, Cost-Effective Facial Motion Capture Pipeline with 3D Regression
Lucio Moser
Mark Williams
Darren Hendler
Doug Roble
Digital Domain

It: How to Build a Terrifying Clown
Luc Comtois
Mikael Damant-Sirois
Dominic Piche
Rodeo FX Inc.

Creating the Unreal
Tuesday, 14 August, 3:45-5:15 PM

Rampage: A Product of Evolution
Erik Winquist
Weta Digital

Accelerating Film Environment Creation Using Game Development Tools
John Vanderbeck
Alex Jenyon
MPC

Creating the Unreal: Speculative Visions for Future Living Structures
Taro Narahara
New Jersey Institute of Technology

Tripping the Light VR
Tuesday, 14 August, 3:45-5:15 PM

The Making of Welcome to Light Fields VR
Ryan S. Overbeck
Google Inc.
Paul Debevec
Google Inc., USC Institute for Creative Technologies
Daniel Erickson
Daniel Evangelakos
Google Inc.

Fractal Multiverses in VR
Johannes Saam
Mariano Merchante
Framestore

VR Story Production on Disney Animation’s ‘Cycles’
Jeff Gipson
Jose Gomez
Walt Disney Animation Studios

WEDNESDAY, 15 AUGUST

Light it Up
Wednesday, 15 August, 9-10:30 AM

GafFour and Sequence-Based Lighting
Xinling Chen
Lucas Miller
Sony Pictures Imageworks

KatanaForFX: Intertwine FX and Lighting
Leila Schemali
Bernie Wong
Nigel Ankers
MPC
THURSDAY, 16 AUGUST

Sampling the Product
Thursday, 16 August, 10:45 AM-12:15 PM

Adaptive Environment Sampling on CPU and GPU
Asen Atanasov
Chaos Group, Charles University
Jaroslav Krivanek
Render Legion, Charles University

Fast Product Importance Sampling of Environment Maps
Alejandro Conty Estevez
Pascal Lecocq
Sony Pictures Imageworks

Bidirectional Path Tracing Using Backward Stochastic Light Culling
Yusuke Tokuyoshi
SQUARE ENIX CO., LTD.
Takahiro Harada
Advanced Micro Devices, Inc.

Fast Path Space Filtering by Jittered Spatial Hashing
Nikolaus Binder
Alexander Keller
NVIDIA

Ohooo Shiny!
Thursday, 16 August, 2-3:30 PM

Automatic Photo-from-Panorama for Google Maps
Jared Johnson
Sema Berkiten
Google Inc.

Classified Texture Resizing for Mobile Devices
Jae-Ho Nah
Byeongjun Choi
Yeongkyu Lim
LG Electronics

Deep Thoughts on Deep Image Compression
Rob Pieké
Yanli Zhao
Fabià Serra Arrizabalaga
MPC Shadow Lab

Synthesising Panoramas for Non-Planar Displays: A Camera Array Workflow
Esan Mandal
Amy Kwa
DreamWorks Animation

Blow it Up Real Good
Thursday, 16 August, 3:45-5:15 PM

’S Star Wars: The Last Jedi’ – Effects Simulation
Miguel Perez Senent
Mihai Cioroba
Rick Hankins
Huai Yuan Teh
Industrial Light & Magic

A Collocated Spatially Adaptive Approach to Smoke Simulation in Bifrost
Michael B. Nielsen
Konstantinos Stamatelos
Morten Bojesen-Hansen
Duncan Brinsmead
Yannick Pomerleau
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Robert Bridson
Autodesk

’Rampage’: A Pipelined Approach to Managing Large-Scale Character-Driven Effects
Johnathan M. Nixon
Sebastian H. Schmidt
Weta Digital

SimpleBullet: Collaborating on a Modular Destruction Toolkit
Ferdi Scheepers
Pixar
Marie Tollec
Walt Disney Animation Studios
Will Harrower
Industrial Light and Magic
The Technical Papers program is the premier international forum for disseminating and discussing new scholarly work in computer graphics technology and interactive techniques. Technical Papers are published as a special issue of ACM Transaction on Graphics. In addition to papers selected by the SIGGRAPH 2018 Technical Papers Jury, the conference presents papers that have been published in ACM Transactions on Graphics during the past year.

**TECHNICAL PAPERS FAST FORWARD**

- Sunday, 12 August, 6-8 PM

**MONDAY, 13 AUGUST**

**(01) A Race to the Bottom (of the Geometric Energy Plot)**
Monday, 13 August, 10:45 AM-12:35 PM

**Blended Cured Quasi-Newton for Distortion Optimization**
Yufeng Zhu
University of British Columbia
Robert Bridson
Autodesk
Danny Kaufman
Adobe

**Progressive Parameterizations**
Ligang Liu
Chunyang Ye
Ruiqi Ni
Xiao-Ming Fu
University of Science and Technology of China

**Anderson Acceleration for Geometry Optimization and Physics Simulation**
Yue Peng
University of Science and Technology of China
Bailin Deng
Cardiff University
Juyong Zhang
Fanyu Geng
Wenjie Qin
Ligang Liu
University of Science and Technology of China

**Opt: A Domain-Specific Language for Non-linear Least Squares Optimization in Graphics and Imaging**
Zachary DeVito
Facebook Research
Michael Mara
Stanford University
Michael Zollhoefer
Max-Planck-Institute for Informatics
Gilbert Bernstein
Stanford University
Jonathan Ragan-Kelley
University of California, Berkeley
Christian Theobalt
Max-Planck-Institute for Informatics
Pat Hanrahan
Stanford University
Matthew Fisher
Adobe Research
Matthias Niessner
Technical University of Munich

**Active Animations of Reduced Deformable Models with Environment Interactions**
Zherong Pan
Dinesh Manocha
University of North Carolina at Chapel Hill

**Fast Winding Numbers for Soups and Clouds**
Gavin Barill
University of Toronto
Neil G. Dickson
Side Effects Software Inc.
Ryan Schmidt
GradientSpace
David I. W. Levin
Alec Jacobson
University of Toronto

**Voxel Cores: Efficient, Robust, and Provably Good Approximation of 3D Medial Axes**
Yajie Yan
Washington University in St. Louis
Bailin Deng
Cardiff University
Juyong Zhang
Fanyu Geng
Wenjie Qin
Ligang Liu
University of Science and Technology of China

**(02) An Immersion in Computational Geometry**
Monday, 13 August, 10:45 AM-12:35 PM

**Immersion of Self-Intersecting Solids and Surfaces**
Yijing Li
Jernej Barbic
University of Southern California

Registration Level:
- Full Conference Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

Interest Areas:
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies

Full Conference Platinum and Full Conference Access registration allows attendees access to all SIGGRAPH 2018 Technical Papers.

Seating is on a first-come, first-served basis. Please arrive early for the Technical Papers you wish to attend.
Robust Optimization for Topological Surface Reconstruction
Roee Lazar
Nadav Dym
Yam Kushinsky
Weizmann Institute of Science
Zhiyang Huang
Tao Ju
Washington University in St. Louis
Yaron Lipman
Weizmann Institute of Science

Implicitizing Rational Tensor Product Surfaces Using the Resultant of Three Moving Planes
Li-Yong Shen
University of Chinese Academy of Sciences
Ron Goldman
Rice University

(03) Computational Photography
Monday, 13 August, 10:45 AM-12:35 PM
Exposure: A White-Box Photo Post-Processing Framework
Yuannming Hu
Hao He
MIT CSAIL
Chenxi Xu
Peking University
Baoyuan Wang
Stephen Lin
Microsoft Research

Deep Exemplar-Based Colorization
Mingming He
Hong Kong UST
Dongdong Chen
University of Science and Technology of China
Jing Liao
Microsoft Research
Pedro V. Sander
Hong Kong UST
Lu Yuan
Microsoft Research

Locally Adaptive Rank-Constrained Optimal Tone Mapping
Xiao Shu
Xiaolin Wu
McMaster University, Shanghai Jiao Tong University

Deep Context-Aware Descreening and Rescreening of Halftone Images
Tae-hoon Kim
Intel Corporation
Sang Il Park
Sejong University

Non-Stationary Texture Synthesis by Adversarial Expansion
Yang Zhou
Shenzhen University, Huazhong University of Science and Technology
Zhen Zhu
Xiang Bai
Huazhong University of Science and Technology
Dani Lichti
The Hebrew University of Jerusalem
Daniel Cohen-Or
Shenzhen University, Tel Aviv University
Hui Huang
Shenzhen University

(04) Cloth Encounters of the Shirt Kind
Monday, 13 August, 2-3:30 PM
Eulerian-on-Lagrangian Cloth Simulation
Nicholas J. Weidner
Texas A&M University
Kyle Piddington
California Polytechnic State University
David I.W. Levin
The University of Toronto
Shinjiro Sueda
Texas A&M University

A Multi-Scale Model for Simulating Liquid-Fabric Interactions
Yun (Raymond) Fei
Columbia University
Christopher Batty
University of Waterloo
Eitan Grinspun
Changxi Zheng
Columbia University

An Implicit Frictional Contact Solver for Adaptive Cloth Simulation
Jie Li
University of Minnesota
Gilles Daviet
Inria, Weta Digital
Rahul Narain
University of Minnesota, Indian Institute of Technology Delhi
Florence Bertails-Descoubes
Inria
Matthew Overby
University of Minnesota
George E. Brown
University of Minnesota
Laurence Boissieux
Inria

Rule-Free Sewing Pattern Adjustment with Precision and Efficiency
Huamin Wang
The Ohio State University, Frilly Inc.
(05) Smart Integration for Real-Time Rendering
Monday, 13 August, 2-3:30 PM
Integrating Clipped Spherical Harmonics Expansions
Laurent Belcour
Unity Technologies
Guofu Xie
Momenta.ai
Christophe Hery
Mark Meyer
Pixar Animation Studios
Wojciech Jarosz
Dartmouth College
Derek Nowrouzezahrai
McGill University

Analytic Spherical Harmonic Coefficients for Polygonal Area Lights
Jingwen Wang
Ravi Ramamoorthi
University of California, San Diego

Laplacian Kernel Splatting for Efficient Depth-of-Field and Motion Blur Synthesis or Reconstruction
Thomas Leimkühler
Hans-Peter Seidel
MPI Informatik
Tobias Ritschel
University College London

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### Deep Learning of Biomimetic Sensorimotor Control for Biomechanical Human Animation
Masaki Nakada  
Tao Zhou  
Honglin Chen  
Tomer Weiss  
Demetri Terzopoulos  
University of California, Los Angeles

**Dexterous Manipulation and Control with Volumetric Muscles**
Seunghwan Lee  
Ri Yu  
JungNam Park  
Seoul National University

Mridul Aanjaneya  
Rutgers University  
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University of Wisconsin-Madison

Jehee Lee  
Seoul National University

**The Human Touch: Measuring Contact with Real Human Soft Tissues**
Dinesh K. Pai  
University of British Columbia, Vital Mechanics Research

Austin Rothwell  
Pearson Wyder-Hodge  
Alistair Wick  
University of British Columbia

Ye Fan  
Egor Larionov  
University of British Columbia, Vital Mechanics Research

Darcy Harrison  
Vital Mechanics Research

Debanga Raj Neog  
Cole Shing  
University of British Columbia

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### An Empirical Rig for Jaw Animation
Gaspard Zoss  
Derek Bradley  
Disney Research

Pascal Béard  
Disney Research, ETH Zurich  
Thabo Beeler  
Disney Research

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**(07) Cleaning Up the Mesh We Made**

Tuesday, 14 August, 9-10:30 AM

### Tetrahedral Meshing in the Wild
Yixin Hu  
New York University  
Qingnan Zhou  
Adobe Research

Xifeng Gao  
New York University  
Alec Jacobson  
University of Toronto

Denis Zorin  
Daniele Panazzolo  
New York University

### Curved Optimal Delaunay Triangulation
Leman Feng  
Caltech; INRIA, Université Côte d’Azur

Pierre Alliez  
Laurent Busé  
Hervé Delingette  
INRIA, Université Côte d’Azur

Mathieu Desbrun  
California Institute of Technology

### Computing a High-Dimensional Euclidean Embedding from an Arbitrary Smooth Riemannian Metric
Zichun Zhong  
Wayne State University  
Wenping Wang  
The University of Hong Kong  
Bruno Lévy  
INRIA Nancy - Grand Est

Jing Hua  
Wayne State University  
Xiaohu Guo  
University of Texas at Dallas

### Shape from Metric
Albert Chern  
Felix Knöppel  
Ulrich Pinkall  
Technical University of Berlin

Peter Schröder  
California Institute of Technology

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Rahul Garg
David E. Jacobs
Bryan E. Feldman
Nori Kanazawa
Robert Carroll
Yair Movshovitz-Attias
Jonathan T. Barron
Yael Pritch
Marc Levoy
Google Inc.

Stereo Magnification: Learning View Synthesis Using Multiplane Images
Tinghui Zhou
University of California, Berkeley
Richard Tucker
John Flynn
Graham Fyffe
Noah Snavely
Google, Inc.

Gigapixel Panorama Video Loops
Mingming He
Hong Kong UST
Jing Liao
Microsoft Research
Pedro V. Sander
Hong Kong UST
Hugues Hoppe
Google Inc.

Deep Appearance Models for Face Rendering
Stephen Lombardi
Jason Saragih
Tomas Simon
Yaser Sheikh
Facebook Reality Labs

(09) Interaction/VR
Tuesday, 14 August, 9-10:30 AM

In the Blink of an Eye: Leveraging Blink-Induced Suppression for Imperceptible Position and Orientation Redirection in Virtual Reality
Eike Langbehn
Frank Steinicke
Universität Hamburg
Markus Lappe
Universität Münster
Gregory F. Welch
Gerd Bruder
University of Central Florida

Towards Virtual Reality Infinite Walking: Dynamic Saccadic Redirection
Qi Sun
Stony Brook University, NVIDIA and Adobe Research
Anjul Patney
Adobe Research
Li-Yi Wei
NVIDIA
Omer Shapira
NVIDIA
Jingwan Lu
Paul Asente
Adobe Research
Suwen Zhu
Stony Brook University
Morgan McGuire
David Luebke
NVIDIA
Arie Kaufman
Stony Brook University

FaceVR: Real-Time Gaze-Aware Facial Reenactment in Virtual Reality
Justus Thies
Technical University of Munich
Michael Zollhöfer
Stanford University
Marc Stamminger
University of Erlangen Nuremberg
Christian Theobalt
Max-Planck-Institute for Informatics
Matthias Nießner
Technical University of Munich

(10) Image & Shape Analysis With CNNs
Tuesday, 14 August, 10:45 AM-12:35 PM

Neural Best-Buddies: Sparse Cross-Domain Correspondence
Kfir Aberman
Advanced Innovation Center for Future Visual Entertainment, Beijing Film Academy; Tel-Aviv University
Jing Liao
Microsoft Research Asia
Mingyi Shi
Shandong University
Dani Lischinski
The Hebrew University of Jerusalem
Baoquan Chen
Shandong University, Advanced Innovation Center for Future Visual Entertainment
Daniel Cohen-Or
Tel-Aviv University

Deep Convolutional Priors for Indoor Scene Synthesis
Kai Wang
Brown University
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Angel X. Chang
Princeton University
Daniel Ritchie
Brown University

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Matan Atzmon
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Weizmann Institute of Science
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Haibin Huang
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University of Massachusetts Amherst
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IIT Bombay
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Yagiz Aksoy
Massachusetts Institute of Technology, ETH Zurich
Tae-Hyun Oh
Massachusetts Institute of Technology
Sylvain Paris
Adobe Research
Marc Pollefeys
ETH Zurich, Microsoft
Wojciech Matusik
Massachusetts Institute of Technology

(11) Layers, Glints and Surface Microstructure
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Efficient Rendering of Layered Materials Using an Atomic Decomposition with Statistical Operators
Laurent Belcour
Unity Technologies

The Layer Laboratory: A Calculus for Additive and Subtractive Composition of Anisotropic Surface Reflectance
Tizian Zeltner
Wenzel Jakob
EPFL

Rendering Specular Microgeometry with Wave Optics
Ling-Qi Yan
University of California, Berkeley
Milos Hasan
Autodesk
Bruce Walter
Steve Marschner
Cornell University
Ravi Ramamoorthi
University of California, San Diego

Gaussian Material Synthesis
Károly Zsolnai-Fehér
TU Wien
Peter Wonka
KAUST
Michael Wimmer
TU Wien

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Hui Huang
Ke Xie
Lin Ma
Shenzhen University
Dani Lischinski
The Hebrew University of Jerusalem
Minglun Gong
Memorial University of Newfoundland
Xin Tong
Microsoft Research Asia
Daniel Cohen-Or
Shenzhen University, Tel Aviv University

(12) Cutting, Zipping and Folding Surfaces
Tuesday, 14 August, 2-3:30 PM

Discrete Geodesic Nets for Modeling Developable Surfaces
Michael Rabinovich
ETH Zurich
Tim Hoffmann
TU Munich
Olga Sorkine-Hornung
ETH Zurich

Developability of Triangle Meshes
Oded Stein
Eitan Grinspun
Columbia University
Keenan Crane
Carnegie Mellon University

Natural Boundary Conditions for Smoothing in Geometry Processing
Oded Stein
Eitan Grinspun
Columbia University
Max Wardetzky
Universität Göttingen
Alec Jacobson
University of Toronto

Shape Representation by Zippables
Christian Schüller
Roi Poranne
Olga Sorkine-Hornung
ETH Zurich

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Stabilizing Integrators for Real-Time Physics
Dimitar Dinev
University of Utah
Tiantian Liu
University of Pennsylvania
Ladislav Kavan
University of Utah

FEPR: Fast Energy Projection for Real-Time Simulation of Deformable Objects
Tiantian Liu
University of Pennsylvania
Dimitar Dinev
Jing Li
University of Utah
Bernhard Thomaszewski
Université de Montréal
Ladislav Kavan
University of Utah

Hyper-Reduced Projective Dynamics
Christopher Brandt
Elmar Eisemann
Klaus Hildebrandt
Delft University of Technology

Dynamic Kelvinlets: Secondary Motions Based on Fundamental Solutions of Elastodynamics
Fernando de Goes
Pixar Animation Studios
Doug L. James
Stanford University
Pixar Animation Studios

Károly Zsolnai-Fehér
TU Wien
Peter Wonka
KAUST
Michael Wimmer
TU Wien

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Benedikt Bitterli
Dartmouth College, ETH Zurich and Disney Research
Wenzel Jakob
École Polytechnique Fédérale de Lausanne (EPFL)

Second-Order Occlusion-Aware Volumetric Radiance Caching
Julio Marco
Adrian Jarabo
Universidad de Zaragoza, I3A
Wojciech Jarosz
Dartmouth College
Diego Gutierrez
Universidad de Zaragoza, I3A

Gradient-domain Volumetric Photon Density Estimation
Adrien Gruson
The University of Tokyo, JFLI CNRS UMI 3527
Binh-Son Hua
The University of Tokyo, Singapore University of Technology and Design
Nicolas Vibert
Derek Nowrouzezahrai
McGill University
Toshiya Hachisuka
The University of Tokyo

A Radiative Transfer Framework for Spatially Correlated Materials
Adrian Jarabo
Universidad de Zaragoza
Carlos Aliaga
Universidad de Zaragoza, Desilico Labs
Diego Gutierrez
Universidad de Zaragoza

(15) Fluids 1: Raiders of the Lost Volume
Tuesday, 14 August, 3:45 - 5:35 PM

Example-Based Turbulence Style Transfer
Syuhei Sato
DWANGO Co., Ltd., Dwango CG Research
Yoshinori Dobashi
Hokkaido University, Dwango CG Research
Theodore Kim
Pixar Animation Studios

Pressure Boundaries for Implicit Incompressible SPH
Stefan Band
Christoph Gissler
University of Freiburg
Markus Ihmsen
Jens Cornelis
FIFTY2 Technology GmbH
Andreas Peer
Matthias Teschner
University of Freiburg

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Jonas Zehnder
Université de Montréal
Rahul Narain
University of Minnesota, Indian Institute of Technology Delhi
Bernhard Thomaszewski
Université de Montréal

An Extended Partitioned Method for Conservative Solid-Fluid Coupling
Muzaffer Akbay
Nicholas Nobles
University of California, Riverside
Victor Zordan
Clemson University
Tamar Shinar
University of California, Riverside

Scalable Laplacian Eigenfluids
Qiaodong Cui
Pradeep Sen
University of California, Santa Barbara
Theodore Kim
Pixar Animation Studios

(16) Taking Flight
Tuesday, 14 August, 3:45-5:35 pm

Directing Cinematographic Drones
Quentin Galvane
INRIA Rennes, Mimetic Team
Christophe Lino
LTCI, Telecom ParisTech, Paris Saclay University
Marc Christie
University of Rennes, INRIA, CNRS, IRISA
Julien Fleureau
Fabien Servant
Francois-Louis Tariolle
Philippe Guillonet
Technicolor, Rennes

Precomputed Panel Solver for Aerodynamics Simulation
Haoran Xie
The University of Tokyo, Japan Advanced Institute of Science and Technology
Takeo Igarashi
The University of Tokyo
Kazunori Miyata
Japan Advanced Institute of Science and Technology

Creating and Chaining Camera Moves for Quadrotor Videography
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Shengqiu Huang
Shenzhen University
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Bernhard Thomaszewski
Université de Montréal

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Nobuyuki Umetani
Autodesk Research
Bernd Bickel
IST Austria
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Wednesday, 15 August, 9-10:30 AM

Integer-Only Cross Field Computation
Nahum Farchi
Mirela Ben-Chen
Technion - Israel Institute of Technology

Quadrangulation Through Morse-Parameterization Hybridization
Xianzhong Fang
Hujun Bao
Zhejiang University
Yijing Tong
Michigan State University
Mathieu Desbrun
California Institute of Technology
Jin Huang
Zhejiang University

Modeling n-Symmetry Vector Fields Using Higher-Order Energies
Christopher Brandt
Leonardo Scandolo
Elmar Eisemann
Klaus Hildebrandt
Delft University of Technology

Singularity Constrained Octahedral Fields for Hexahedral Meshing
Heng Liu
RWTH Aachen University
Paul Zhang
Edward Chien
Justin Solomon
Massachusetts Institute of Technology
David Bommes
RWTH Aachen University

(18) Fluids 2: Vortex Boogaloo
Wednesday, 15 August, 9-10:30 AM

Water Surface Wavelets
Stefan Jeschke
NVIDIA
Tomas Skrivan
IST Austria
Nuttapong Chentanez
Matthias Mueller-Fischer
Miles Macklin
NVIDIA
Chris Wojtan
IST Austria

tempoGAN: A Temporally Coherent, Volumetric GAN for Super-Resolution Fluid Flow
You Xie
Erik Franz
Mengyu Chu
Nils Thuerey
Technical University of Munich

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Pingchuan Ma
Yunsheqiu Tian
Nankai University
Zherong Pan
University of North Carolina at Chapel Hill
Bo Ren
Nankai University
Dinesh Manocha
University of Maryland at College Park

Automatically Distributing Eulerian and Hybrid Fluid Simulations in the Cloud
Omid Mashayekhi
Chinnayee Shah
Hang Qu
Andrew Lim
Philip Levis
Stanford University

(19) Sketching
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StrokeAggregator: Consolidating Raw Sketches into Artist-Intended Curve Drawings
Chenxi Liu
University of British Columbia
Enrique Rosales
University of British Columbia, Universidad Panamericana
Alla Sheffer
University of British Columbia

Mastering Sketching: Adversarial Augmentation for Structured Prediction
Edgar Simo-Serra
Satoshi Iizuka
Hiroshi Ishikawa
Waseda University

Real-Time Data-Driven Interactive Rough Sketch Inking
Edgar Simo-Serra
Satoshi Iizuka
Hiroshi Ishikawa
Waseda University

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Tiziano Portenier
Qi Yang Hu
Attila Szabo
Siavash Bigdeli
Paolo Favaro
University of Bern
Matthias Zwicker
University of Maryland, College Park

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Space-Time Tomography for Continuously Deforming Objects
Guangming Zang
Ramzi Idougui
Ran Tao
Peter Wonka
Gilles Lubineau
Wolfgang Heidrich
KAUST

Instant 3D Photography
Peter Hedman
University College London
Johannes Kopf
Facebook

Reconstructing Scenes with Mirror and Glass Surfaces
Thomas Whelan
Facebook Reality Labs
Michael Goesele
Facebook Reality Labs, TU Darmstadt
Steven J. Lovegrove
Julian Straub
Simon Green
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Facebook
Steven Butterfield
Shubhit Verma
Richard Newcombe
Facebook Reality Labs

Full 3D Reconstruction of Transparent Objects
Bojian Wu
SIAT, Shenzhen; Shenzhen University
Yang Zhou
Shenzhen University, Huazhong University of Science and Technology
Yiming Qian
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Minglun Gong
Memorial University of Newfoundland
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Xi Xia
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University of Science and Technology of China
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Kai Xu
National University of Defense Technology, Shenzhen University

(21) Flattening, Unflattening and Sampling
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Rohan Sawhney
Keenan Crane
Carnegie Mellon University

Optimal Cone Singularities for Conformal Flattening
Yousuf Soliman
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Keenan Crane
Carnegie Mellon University

Rapid Deployment of Curved Surfaces via Programmable Auxetics
Mina Konakovíc-Lukovic
Julian Panetta
EPFL

Keenan Crane
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Mark Pauly
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Scott A. Mitchell
Mohamed S. Ebeida
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Dinesh Manocha
University of North Carolina, Chapel Hill
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University of Hong Kong, Adobe Research

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Chi-Han Peng
King Abdullah University of Science and Technology
Helmut Pottmann
TU Wien
Peter Wonka
King Abdullah University of Science and Technology

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Wednesday, 15 August, 10:45 AM-12:35 PM

Parametric Directional Coding for Precomputed Sound Propagation
Nikunj Raghuvanshi
John Snyder
Microsoft Research

Toward Wave-Based Sound Synthesis for Computer Animation
Jui-Hsien Wang
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Stanford University
Timothy Langlois
Adobe Research
Doug James
Stanford University

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Dingzeyu Li
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Vincent Sitzmann
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Stephen W. Bailey
University of California, Berkeley
Dave Otte
Paul DiLorenzo
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James F. O’Brien
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Jiong Chen
Hujun Bao
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Zhejiang University

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Seung-Wook Kim
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Maneesh Agrawala
Stanford University
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David I.W. Levin
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Jiaping Wang
Sinovation Ventures
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Giuseppe Claudio Guarnera
Norwegian University of Science and Technology (NTNU)
Peter Hall
University of Bath
Alain Chesnais
KiSP Inc.
Mashhuda Glencross
SwitchThat Technologies Ltd

THURSDAY, 16 AUGUST

(29) Design
Thursday, 16 August, 9-10:30 AM
Computational Design of Transforming Pop-Up Books
Nan Xiao
Department of Computer Science and Technology, Tsinghua University
Zhe Zhu
Department of Computer Science and Technology, Tsinghua University & Duke University
Ralph R. Martin
School of Computer Science and Informatics, Cardiff University
Kun Xu
Jia-Ming Lu
Shi-Min Hu
Department of Computer Science and Technology, Tsinghua University

Interactive Exploration of Design Trade-Offs
Adriana Schulz
Harrison Wang
Massachusetts Institute of Technology
Eitan Grinspun
Columbia University
Justin Solomon
Wojciech Matusik
Massachusetts Institute of Technology

Autocomplete 3D Sculpting
Mengqi Peng
The University of Hong Kong
Jun Xing
USC Institute for Creative Technologies
Li-Yi Wei
Adobe Research, The University of Hong Kong

FoldSketch: Enriching Garments with Physically Reproducible Folds
Minchen Li
Alla Sheffer
The University of British Columbia
Eitan Grinspun
Columbia University
Nicholas Vining
The University of British Columbia

(30) New Additions (and Subtractions) to Fabrication
Thursday, 16 August, 9-10:30 AM
Support-Free Volume Printing by Multi-Axis Motion
Chengkai Dai
Charlie C. L. Wang
TU Delft
Chenming Wu
Tsinghua University
Sylvain Lefebvre
INRIA
Guoxin Fang
TU Delft
Yong-Jin Liu
Tsinghua University

CoreCavity: Interactive Shell Decomposition for Fabrication with Two-Piece Rigid Molds
Kazutaka Nakashima
The University of Tokyo
Thomas Auzinger
IST Austria
Emmanuel Iarussi
CONICET, IST Austria
Ran Zhang
IST Austria
Takeo Igarashi
The University of Tokyo
Bernd Bickel
IST Austria

Metamolds: Computational Design of Silicone Molds
Thomas Alderighi
ISTI - CNR, University of Pisa
Luigi Malomo
Daniela Giorgi
ISTI - CNR
Nico Pietroni
University of Technology Sydney, ISTI - CNR
Bernd Bickel
IST Austria
Paolo Cignoni
ISTI - CNR
DSCarver: Decompose-and-Spiral-Carve for Subtractive Manufacturing
Haisen Zhao
Shandong University
Hao (Richard) Zhang
Simon Fraser University
Shiqing Xin
Yuanmin Deng
Changhe Tu
Shandong University
Wenping Wang
University of Hong Kong
Daniel Cohen-Or
Tel Aviv University
Baoquan Chen
Shandong University

(31) Pipelines and Languages for the GPU
Thursday, 16 August, 9-10:30 AM
Scanner: Efficient Video Analysis at Scale
Alex Poms
Carnegie Mellon University
Will Crichton
Pat Hanrahan
Kayvon Fatahalian
Stanford University

Differentiable Programming for Image Processing and Deep Learning in Halide
Tzu-Mao Li
Michael Gharbi
MIT CSAIL
Andrew Adams
Facebook
Fredo Durand
MIT CSAIL
Jonathan Ragan-Kelley
University of California, Berkeley, Google

A High-Performance Software Graphics Pipeline Architecture for the GPU
Michael Kenzel
Bernhard Kerbl
Dieter Schmalstieg
Markus Steinberger
Graz University of Technology, Institute of Computer Graphics and Vision

Slang: Language Mechanisms for Extensible Real-Time Shading Systems
Yong He
Carnegie Mellon University
Kayvon Fatahalian
Stanford University
Tim Foley
NVIDIA

(32) Animation Control
Thursday, 16 August, 10:45 AM-12:15 PM
Learning Basketball Dribbling Skills Using Trajectory Optimization and Deep Reinforcement Learning
Libin Liu
DeepMotion Inc.
Jessica Hodgins
Carnegie Mellon University

DeepMimic: Example-Guided Deep Reinforcement Learning of Physics-Based Character Skills
Xue Bin Peng
Pieter Abbeel
Sergey Levine
University of California, Berkeley
Michiel van de Panne
University of British Columbia

Learning Symmetric and Low-Energy Locomotion
Wenhao Yu
Greg Turk
Cheng-Yun Karen Liu
Georgia Institute of Technology

Mode-Adaptive Neural Networks for Quadruped Motion Control
He Zhang
Sebastian Starke
Taku Komura
University of Edinburgh
Jun Saito
Adobe Research

T-Junctions in Spline Surfaces
Kestutis Karr
Vilnius University
Daniele Panazzolo
New York University
Jorg Peters
University of Florida

(33) Disorder Matter: From Shells to Rods and Grains
Thursday, 16 August, 10:45 AM-12:35 PM
Physical Simulation of Environmentally Induced Thin Shell Deformation
Hsiao-yu Chen
Arnab Sastry
University of Texas at Austin
Wim M. van Rees
Massachusetts Institute of Technology
Etienne Vouga
University of Texas at Austin

A Material Point Method for Thin Shells with Frictional Contact
Qiu Guo
Xuchen Han
Chuyuan Fu
Theodore Gast
University of California, Los Angeles
Rasmus Tamstorf
Walt Disney Animation Studios
Joseph Teran
University of California, Los Angeles

Mechanical Characterization of Structured Sheet Materials
Christian Schumacher
Disney Research, ETH Zurich
Steve Marschner
Cornell University
Markus Gross
Disney Research, ETH Zurich
Bernhard Thomaszewski
Université de Montréal

Animating Fluid Sediment Mixture in Particle-Laden Flows
Ming Gao
University of Wisconsin, Madison
Andre Pradhana
University of Pennsylvania
Xuchen Han
Qi Guo
University of California, Los Angeles
Grant Kot
Phosphorus
Efthychios Sifakis
University of Wisconsin, Madison
Chenfanfu Jiang
University of Pennsylvania
A Moving Least Squares Material Point Method with Displacement Discontinuity and Two-Way Rigid Body Coupling
Yuanming Hu
Massachusetts Institute of Technology
Yu Fang
Tsinghua University
Ziheng Ge
University of Science and Technology of China
Ziyin Gu
University of Pennsylvania
Yixin Zhu
University of California, Los Angeles
Andre Pradhana
Chenfanfu Jiang
University of Pennsylvania

(34) Shape Analysis
Thursday, 16 August, 10:45 AM-12:35 PM
Semi-Supervised Co-Analysis of 3D Shape Styles from Projected Lines
Fenggen Yu
Yan Zhang
Nanjing University
Kai Xu
National University of Defense Technology
Ali Mahdavi Amiri
Hao Zhang
Simon Fraser University

Predictive and Generative Neural Networks for Object Functionality
Ruizhen Hu
Zihao Yan
Jingwen Zhang
Shenzhen University
Oliver van Kaick
Carleton University
Ariel Shamir
The Interdisciplinary Center
Hao (Richard) Zhang
Simon Fraser University
Hui Huang
Shenzhen University

Discrete Time Evolution Process Descriptor for Shape Analysis and Matching
Simone Melzi
University of Verona
Maks Ovsjanikov
École Polytechnique
Giorgio Roffo
University of Glasgow
Marco Cristani
Umberto Castellani
University of Verona

P2P-NET: Bidirectional Point Displacement Net for Shape Transform
Kangxue Yin
Simon Fraser University
Hui Huang
Shenzhen University
Daniel Cohen-Or
Tel Aviv University
Hao (Richard) Zhang
Simon Fraser University

Methodology for Assessing Mesh-Based Contact Point Methods
Kenny Erleben
University of Copenhagen

(35) An Atlas for the World and Other Surfaces
Thursday, 16 August, 2-3:30 PM
Box Cutter: Atlas Refinement for Efficient Packing via Void Elimination
Max Limper
Fraunhofer IGD, TU Darmstadt
Nicholas Vining
Alla Sheffer
University of British Columbia

Predictive and Generative Neural Networks for Object Functionality
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Box Cutter: Atlas Refinement for Efficient Packing via Void Elimination
Max Limper
Fraunhofer IGD, TU Darmstadt
Nicholas Vining
Alla Sheffer
University of British Columbia
Gradient-Domain Processing Within a Texture Atlas
Fabian Prada
Misha Kazhdan
Johns Hopkins University
Ming Chuang
PerceptIn Inc.
Hugues Hoppe
Google Inc.

Generalized Motorcycle Graphs for Imperfect Quad-Dominant Meshes
Nico Scherlter
TU Dresden
Daniele Panozzo
New York University
Stefan Gumhold
TU Dresden
Marco Tarini
ISTI, CNR

Variational Surface Cutting
Nicholas MW Sharp
Carnegie Mellon University
Keenan M. Crane
Carnegie Mellon University

(36) Fabrication for Color and Motion Thursday, 16 August, 2-3:30 PM
3D Printing Spatially Varying Color and Translucency
Alan Brunton
Can Ates Arikan
Tejas Madan Tankale
Fraunhofer IGD
Philipp Urban
Fraunhofer IGD, Norwegian University of Science and Technology

Fabricating Reflectors for Displaying Multiple Images
Kaisei Sakurai
DWANGO Co., Ltd., Dwango CG Research
Yoshinori Dobashi
Hokkaido University, Dwango CG Research
Kei Iwasaki
Wakayama University, Dwango CG Research
Tomoyuki Nishita
Hiroshima Shudo University, Dwango CG Research

Computational Design of Nanostructural Color for Additive Manufacturing
Thomas Auzinger
Institute of Science and Technology Austria
Wolfgang Heidrich
King Abdullah University of Science and Technology
Bernd Bickel
Institute of Science and Technology Austria

Skaterbots: Optimization-Based Design and Motion Synthesis for Robotic Creatures with Legs and Wheels
Moritz Gellinger
Roi Poranne
ETH Zurich
Ruta Desai
Carnegie Mellon University
Bernhard Thomaszewski
Université de Montréal
Stelian Coros
ETH Zurich

(37) Portraits & Speech Thursday, 16 August, 2-3:30 PM
VisemeNet: Audio-Driven Animator-Centric Speech Animation
Yang Zhou
Zhan Xu
University of Massachusetts Amherst
Chris Landreth
University of Toronto
Evangelos Kalogerakis
Subhransu Maji
University of Massachusetts Amherst
Karan Singh
University of Toronto

High-Fidelity Facial Reflectance and Geometry Inference from an Unconstrained Image
Shugo Yamaguchi
Waseda University, USC Institute for Creative Technologies
Shunsuke Saito
University of Southern California, Pinscreen
Koki Nagano
Pinscreen, USC Institute for Creative Technologies
Yajie Zhao
Weikai Chen
USC Institute for Creative Technologies

Deep Video Portraits
Hyeongwoo Kim
Max Planck Institute for Informatics
Pablo Garrido
Technicolor
Ayush Tewari
Wei Peng Xu
Max Planck Institute for Informatics
Justus Thies
Matthias Niessner
Technical University of Munich
Patrick Perez
Technicolor
Christian Richardt
University of Bath
Michael Zollhöfer
Stanford University
Christian Theobalt
Max Planck Institute for Informatics
HeadOn: Real-Time Reenactment of Human Portrait Videos

Justus Thies
Technical University of Munich
Michael Zollhöfer
Stanford University
Christian Theobalt
MPI Informatics
Marc Stamminger
University of Erlangen-Nuremberg
Matthias Niessner
Technical University of Munich

(38) Bodies in Motion Human Performance Capture
Thursday, 16 August, 3:45-5:15 PM

Robust Solving of Optical Motion Capture Data by Denoising

Daniel Holden
Ubisoft Divertissements

MonoPerfCap: Human Performance Capture from Monocular Video

Weipeng Xu
Avishek Chatterjee
Michael Zollhoefer
Max Planck Institute for Informatics
Helge Jochen Rhodin
EPFL
Dushyant Mehta
Hans-Peter Seidel
Christian Theobalt
Max Planck Institute for Informatics

Online Optical Marker-Based Hand Tracking with Deep Labels

Shangchen Han
Beibei Liu
Robert Wang
Yuting Ye
Christopher D. Twigg
Kenrick Kin
Facebook Reality Labs

ToonSynth: Example-Based Synthesis of Hand-Colored Cartoon Animations

Marek Dvorozňák
Czech Technical University in Prague
Wilmot Li
Vladimir G. Kim
Adobe Research
Daniel Sýkora
Czech Technical University in Prague

Online Optical Marker-Based Hand Tracking with Deep Labels

Shangchen Han
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Facebook Reality Labs

ToonSynth: Example-Based Synthesis of Hand-Colored Cartoon Animations

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The Vrcade is a new space that is a part of the Immersive Pavilion and the Virtual, Augmented and Mixed Reality program. The Vrcade showcases 10 experiences or games that push the boundaries of virtual reality.

The Village is a part of the Immersive Pavilion and the Virtual, Augmented and Mixed Reality program. It is a space where attendees will find the installations that explore the new uses of virtual, augmented and mixed reality.

**VRCADE**

**A Show of Kindness**

A Show of Kindness is a previously unreleased three-act VR experience through which the user navigates an unfolding story frozen in time, crafted with meticulous detail by concept artist Peter Chan using a custom build of Tilt Brush.

Jeremy Cowles
Tilt Brush by Google
Peter Chan
Tilt Brush Artist in Residence
Tory Voight
Isabel Parkinson
Tilt Brush by Google

**Becoming Homeless: A Human Experience**

In this immersive virtual reality experience, spend days in the life of someone who can no longer afford a home. Attempt to save your home and to protect yourself and your belongings as you walk in another’s shoes, facing the adversity of living with diminishing resources.

Tobin Asher
Elise Ogle
Jeremy Bailenson
Stanford University, Virtual Human Interaction Lab
Fernanda Herrera
Stanford University

**Crow: The Legend**

Crow: The Legend is a re-telling of a Native American folk tale about a bird with the most dazzling plumage and mellifluous voice, who, after the planet turns dark and cold, must journey far from home to bring light and warmth back to the world.

Larry Cutler
Eric Darrell
Nathaniel Dirksen
Michael Hutchinson
Scott Peterson
Baobab Studios

**Home: A VR Spacewalk**

REWIND collaborated with BBC Studios Digital, BBC Studios Science and BBC Learning to create an epic 15-minute immersive virtual reality experience. Home’s ambition as a piece of VR is to combine a strong narrative and sense of drama with the incredible impact possible in an immersive experience.

Ben Maltz-Jones
REWIND

**I Am A Man Virtual Experience**

“I Am A Man” VR Experience is an interactive virtual reality experience set to the historic events of the African-American Civil Rights Movement. Users will witness the 1968 Memphis Sanitation Worker’s Strike and the events leading to the assassination of Dr. Martin Luther King, Jr.

Derek Ham
NC State College of Design

**Moss**

In Moss, the young mouse Quill must embark on an epic journey to save her uncle—and she needs you by her side. Together, you’ll travel to forgotten realms, solve challenging puzzles, and battle menacing enemies. Alone, no one can conquer what you’re up against. But united, you just may defeat even the darkest of villains.

Lincoln Davis
Corinne Scrivens
Rusty Scrivens
Brendan Walker
Polyarc

**Museum of Symmetry**

A refreshing and uplifting burst of artistic expression that takes the player through earth, fire, wind and water. Museum of Symmetry disrupts conventional game storytelling to create a unique experience about our relationship to nature and to ourselves.

Paloma Dawkins
Maral Mohammadian
National Film Board of Canada
Tory Voight
CASA RARA STUDIO

**The Gallery: Episode 2: Heart of the Emberstone**

After receiving your Gauntlet, a mysterious new power in the palm of your hand, you must travel to Ember, a long-forgotten world whose past holds many secrets. Enter the groundbreaking puzzle-exploration game inspired by the mystery of dark 80’s fantasy adventure films.

Denny Unger
Cloudhead Games

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**Registration Level:**
- Full Conference
- Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

**Interest Areas:**
- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies

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**Immersive Pavilion:**
 Sunday, 12 August 1:30-5:30 PM
 Monday, 13 August 10 AM-5:30 PM
 Tuesday, 14 August 10 AM-5:30 PM
 Wednesday, 15 August 10 AM-5:30 PM
 Thursday, 16 August 10 AM-3:30 PM
Vacation Simulator

Vacation Simulator is the new original virtual reality game from Owlchemy Labs! First you JOBBED, now you VACATION. Visit Vacation Island and experience RECREATION, optimal RELAXATION, and classic human pastimes like SUNBURN. Vacation Island offers all this and more so that you can discover the lost art of TIME OFF.

Owlchemy Labs

Wolves in the Walls: Chapter 1

Not everything is at it seems when 8-year old Lucy’s imagination proves to be a reality. Wolves in the Walls is an immersive-fable that asks; what would it be like to interact, have a relationship, and go on a quest with a character inside a virtual reality movie?

Pete Billington
Jessica Shamash
Fable Studio

1000 Cut Journey

Achieving racial justice requires that we understand racism. One may espouse beliefs of racial justice and equality, but fail to truly understand the nature of racial inequality. In this immersive virtual reality experience, the viewer becomes Michael, a black man, encountering racism as a young child, adolescent, and young adult.

Courtney D. Cogburn
Columbia University
Jeremy Bailenson
Elise Ogle
Tobin Asher
Stanford University
Teff Nichols
The Jewish Board Child Development Center

Aeronaut

"Aeronaut" is one of the first music experiences to feature a hologram created with Microsoft Mixed Reality Capture. This technology was used to capture Billy Corgan’s performance in volumetric video. In this experience users are able to connect with the artist and interact with the world around them.

Bryan Collinsworth
Karen Singer
Yan Xuan Justin Ou Yang
Tomonari Michigami
David Shiyang Liu
Rob Ruffier
Viacom
Julie Huynh
Ken Waagner
Dave Meeker
Geoff Cubitt
Isobar
Danny Bittman
Viacom

AnimVR

AnimVR allows users to animate, integrate and share animated assets in Virtual Reality, revolutionizing traditional 3D content production. In AnimVR we leverage the possibilities of VR to enhance the CG Animation pipeline both by translating traditional animation workflows to VR as well as by exploring new ways to tell stories.

Dario Seyb
Milan Grajetzki
NVRMIND IVS
Grace Chin
Sasha Wilkinson
University of Massachusetts Lowell

Augmented Reality Game with Unique Semi-Transmissive Rendering Method

This AR game project introduces unique non-photorealistic & real-time rendering methods developed to enhance optical consistency. Through this, seamless blending of virtual and physical content on mobile devices is achieved. Using wireless controllers with muscle displacement sensor, players can move about freely and perform various actions. Multiplayer compatible (WIP).

Daiki Taniguchi
Akatsuki Inc.

Augmented Reality Task Guidance for International Space Station Stowage Operations

Built at NASA Johnson Space Center (JSC) and Columbia University and tested in JSC’s full-scale mockup of the International Space Station (ISS), StowageApp is a prototype for the future of conducting cargo operations in space. StowageApp dynamically guides astronauts as they complete stowage tasks, packing and unpacking cargo.

Hiroshi Furuya
Columbia University
Lui Wang
NASA
Carmine Elvezio
Steven Feiner
Columbia University
BroadcastAR

BroadcastAR is our large scale, interactive cinematic augmented reality experience. Viewers have the power to gesture control the movement of characters within their experience, creating vibrant crowd engagement. Our BroadcastAR platform has been installed on both indoor and outdoor LED/projected systems, ranging from retail to museums.

Xava Fragoso
INDE R&D

Chorus

Transform into fantastical female warriors in this social virtual reality experience; six people can band together to battle evil in this epic journey of empowerment, all orchestrated to the song “Chorus” by Justice.

Adam Rogers
Gentle Manhands

Collaborative Exploration of Urban Data in Virtual and Augmented Reality

From emergency planning to real estate, many domains can benefit from collaborative exploration of urban environments in VR and AR. We have created an interactive experience that allows multiple users to explore live datasets in context of an immersive scale model of the urban environment with which they are related.

Carmine Elvezio
Frank Ling
Jen-Shuo Liu
Columbia University
Barbara Tversky
Teachers College
Steven Feiner
Columbia University

Coral Vr

Coral is an interactive Fractal explorer. Dive into the procedural art piece to enjoy the power and beauty of mathematics visualized in virtual reality. It was initially a passion project at framestore that is now in public beta.

Johannes Saam
Framestore

Cycles

Cycles is a VR short film centered around the true meaning of creating a home and the life it holds inside it’s walls.

Jeff Gipson
Disney Animation Studios

Demonstration of Gaze-Aware Video Streaming Solutions for Mobile VR

This demo features Smart Eye-tracking Enabled Networking (SEEN), a novel content delivery method for optimizing 360-video streaming. SEEN relies on eye-gaze information from novel 5G-networked eye-trackers to stream high-quality, in real-time, only in proximity of fixations points. SEEN technology is developed in a joint project between KTH, Tobii and Ericsson.

Pietro Lunaro
Firdose Saeik
Konrad Tollmar
Royal Institute of Technology - KTH

ELI in VR: Embodied Limbic Interaction for Piloting a Virtual Hang-Glider

A head-mounted display, a stationary control bar, and a limbic chair allow for a user to pilot a hang-glider in VR.

Kenan Bektaş
University of Zurich and ETH Zurich; ZHAW, Zurich
Mark Adriaan van Raai
Limbic Life AG
Tyler Thrash
University of Zurich and ETH Zurich
Patrik Künzler
Limbic Life AG
Richard Hahnloser
University of Zurich and ETH Zurich

Elastic Time

Mixed reality documentary about space-time narrated by astronaut Tony Stark. Your own holographic body is captured and integrated in real time into a telescope room. You bend space and time to your will, creating black-holes, worm-holes and time portals. This volumetric documentary is powered by IMVERSE proprietary voxel-based graphics engine.

Javier Bello Ruiz
Robin Mange
Inverse SA
Mark Boulos
VCUarts

Fire Escape: An Interactive Series

When the clock strikes eight in Brooklyn, a suspenseful drama begins to unfold in real time. Audiences can interact and peer into the lives of eight disenfranchised tenants entangled in a murder, and must embrace their voyeuristic tendencies in this rich and unique interactive series to reveal a gripping truth.

Vassiliki Khonsari
Navid Khonsari
Andres Perez-Duarte
Sam Butin
iNK Stories

IKEA Immerse Interior Designer

IKEA Immerse is available in selected IKEA stores in Germany. This application enables consumers to create, experience and share their own configurations in a virtual living and kitchen room set. With seamless ecommerce integration, a high level of detail and real-time interaction, the VR experience represents an engaging, valuable touchpoint.

Tobias Soffner
Florian Gläser
Demodern GmbH
Multiplayer Augmented Reality: The Future is Social, Presented by Niantic

We take AR to the next level by enabling multiple mobile devices to experience the same AR objects in real-time! Watch people play pong against each other, where the ball and paddles exist in AR for all users. Shared AR experiences is essential for keeping AR mainstream in the future.

Si ying Diana Hu
Niniane Wang
Niantic, Inc.

Queerskins: A Love Story

In this haptic cinematic VR experience, a diary and a box of belongings offers you and a devoutly Catholic mother living in rural Missouri in 1990 a chance to know Sebastian, the estranged son she has lost to AIDS. How will you choose to reconstruct him and his life?

Illya Szilak
Fancy Rainbow
Cyril Tsiboulski
Cloudred

Sherpa - The Helping Hands of the Himalaya

Four players start a journey helping their tourists climb a mountain. During the game, they receive support from real Sherpas, who also tell stories about their daily life. A journey about exploring and getting to know the local culture, on a plexiglass installation combining VR technology and projection mapping.

Dimosthenis Gkanzos
Christian Greitmann
Martin Koegel
Filmakademie Baden-Wuerttemberg GmbH

Tales of the Wedding Ring

Square Enix is creating a VR specific format for Japanese manga storytelling. Their first title, "Tales of Wedding Rings" utilizes "LiveWindow" technology to replicate the look and feel of manga frame based storytelling, and allows the user to literally "step inside the story."

Kaei Sou
Remi Driancourt
Team Hikari
Square Enix Co., Ltd.

The AI Powered Magic Mirror: Building Immersive AR/VR Experiences with Only Webcams and Deep Learning

wrmch uses AI to teach webcams to read human body language. The wrmch Magic Mirror enables people to walk up to ordinary TV monitors and beamed into cyberspace. From this digitization, users can see themselves as a variety of avatars including a virtual motion capture artist and digital chicken.

Paul Kruszewski
Thomas Jan Mahamad
wrmch

VIVO Lifelike Reactive Characters for VR

Characters are the true soul of any story. Using our proprietary tech VIVO we create VR characters who are not only believable but amazingly responsive and real. VIVO turns character interactions into powerfully immersive, natural experiences. Designed from the ground up to build the next-gen VR movies and games.

Joaquin Ruiperez
Gonzalo Ruiperez
ESTUDIOFUTURE

Voyage

Voyage is a multiuser mobile virtual reality (VR) experience for Google Daydream that allows students to go on virtual field trips in which they immersively explore a deciduous forest biome. The experience is designed to be undertaken in a middle-school classroom and facilitated by a teacher using a tablet computer.

Sharan Shodhan
Julian Korzeniowsky
Rajeev Mukundan
Na-yeon Kim
Sija He
Carnegie Mellon University
Mark J.W. Lee
Charles Sturt University

We AR Sight: An Open Source Augmented Reality Wearable Device to Assist Visually Impaired Individuals

As the field of Wearable Computing and Augmented Reality progressed, very few inexpensive solutions to augment the reality of the visually impaired have been witnessed. We present an interactive demonstration of open-source augmented reality wearable device that assists visually impaired individuals by providing them with smart vision via auditory feedback.

Sarang Nerkar
Ambarish Gurjar
Innosapien Technologies Pvt. Ltd., Nerkar Education and Research Trust

Welcome to Light Fields

Light Fields let us experience freedom of motion and realistic reflections and translucence like never before in VR. Explore the Gamble House, Mosaic Tile House, and Space Shuttle Discovery. These navigable light field stills showcase the emerging technology Google is using to power its next generation of VR content.

Ryan S. Overbeck
Daniel Erickson
Daniel Evangelakos
Paul Debevec
Google Inc.
New this year, ACM SIGGRAPH presents full day Sunday workshops on topics related to future applications of computer graphics and interactive techniques. Pre-registration is required.

**SUNDAY, 12 AUGUST**

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**12 August, 9 AM-5 PM**

**Grand Challenges in Chronic Healthcare**

The purpose of this workshop is to raise awareness, highlight challenges, and focus on research and partnership opportunities in the area of healthcare for chronic conditions. We will bring together researchers and practitioners in a variety of areas in healthcare to understand and discuss the research challenges relevant to the SIGGRAPH community, as well as the advanced development issues in healthcare.

Dr. Jose Barral  
*University of Texas Medical Branch*

Chris Khoury  
*American Medical Association*

Abner Mason  
*ConsejoSano*

Patrick Wayte  
*Center for Health Technology & Innovation*

**12 August, 9 AM-4:30 PM**

**Diversity and Inclusion: The Key to a Successful Future, or the Next Step Toward Imminent Failure**

Diversity and inclusion have become buzzwords, not only in North America but around the world. But what do they actually mean? Why does diversity and inclusion matter when it comes to the world of computer graphics and interactive techniques?

This session examines the concepts of diversity and inclusion to include interactive presentations and panels. We will examine what D&I really means and the concept of unconscious bias and how our brains work. We will help attendees understand how a focus on diversity and inclusion in their workplaces can lead to more productive and engaged employees.

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**Computer Graphics for Autonomous Driving Applications**

The goal of this workshop is to bring together researchers and practitioners of both autonomous driving and computer graphics fields to discuss the open challenges that must be addressed in order to accelerate the deployment of safe and reliable autonomous vehicles. Speakers with experience on the use of simulation and computer graphics for autonomous driving will be invited to share their work and insights regarding upcoming research challenges.

Jose M Alvarez  
*NVIDIA*

Jose De Oliveira  
*Unity*

Miguel Ferreira  
*CVEDIA*

Ming C. Lin  
*University of Maryland, College Park*

Dinesh Manocha  
*University of Maryland, College Park*

German Ros  
*Intelligent Systems Lab, Intel*

Philipp Slusallek  
*Saarland University*

**Truth in Images, Videos, and Graphics**

The goal of this inaugural workshop is to bring together researchers and practitioners in all aspects of media creation to understand the challenges as tools for manipulation are made available widely. We will discuss the tools and the issues around how these technologies impact society, and reflect on the responsibilities of both the technology creators and users of these technologies. The format of this workshop will include invited speakers to set the stage for this conversation.

Alyosha Efros  
*University of California, Berkeley*

Irfan Essa  
*Georgia Institute of Technology*

Hany Farid  
*Dartmouth College*

Ira Kemelmacher-Shlizerman  
*University of Washington*

Hao Li  
*Pinscreen, Inc.*
**BIRDS OF A FEATHER**

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

For an updated list of the Birds of a Feather sessions, visit:

https://s2018.siggraph.org/conference/conference-overview/birds-of-a-feather/

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**SUNDAY, 12 AUGUST**

- 9-11 AM
  - Virtual Reality in Education

- 10-11 AM
  - International collegiate Virtual Reality Contest (IVRC)

- 12:30-2 PM
  - Demoscene Underground Real-Time Art Worldwide

- 2-3:30 PM
  - Blender Foundation

- 3:30-4:30 PM
  - Educator’s Reception

- 4-4:30 PM
  - Spanish Speakers in Animation and VFX Meetup

- 9-11 PM
  - Taipei ACM SIGGRAPH Chapter Reunion (a.k.a. Taiwan Night)

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**MONDAY, 13 AUGUST**

- 9-11 AM
  - Immersive Visualisation for Research, Science and Art

- 10:30 AM-12 PM
  - Massive Collaborative Animation Projects

- 10:30 AM-12 PM
  - MaterialX: An Open Standard for Network-Based CG Object Looks

- 12-1:30 PM
  - ACM SIGGRAPH Cartographic Visualization (Carto) (BOF)

- 12:30-1:30 PM
  - Meet the Candidates for the ACM SIGGRAPH Executive Committee

- 1-2 PM
  - Open Shading Language

- 3-5 PM
  - Web3D Korea Chapter Standardization Meeting

- 3:30-4:30 PM
  - AliceVision: an Open Source Photogrammetry Pipeline in Visual Effects Production

- 3:30-5:30 PM
  - The Massive Collaborative Animation Projects & the Student Experience

- 3:30-5:30 PM
  - Cryptomatte - Present and Future Uses

- 3:30-8:30 PM
  - OpenVDB

- 3:30-4:30 PM
  - ACM SIGGRAPH Discussion of New Communities and New Frontiers

- 3:30-4:30 PM
  - AliceVision: an Open Source Photogrammetry Pipeline in Visual Effects Production

- 3:30-4:30 PM
  - The Massive Collaborative Animation Projects & the Student Experience

- 3:30-5:30 PM
  - Cryptomatte - Present and Future Uses

- 3:30-5:30 PM
  - OpenVDB

- 3:30-8:30 PM
  - The 31st Anniversary, Kawaguchi’s Sake Party at SIGGRAPH
### TUESDAY, 14 AUGUST

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10-11:30 AM</td>
<td>Emphasizing Empathy in the Pipeline Process</td>
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<tr>
<td>10-11:30 AM</td>
<td>Leonardo: Where Ideas Don’t Take Sides</td>
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<td>10:30-11:30 AM</td>
<td>OpenEXR</td>
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<td>10:30 AM-12:30 PM</td>
<td>CesiumJS: 3D Globes on the Web</td>
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<tr>
<td>11 AM-12 PM</td>
<td>Internships and Related Curriculum</td>
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<tr>
<td>12-1:30 PM</td>
<td>Bridging the Gap: VFX/Anim Production Scheduling &amp; Software Dev/Rollout - Open Discussion</td>
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<tr>
<td>1-2 PM</td>
<td>Maps, Urban Data, and Geocoding in Graphics</td>
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<td>1-2 PM</td>
<td>OpenColorIO Meetup</td>
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<tr>
<td>1-2 PM</td>
<td>Teaching Virtual Reality</td>
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<tr>
<td>1:30-2:30 PM</td>
<td>Sharing Ideas in Teaching 3D Animation</td>
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<tr>
<td>2-3 PM</td>
<td>Going Cloud Native</td>
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<td>2-4 PM</td>
<td>State of Animation Tools in the Industry</td>
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<td>3-4 PM</td>
<td>Cloud Rendering</td>
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<td>3-4 PM</td>
<td>OpenTimelineIO: Official Open-source Meet Up</td>
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<tr>
<td>3-4:30 PM</td>
<td>Autonomous Driving Simulation and Visualization</td>
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<td>3:30-4:30 PM</td>
<td>Online Collaboration with Virtual Studio Production</td>
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<td>4-6 PM</td>
<td>USD and OpenSubdiv: Official Open-source Meet Up</td>
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<td>4:30-5:30 PM</td>
<td>Renderfarming</td>
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<td>5:30-7 PM</td>
<td>Dynamic Simulation in Production</td>
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<tr>
<td>6-11 PM</td>
<td>StudioSysAdmins 10 Year Anniversary Studio Mingle</td>
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### WEDNESDAY, 15 AUGUST

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<tr>
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<tbody>
<tr>
<td>9-10 AM</td>
<td>Paving the Way: Digital Art at SIGGRAPH 1980 - 1999</td>
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<tr>
<td>9-10 AM</td>
<td>Khronos Fast Forward</td>
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<td>10-11 AM</td>
<td>Openscenegraph BOF</td>
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<td>10 AM-12 PM</td>
<td>Creating Compelling CG Worlds at the Jet Propulsion Laboratory</td>
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<td>10:30 AM-12 PM</td>
<td>Motion Capture Society</td>
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<td>10:30-12:30 AM</td>
<td>SIGGRAPH50 2023 - Start Planning for the 50th Conference</td>
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<tr>
<td>11 AM-12 PM</td>
<td>Gaffer : Open Source Lookdev, Lighting, and Automation</td>
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<tr>
<td>11 AM-12 PM</td>
<td>Immersive Media (BOF)</td>
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<tr>
<td>11 AM-12 PM</td>
<td>WebGL: Latest Techniques</td>
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<td>11 AM-12:30 PM</td>
<td>Design Printing and Scanning: Web3D Makers Making More!</td>
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<tr>
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<td>Sharing Ideas in Teaching 3D Animation</td>
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**Registration Level:**

- Full Conference Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium

**Interest Areas:**

- Production & Animation
- Research & Education
- Arts & Design
- Gaming & Interactive
- New Technologies
12-1 PM
Mobile VR/AR Meetup

12:30-1:30 PM
VFX Reference Platform - A Common Target for Building VFX Software

12:30-2 PM
Berthouzoz Women in Research Lunch

12:30-2 PM
ISEA International - Open Forum

12:30-2 PM
Material Definition Language (MDL): Application Independent PBR Materials

12:30-2 PM
WebVR Evolution for a Larger Web

1-1:30 PM
Make a Difference - Get Involved with the SIGGRAPH Education Committee

1-2 PM
Standardizing All the Realities: A Look at OpenXR

2-3 PM
DCAJ Presentation “Advanced Content Technology in Japan”

2-3 PM
It’s Time to Kill the Demo Reel

2-3:30 PM
British Columbia Virtual and Augmented Reality BOF Gathering

2-3:30 PM
Computer Graphics for Simulation (BOF)

2-3:30 PM
Scaling Up 3D Medical Applications for People Everywhere

2-5:30 PM
3D Graphics with Vulkan and OpenGL

4-4:30 PM
Florida Animation, Games, & Computer Graphics Community

4-5 PM
Undergraduate Research Alliance

4-5 PM
HLSL Realtime Shading Language

4-6 PM
ACCAD / Ohio State University Gathering

5:30-8:30 PM
Khronos Networking Reception

THURSDAY, 16 AUGUST

12:30-2 PM
French Schools Screening
ACM SIGGRAPH THEATER EVENTS

Informative international sessions on the current state of computer graphics around the world, organized by representatives of ACM SIGGRAPH and affiliated societies.

SUNDAY, 12 AUGUST

11:30 AM-12:30 PM
CG in Australasia - Developing Links Between Industry and Higher Education in CG

2-3 PM
SIGGRAPH in Japanese + Japan CG Showcase

3-4:30 PM
Open Forum of the ACM SIGGRAPH Digital Arts Community

4:30-5:30 PM
SIGGRAPH for Beginners - General View

MONDAY, 13 AUGUST

11 AM-12 PM
CG in Asia: Inside the Asian CG Industry

4-5 PM
Origins of SIGGRAPH: The History of Innovation, Community, and Creative Expression

TUESDAY, 14 AUGUST

9-10:30 AM
Introduction to the Digital Arts Community Online Exhibitions

12-1 PM
CG in Canada: Education to Industry

1-2 PM
Women in CG

2-3:30 PM
Thesis Fast Forward

3:30-4:30 PM
Creative BC - Levering Incentives in Animation, VFX & Film

4:30-5:30 PM
CG in Latin America

WEDNESDAY, 15 AUGUST

9-11 AM
ACM SIGGRAPH Chapters Fast Forward and Startup Meeting
Exhibition Hours:
Tuesday, 14 August, 9:30 AM-6 PM
Wednesday, 15 August 9:30 AM-6 PM
Thursday, 16 August, 9:30 AM-3:30 PM

EXHIBITOR LIST
(AS OF 16 MAY)

3DLOOK
3dMD
Academy of Art University
ACM Publications
Advanced Micro Devices (AMD)
Aleph Objects, Inc.
Allegorithmic
Amazon Web Services/Thinkbox Inc.
American Cinematographer
AMMANSYSTEMS
Animation Magazine
The Animation Workshop
TAW, Via University College
Ant Studio Inc.
APY
Autodesk
Blackmagic Design
Boris FX
Campbell River Creative Industries Council
Cap Digital - France
Capilano University
Carbon, Inc.
Carnegie Mellon ETC
CGAL - The Computational Geometry Algorithms Library
CG Masters, School of 3D Animation and Visual Effects
CGTrader
Chengdu Association of trade in services
Chetu Inc.
Christie Digital Systems
CIARA Technologies
Cogswell College
Computer Graphics World
Constructive Labs Inc
Curó/UST Global
Deep Vision Data
DigiPen Institute of Technology
Dimensional Imaging (DI4D)
Doublx VR
Doxel
Drexel University
Eizo Inc.
Environmental Systems Research Institute
Epic Games
Facebook
FARO Technologies Inc.
FLIR Systems, Inc. (formerly Point Grey)
Flux Planet
Formlabs Inc.
Foundry
FoV3D
itrack
GAFX Media Private Limited
Gold Array Technology
Beijing LLC
Google
Guangdong Virtual Reality Technology Co., Ltd.
High Fidelity
HoloDigilog Human Media Research Center
HotCube Co
IATSE
Incredibuild Software Ltd.
InstaLOD
Intel Corporation
International Computer Concepts (ICC)
Intraware Austraia
Isotropix
Javelin Technologies
KeenTools
LAMPIX
LaSalle College Vancouver
Looking Glass
Luxion, Inc.
Massless
MattePaint Pty Ltd.
MAXON
Microsoft Corporation
Moolearn Inc
Motion Analysis Corporation
Mura Vision
Nippon Carbide Industries Co., Inc.
NVIDIA Corporation
Optis
OptiTrack
OTOY, Inc.
Panasas
Pixel Light Effects
Pixel Plow
Pixomondo LLC
PNY Technologies
PolarScreen Inc.
Poletekni Negeri Media Kreatif
PolyPort Inc.
PostPerspective
QNAP, Inc.
The Qt Company
Qualcomm Incorporated
Qualysys North America
Quantum Cloud Future
Quantum Corporation
Qumulo
RAVE Computer
Realis Multimedia Technology Co., Ltd. (ShenZhen)
Realillusion Inc.
Redshift Rendering Technologies, Inc.
Ringling College of Art and Design
Rotomaker
SCAD
Sharecg.com
Shenzhen Rayvision Technology Co., Ltd.
Sheridan College
SideFX Software
Simple Animation
Sketchfab Inc.
SkyScale
SpeedTree
StarVR Corporation
The Studio - B&H
TechViz
think tank training centre
Tobii Pro
Toolchefs Ltd.
Unity Technologies
The University of the Arts
Vancouver Animation School
Vancouver Film School
Vancouver Institute of Media Arts (VanArts)
VectorZero, Inc.
Vicon
Visual College of Art and Design
Visual Computing Center at KAUST
vr-on GmbH
VRSQUARE
Wacom Technology
Wonder Painter
Wysilab
X-Rite Pantone
Xsens Technologies B.V.
EXHIBITOR MEETING ROOM AND SESSIONS (AS OF 19 JULY)

Comprehensive summaries of the latest technologies in computer graphics and interactive techniques. SIGGRAPH 2018 exhibitors demonstrate software, hardware, and systems: answer questions; and host one-on-one conversations about how their applications improve professional and technical performance.

Use the SIGGRAPH 2018 Conference Locator to locate the meeting rooms of the sessions you plan to attend.

ALLEGORITHMIC

Substance Day

Monday, 13 August, 9 AM-5 PM

Join us to learn and share with both the community and world-famous artists, meet the Allegorithmic team, and be the first to know about what is coming up next in the Substance World. Registration and schedule will be available by the end of June on Allegorithmic.com.

AWS/THINKBOX

Cloud Tech Talks

Tuesday, 14 August, 9 AM-5 PM

BINARY ALCHEMY

Cloud Rendering with Royal Render

Wednesday, 15 August, 3:30-4:30 PM

BLUE SKY STUDIOS

Open House/Resume Drop off

Wednesday, 15 August, 10 AM-5 PM

Blue Sky Studios is on the hunt for a few good nuts! We will be hosting an open house and resume drop off, on Wednesday, 15 August. Stop by to say hello and hear about our job opportunities and the exciting projects in the works. The room will be open from 10 am-5 pm, come by at any time to meet us.

CHAOS GROUP

Chaos Group, a worldwide leader in rendering technology, returns to SIGGRAPH with its ever-popular V-Ray Days on 14-15 August in Meeting Room 8 in the East Building. The schedule will be filled with exclusive behind the scenes insight into this year’s biggest CGI projects from some of the world’s best VFX and design studios, plus there’ll be a special update from our CTO Vlado on all things V-Ray. Each hour-long presentation will be unique to V-Ray Days and cannot be filmed. Be sure to check out chaosgroup.com/siggraph2018 for an up-to-date list of speakers and topics.

Tuesday, 14 August

V-Ray Days: V-Ray Educators’ Breakfast - Chaos Group

10-11 AM

Join our Education team for a fun and informative breakfast presentation. You’ll find out how Chaos Group’s education resources support the entire community from students and freelancers to teachers and business owners. It’s also a chance to meet fellow V-Ray users, and to help Chaos Group’s experts continue to shape their educational offerings.

V-Ray Days: Blockbuster Showcase - Method Studios

1:15-3 PM

Chris will begin this trio of presentations with a look at the digi-doubles, crowds, vehicles and architectural models in Black Panther’s climax. Next, Jim will show how V-Ray’s VRScenes made it possible to build a spaceship the size of a solar system for Avengers: Infinity War. Finally, Christian will share his experience lighting and rendering Deadpool, Colossus and Cable for Deadpool 2.

V-Ray Days: Lost in Space: Flying Jellyfish & Alien Landscapes - FuseFX

3-4 PM

Join the FuseFX team as they delve into the creative and technical challenges faced in the production of VFX for Netflix’s acclaimed series, Lost in Space. Jon, Richard and Mariusz will demonstrate the evolution of shots through concept to final for the intriguing Robot face, alien digital environments, and the spectacular jellyfish migration scene.

V-Ray Days: Character Design & VFX for Film & VR - ASC

4-5 PM

The ASC team have brought to life some fantastic character concept designs over the past year and in this presentation will showcase their ‘sketch-2-screen’ process behind work on Spielberg’s Ready Player One and the action-packed Rampage. They will also reveal an exclusive peek into a brand new immersive VR experience involving V-Ray for Unreal that you won’t want to miss!
Wednesday, 15 August

V-Ray Days: Cinematic Worlds: Overview of Creating Game Trailers - RealtimeUK

10-11 AM
Stu will look across multiple projects to get an overview of the design process involved in creating cinematic environments for games trailers. From concept art to the final product, you’ll understand the balance between creativity and practicality, alongside potential time and budget restrictions.

V-Ray Days: How V-Ray Conquered Avengers: Infinity War - Digital Domain

11 AM-12 PM
In this exclusive talk, Fernando will demonstrate a detailed breakdown of how V-Ray was used to create the complex CG characters of Avengers: Infinity War - the cameo appearance of Red Skull, our green hero the Hulk and the the starring villain, Thanos.

V-Ray Days: Vlado in Renderland - Chaos Group

2-3 PM
The landscape of CG is ever-evolving. Recent developments in real-time, cloud and GPUs are shaping the future of rendering. In this presentation, Vlado will reveal some of the latest features of Chaos Group’s V-Ray, and give an exclusive behind-the-scenes preview of some of the epic attractions under construction for future releases.

V-Ray Days: Large Natural Environments Using V-Ray - ILM

3-4 PM
Creating realistic large-scale natural landscapes like forests, jungles, and rocky terrains is always a challenge for the environment team at ILM. In this presentation, Daniel will show how V-Ray has helped ILM push rendering boundaries to achieve incredibly complex environments for movies such as A Wrinkle in Time and Jurassic World: Fallen Kingdom.

V-Ray Days: VFX Powering Wakanda’s Warrior Falls - Scanline VFX

4-5 PM
For Black Panther’s most climactic moments, Scanline VFX turned to Flowline and V-Ray to simulate and render the perilous backdrop of Wakanda’s Warrior Falls. In this presentation, Ioan will reveal some exclusive breakdowns from these epic scenes involving complex water simulations and panoramic environments.

V-Ray Days: Corona Renderer: Past, Present & Future - Render Legion

5-6 PM
Corona Renderer was commercially released little more than three years ago, and has already influenced some big changes in the architecture visualization industry. In this talk, Corona’s main developer Ondra, reviews the original vision of the renderer, where it succeeded, and the challenges he aims to conquer.

DEEP VISION DATA

Synthetic Training Data for Machine Learning Systems

Wednesday, 15 August, 10:30-11:30 AM
Experts say deep learning systems have the potential to be as impactful on our lives as mobile devices, social media or the internet. It recognizes the people you know in your photos, enables your digital assistant to understand what you say, filters spam from your email and will soon drive your car. The potential applications are limitless, but deep learning has a deep secret – it needs training data, and lots of it. And often that data isn’t available or is too costly to obtain. This presentation focuses on a novel solution to this “data deficiency” problem: artificial or “synthetic” training data. The author presents several examples where synthetic training data was successfully used to train deep learning systems, and highlights potential future applications.

DISNEY SUITE

Representatives from Walt Disney Animation Studios will be available to share studio news, answer questions, and talk shop. Come by and say hello!

Walt Disney Company

Tuesday, 14 August, 10 AM-12 PM
Tuesday, 14 August, 1-5 PM

Wednesday, 15 August, 1-5 PM

FOUNDRY

Education Summit

Monday, 13 August, 12-2 PM (lunch included)

Lookdev & Lighting Meet-up

Monday, 13 August, 4-6 PM

Breaking Into the VFX industry (Student Panel)

Tuesday, 14 August, 10 AM-12 PM

Innovation in Modeling with Modo

Tuesday, 14 August, 1-3 PM

Making the Cloud Work for You: Athera Freelancer Forum

Tuesday, 14 August, 4-6 PM

ISOTROPIX

Clarisse BUILDER: The Next Revolution in High-End Lighting and Rendering

Tuesday, 14 August, 3:30-4:30 PM

Located at the backend of the VFX and Animation pipeline funnel, lighting artists working in top tier studios have to deal with an increasingly enormous amount of data generated by other departments. To alleviate this problem, we spent 4 years of R&D, in close collaboration with industry experts, to design Clarisse BUILDER, an all-new solution that empowers lighting artists with the ability to non-destructively perform arbitrary edits at sequence, shot or layer level while working interactively on comps images from a single integrated application.

JELLYFISH PICTURES

Searching Your Image Store Without Needing a PHD: PixStor and Microsoft Cognitive Services

Tuesday, 14 August, 9-10 AM
**MICROSOFT**

- Searching Your Image Store Without Needing a PHD: PixStor and Microsoft Cognitive Services  
  Tuesday, 14 August, 9-10 AM
- Mr. X, Microsoft Exhibitor Session: Mr. X Production: Workflow Architecture and Operational Elements  
  Tuesday, 14 August, 10:30-11:30 AM
- Human Holograms for Mixed Reality and Beyond  
  Tuesday, 14 August, 12:30-1:30 PM
- What's it Mean to be a Fully Cloud-Based Studio?  
  Wednesday, 15 August, 12:30-1:30 PM

**MPC FILM**

- MPC Film: Research & Development for the future of film.  
  Monday, 13 August, 9 AM-5 PM
  MPC Film R&D is hosting sessions covering tools, techniques and tactics for handling large-scale VFX. We’ll also be hosting studios to talk about areas like USD, virtual production, and more. Go to [mpc-rnd.com/siggraph2018](mpc-rnd.com/siggraph2018) to learn more and sign up!

**MR. X**

- Tuesday, 14 August, 10:30-11:30 AM  
  Mr. X, Microsoft Exhibitor Session: Mr. X Production: Workflow Architecture and Operational Elements

**NIMBLE COLLECTIVE**

- Wednesday, 15 August, 12:30-1:30 PM  
  What’s it Mean to be a Fully Cloud-Based Studio?

**NVIDIA**

- Saturday, 11 August, 9:30 AM-5:30 PM  
  DLI Hands-On Workshops in AI  
  Join the NVIDIA Deep Learning Institute (DLI) for full-day hands-on workshops in AI for Digital Content Creation and Game Development on Saturday, 11 August. Led by DLI-certified instructors, you’ll learn how to design, train, and deploy neural networks to create digital assets and games. The workshops are designed for developers, data scientists, and researchers with experience with CNNs. SIGGRAPH pass is not required to attend.

- New Technology Advancements, and Best of GTC and GDC  
  Sunday, 12 August, 9:30 AM-5:30 PM  
  NVIDIA will spotlight cutting-edge developments in GPU rendering and AI, along with encore presentations of talks from GTC 2018 and GDC 2018. Join our technical deep dives into groundbreaking advancements that will change the way you work.

- NVIDIA Holodeck Tutorial  
  Monday, 13 August, 9:30 AM-12:30 PM  
  Holodeck is NVIDIA’s advanced technology VR platform. In this tutorial, we will cover all of its major features, including the latest navigation and file import capabilities, and how to build custom Holodeck experiences. We will also include demonstrations from partners using Holodeck to accelerate and enhance their workflows.

- GPU Ray Tracing for Film and Design  
  Tuesday, 14 August, 2-5:30 PM  
  We will explore recent developments in GPU-accelerated, high-quality, interactive ray tracing to support the visual quality and scene complexity required for visual effects, animation, and design. Presentations will be by NVIDIA and by film rendering leaders from Autodesk, Isotropix, Chaos, Pixar, and Weta Digital.

**PIXEL POWER**

- Watch for Pixel around the Convention Centre. Take a photo and post with the hashtag #WherePixel for the chance to be featured or win prizes!

- Find out where to get a limited-edition Canadian Pixel bobble head by following Pixel on Twitter at @ShayDPixel.
Real-Time Ray Tracing  
**Wednesday, 15 August, 9:30 AM-12:30 PM**  
Researchers and engineers from NVIDIA and leading game studios, including Epic Games, EA/SEED, and others, will present state-of-the-art techniques for ray tracing, sampling, and reconstruction in real time. This includes recent advances that promise to dramatically advance the state of ray tracing in games, simulation, and VR applications.

Deep Learning for Real-Time Rendering  
**Wednesday, 15 August, 2-5 PM**  
NVIDIA and partners will delve into the latest research for real-time inference, including the use of cuDNN, TensorRT, and Windows ML; enhancing rasterized and ray-traced scenes with deep learning networks; and tightly integrating deep learning into rendering engines.

Deep Learning for Content Creation  
**Thursday, 16 August, 9:30 AM-12:30 PM**  
Join NVIDIA’s top researchers, including Vice President of Applied Deep Learning Research Bryan Catanzaro, for an examination of the novel ways deep learning and machine learning can supercharge content creation. Speakers will cover pipelines and aspects of content creation for films, games, and advertisements.

PANASAS, INC  
**Immersive, AR/VR Workflows: Mastery and Optimization**  
**Tuesday, 14 August, 2-3 PM**  
Presenter: RW Hawkins, Storage Systems Engineer - Panasas, Inc.  
Co-Presenter: Michael Garza, Senior Planetarium & Production Engineering Manager - California Academy of Sciences

PIXAR ANIMATION STUDIOS  
**Women of Pixar Panel: Technology**  
**Tuesday, 14 August, 11 AM-12 PM**  
**RenderMan 22: Incredible Artist Workflows**  
**Tuesday, 14 August, 1-2 PM**  
**OpenTimelineIO: Official Open-Source Meet Up**  
**Tuesday, 14 August, 3-4 PM**  
**Women of Pixar Panel: Technology**  
**Tuesday, 14 August, 11 AM-12 PM**  
**RenderMan 22: Incredible Artist Workflows**  
**Tuesday, 14 August, 1-2 PM**  
**OpenTimelineIO: Official Open-Source Meet Up**  
**Tuesday, 14 August, 3-4 PM**

PIXIT MEDIA  
**Searching Your Image Store Without Needing a PHD: PixStor and Microsoft Cognitive Services**  
**Tuesday, 14 August, 9-10 AM**

QUMULO  
**Making Informed and Proactive Decisions About Storage Utilization**  
**Wednesday, 15 August, 2-3 PM**

SHOTGUN SOFTWARE (AUTODESK)  
**Autodesk Vision Series**  
**Join us for the 5th annual Autodesk Vision Series! Two full days of studio-driven presentation and deep dives will explore the workflows and mastery behind the year’s biggest blockbusters, the latest industry trends, and vision for the future.**

Introduction to Shotgun Development  
**Monday, 13 August 9-10 AM**  
An introduction to Shotgun development and the various APIs and integrations that are available. What will attendees know after this session?

Toolkit Administration  
**Monday, 13 August, 10:30 AM-12 PM**  
Learn how to take over our integrations and make them do what you want. Out of the box our integrations with products like Maya, Nuke, Houdini, and Photoshop allow for basic software launching and file sharing, but their true power is unleashed once you take control of the configuration and provide a custom directory structure and hooks to automate more of the data flow in your studio. What will attendees know after this session?

Advance Shotgun Development  
**Monday, 13 August, 1:30-3 PM**  
Learn how to control how our integrations behave and harness the power of our Toolkit platform to make building a pipeline easier. What will attendees know after this session?

Shotgun Ecosystem User Group  
**Monday, 13 August, 3:30-4:30 PM**  
Join us to hear about our recent developments and our upcoming plans. We also want to hear what your top priorities are, what we should fix, and what features you’d like to see to make Shotgun a more useful platform to build on.
EXHIBITOR MEETING ROOM AND SESSIONS (AS OF 19 JULY)

UNITY TECHNOLOGY

Tuesday, 14 August, 9 AM-5 PM
Wednesday, 15 August, 9 AM-5 PM
Thursday, 16 August, 9 AM-5 PM

ZOOX

Advanced 3D Simulation for Autonomous Vehicles
Tuesday, 14 August, 5-6 PM
Wednesday, 15 August, 9-10 AM
The Job Fair is the best place at SIGGRAPH 2018 for employers to meet with thousands of job seekers from around the globe!

Once again, Job Fair Exhibitors post their jobs on the CreativeHeads.net and ACM SIGGRAPH job boards one month prior to the conference. This allows SIGGRAPH 2018 attendees to connect with employers before the conference, during the conference via the Job Fair, and after the conference via the CreativeHeads.net job board and candidate profiling system.

CreativeHeads.net provides the most comprehensive recruitment software solution for the VFX, animation, video game, TV, film, and 3D technology and software tools industries, for employers searching for talent or job seekers looking to secure the "right" job.

**Job Fair Hours**

Tuesday, 14 August, 9:30 AM-6 PM  
Wednesday, 15 August, 9:30 AM-6 PM

**Job Seekers**

The Job Fair IS THE BEST PLACE to be if you are:

- Actively looking for a new job.  
- Passively networking to see what opportunities are available.  
- Interested in getting acquainted with some great companies.  
- Hoping to broaden your horizons and possibly switch industries.  
- Looking for career development tips.  
- Wanting to learn about the latest CG and interactive techniques.

**Employers**

The Job Fair IS THE BEST PLACE to be if you want to:

- Meet with seasoned professionals.  
- Hire “right-brain” talent.  
- Promote your company, job openings, projects, and participation.  
- Reach an extremely diverse and experienced group of creative professionals working across multiple creative industries.

**Job Fair Participants (as of 13 July)**

**Booth**

<table>
<thead>
<tr>
<th>Booth</th>
<th>Company Name</th>
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<tbody>
<tr>
<td>JF6-7</td>
<td>Activision Publishing</td>
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<tr>
<td>JF12</td>
<td>Adobe Research</td>
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<tr>
<td>JF15</td>
<td>Align Technology</td>
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<tr>
<td>JF19</td>
<td>Animal Logic</td>
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<tr>
<td>IR1-4</td>
<td>Apple</td>
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<tr>
<td>RP2</td>
<td>Atomic Fiction</td>
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<tr>
<td>JF31</td>
<td>Avametric</td>
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<tr>
<td>JF22</td>
<td>BANDAI NAMCO Studios Vancouver Inc.</td>
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<tr>
<td>JF18</td>
<td>Bardel Entertainment Inc.</td>
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<tr>
<td>JF26</td>
<td>Blackbird Interactive</td>
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<tr>
<td>ERP2</td>
<td>Carbon</td>
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<tr>
<td>JF14</td>
<td>Cinesite/Image Engine</td>
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<tr>
<td>JF13</td>
<td>DHX Media Ltd.</td>
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<tr>
<td>JF5</td>
<td>Double Negative Visual Effects</td>
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<tr>
<td>ERP4</td>
<td>Drexel University Westphal College of Media Arts &amp; Design</td>
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<tr>
<td>JF10-11</td>
<td>Electronic Arts</td>
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<tr>
<td>JF1</td>
<td>Framestore</td>
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<td>JF33</td>
<td>Frima Studio</td>
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<td>JF21</td>
<td>FuseFX</td>
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<td>JF28</td>
<td>Huawei Technologies Co. Ltd.</td>
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<td>JF20</td>
<td>Ilion Animation Studios</td>
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<td>ERP1</td>
<td>InstaLOD</td>
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<tr>
<td>ERP5</td>
<td>Intel Corporation</td>
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<tr>
<td>JF3</td>
<td>Kabam Games</td>
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<tr>
<td>ERP3</td>
<td>King Abdullah University of Science and Technology</td>
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<tr>
<td>JF24</td>
<td>Mainframe Studios</td>
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<tr>
<td>JF8-9</td>
<td>MPC Film</td>
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<tr>
<td>JF16</td>
<td>Mr. X</td>
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<td>ERP6</td>
<td>NVIDIA</td>
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<tr>
<td>JF32</td>
<td>Pipeline Studios Inc.</td>
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<tr>
<td>JF25</td>
<td>Reel FX</td>
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<tr>
<td>JF4</td>
<td>Rodeo FX Inc.</td>
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<tr>
<td>JF17, IR5</td>
<td>Savannah College of Art and Design</td>
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<td>JF29</td>
<td>Scanline VFX</td>
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<tr>
<td>JF23</td>
<td>Seneca College</td>
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<td>JF30</td>
<td>SkyBox Labs</td>
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<tr>
<td>RP1, IR6</td>
<td>Sony Interactive Entertainment - PlayStation</td>
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<td>JF27</td>
<td>Weta Digital</td>
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<tr>
<td>JF2</td>
<td>Zoic Studios</td>
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**Registration Level:**

- Full Conference
- Platinum
- Full Conference
- Select Conference
- Exhibits Plus
- Exhibits Only
- Exhibitors
- Business Symposium
discounts are available to SIGGRAPH 2018 rates for hotels in Vancouver. These SIGGRAPH 2018 has negotiated discount siggraph@onPeak.com +1.312.527.7300 (International) +1.855.416.6073 (Toll Free and Domestic) OnPeak Or contact: s2018.siggraph.org on housing policies, procedures, and rates: the easy-to-use online hotel reservation Visit the SIGGRAPH 2018 website to access booking system, which includes complete information the conference management Office (Room 202) until parents/guardians can be located. Conference Management staff will notify SIGGRAPH security and instruct them to advise their staff with respect to the discovered child, as parents will probably approach Security personnel with inquiries. Please be aware that parts of the Conference may contain adult content, graphic images, or violence. Hotel Reservations Visit the SIGGRAPH 2018 website to access the easy-to-use online hotel reservation system, which includes complete information on housing policies, procedures, and rates: s2018.siggraph.org Or contact: OnPeak +1.855.416.6073 (Toll Free and Domestic) +1.312.527.7300 (International) siggraph@onPeak.com SIGGRAPH 2018 has negotiated discount rates for hotels in Vancouver. These discounts are available to SIGGRAPH 2018 attendees only. Reservations made after 16 July 2018 are based on availability only, and rates may increase. SIGGRAPH 2018 hotel rates can only be booked through onPeak, SIGGRAPH 2018’s Housing Partner. If you are contacted by any other companies to make hotel reservations, be aware they may not be reputable companies or endorsed by SIGGRAPH 2018. Hotel/Convention Center Shuttle Bus Service There is no shuttle service provided between the SIGGRAPH 2018 hotels and the Vancouver Convention Centre. The transit system in Vancouver provides excellent service, and many hotels are within easy walking distance. Photography and Recording Policies All registered media and attendees are encouraged to take photos and record video in approved areas at SIGGRAPH 2018. However, it is important to recognize that many of the words, images, sounds, objects, and technologies presented at SIGGRAPH are protected by copyrights or patents. Please respect their intellectual-property rights and do not photograph or shoot video in designated “No Photography” areas. Photography and recording is prohibited in the Electronic Theater, Production Sessions and the VR Theater, and is at the discretion of presenters for the following programs: ACM SIGGRAPH Award Talks, Art Papers, Courses, Exhibition, Exhibitor Sessions, Panels, Talks and Technical Papers. Cameras and Recording Devices All attendee cameras and recording equipment must be hand-held. Members of the media are allowed to use tripods and larger equipment, but they must register their devices with the SIGGRAPH 2018 Media Office in advance of use. Conference Photographers & Videographers SIGGRAPH 2018 employs professional photographers and videographers and reserves the right to use all images and videos that these content creators document during the conference for publication and promotion of ACM SIGGRAPH events. Public Transportation (Transportation From Vancouver International Airport) The SkyTrain’s Canada Line provides rapid rail service. Trains leave the airport station approximately every seven minutes during most times of the day. There are 16 stops along the line, with downtown Vancouver stops including Yaletown, Vancouver City Centre and Waterfront. The trip from YVR airport to downtown Vancouver takes approximately 26 minutes on a two zone fare of $3.75, plus the $5.00 Canada Line YVR AddFare. Reception Access To be admitted into the Reception, you must have a ticket. Your badge does not provide access. Registration Fees and Categories For detailed information on the registration fees and registration categories that best fits your schedule and budget visit: s2018.siggraph.org/register Special Policies Lost badges cannot be replaced. If you lose your badge, you must purchase a new registration. Technical materials included with your registration must be picked up at the SIGGRAPH 2018 Merchandise Pickup Center. Lost merchandise will not be replaced. Vancouver Convention Centre 1055 Canada Place Vancouver, BC V6C 0C3 Accessibility The Vancouver Convention Centre is handicap accessible. If you have special needs or requirements, please call Conference Management at: +1.312.673.4818 Food Services The Vancouver Convention Centre has a variety of bistros and food portables available throughout the convention center. There is also a food court located underground at the Food Fair between the East Building and the Waterfront Centre Hotel.
Internet Access
Free wireless access is available in all conference locations within the Vancouver Convention Centre (except in the Exhibit Hall).

Luggage and Coat Check
Luggage and Coat check services are available in the foyer space Outside West Exhibit Hall A/B Lobby (under the escalators) at the Vancouver Convention Centre throughout the conference week. There is a $5 fee for each item checked in.

Parking
SIGGRAPH 2018 attendees can park at the following locations:

Imperial Parking
Vancouver Convention Centre
1055 Canada Place
+1.877.909.6199
Located at the Vancouver Convention Centre West on the northside of Canada Place between Burrard Street and Thurlow Street.

WestPark at Canada Place
999 Canada Place
Parking Level 1
+1.604.684.2251
+1.866.856.8080 (Toll Free)
canadaplace@westpark.com
Located at the North end of Howe Street at Canada Place Way, in the P-1 level beside the exit lanes.

Power Stations
There will be multiple charging stations set up throughout the Vancouver Convention Centre to be used by attendees throughout the SIGGRAPH 2018 conference week.
SIGGRAPH 2018 Conference Chair
Roy C. Anthony
Ventuz Technology

Art Gallery Chair
Andres Burbano
Universidad de Los Andes

Art Papers Chair
Angus Forbes
University of California, Santa Cruz

Attendee Experience Chair
Joshua Grow
Zorroa

Birds of a Feather Chair
Mark Elendt
Side Effects Software Inc.

Business Development & Industry Relations Chair
Paul Salvini
Accelerator Centre

Computer Animation Festival Producer and VR Theater Chair
Larry Bafia
Centre for Digital Media

Courses Chair
Craig Kaplan
University of Waterloo

Creative Development Chair
Munkhtsetseg Nandigjav
NamuKreativ

Education Focus Area Chair
Erik Brunvand
University of Utah

Emerging Technologies Chair
Gerry Derksen
University of Illinois Urbana Champaign

Experience Hall Manager
Christine Holmes
Blue Sky Studios

Games Focus Area Chair
Natalya Tatarchuk
Unity Technologies

General Submissions Chair
Kristy Pron
Walt Disney Imagineering

GraphicsNet Chair
Justin Stimatze
Here Technologies

International Resources Chair
Diana Arellano
Filmakademie Baden-Wurttemberg

Posters Coordinator
Fahad Haddad
Waterproof Studios

Production Sessions Chair
Emily Hsu
Blizzard Entertainment

Publications Chair
Stephen N. Spencer
University of Washington

Real-Time Live! Chair
Jesse Barker
Unity Technologies

SIGGRAPH Next Chair
Mk Haley
Walt Disney Imagineering

SIGGRAPH 2019 Conference Chair
Mikki Rose
Blue Sky Studios

Student Volunteers Chair
Emma Gauthier
Magic Leap

Studio Chair
Nik Aberle
Independent

Technical Papers Chair
Mathieu Desbrun
California Institute of Technology

Virtual, Augmented and Mixed Reality Chair
Pol Jeremias-Vila
Pixar Animation Studios
THE VOICE OF GENERATIONS

I fell in love with the people that make up SIGGRAPH; a group of people that enthusiastically support and cheer each other on in the development of even greater graphics and interactive techniques year after year.