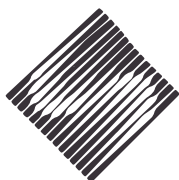


# ACM SIGGRAPH VIDEO REVIEW

ISSUE 131



**SIGGRAPH 99**

**ELECTRONIC THEATER PROGRAM**

**TABLE OF CONTENTS**

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- 01 Fiat Lux—*University of California at Berkeley*
- 02 Impel—*Brandon Morse*
- 03 Polar Bear Swim—*Rhythm & Hues Studios*
- 04 Breaking Objects—*Georgia Institute of Technology*
- 05 Hollow *Ringling School of Art and Design*
- 06 **scinema** event—*Liquid Design Group*
- 07 The Fort at Mashantucket—*Nicholson NY*
- 08 Body Story—*4:2:2 Bristol*
- 09 Galaxy Cluster Dynamics—*Pittsburgh Supercomputing Center*
- 10 Twinkle, Twinkle, Shooting Star...—*Tokyo Broadcasting System, Inc.*
- 11 The Round Earth Project—*Electronic Visualization Laboratory*
- 12 Tightrope—*Digital Domain Inc.*
- 13 LIDAR: Reality Capture—*Cyra Technologies*
- 14 Paper Chase—*Windlight Studios*
- 15 Oddworld: Abe's Exoddus—*Oddworld Inhabitants*
- 16 Ronin Romance Classics—*Ronin Animation*
- 17 The Duck Father—*Tomoyuki Harashima*
- 18 Sandland—*Heiko Lueg*
- 19 The Jester—*Pacific Title/Mirage Studio*
- 20 Moebius - The City of Fire—*Menfond Electronic Art*
- 21 To Build A Better Mousetrap—*Digital Filmworks*
- 22 Fishing *Pacific Data Images*
- 23 Mighty Joe Young—*Dream Quest Images*
- 24 MTV - Forests *Filmakademie Baden-Wuerttemberg*
- 25 All Is Full Of Love—*Glassworks Ltd.*
- 26 Spatial Frames—*Robert Jensen*
- 27 Masks *Filmakademie Baden-Wuerttemberg*

# 01 Fiat Lux

**Producer:** Paul Debevec

**Summary:**

Inspired by Galileo's scientific accomplishments and his eventual conflict with the Church, this piece employs image-based modeling, rendering, lighting, global illumination, and dynamic simulation to dramatize the conflict with abstract forms in real scenes. To capture the illumination of several locations in Italy, including St. Peter's Basilica, high dynamic range photography was used. As necessary, geometry was reconstructed through photogrammetry. To faithfully model the photometric interaction of the environments and the computer generated elements with image-based lighting, all lighting was simulated using the actual illumination recorded at each location.

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## 02 Impel

**Producer:** Brandon Morse

### **Summary:**

"Impel" creates an environment comprised of five chambers that border one another. The central object of the piece resides in the central chamber. Each of the four bordering chambers contains an object or set of objects that, one by one, perform a predefined series of actions. As each of these objects goes through its routine, a force is exerted upon the primary object in the central chamber which, in turn, inhibits the interaction of the other forces. The piece comes to completion after all four of the forces have been described and have made their mark on the central object.

### **Contributors:**

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## 03 Polar Bear Swim

**Producer:** Bert Terreri

### **Summary:**

This completely computer generated spot features a baby polar bear that is afraid to swim to its mom until she pops a bottle of Coke.

### **Contributors:**

Director: Bill Kroyer  
Lighting Director: Debbie Pashkoff  
Head TD: Georgja Cano

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# 04 Breaking Objects

**Producer:** Jessica K. Hodgins

**Summary:**

This video demonstrates a simulation technique for animating breaking objects. By analyzing the stress tensors that are computed over a finite element model, the simulation determines where cracks should initiate and in which directions they should propagate. The system then dynamically re-meshes the models to accommodate these fractures. By varying the shape of the objects, the material properties, and the initial conditions of the simulations, strikingly different effects can be created, ranging from a wall that shatters when it is hit by a wrecking ball to a bowl that breaks in two when it is dropped on edge.

For more details, please see our paper, “Graphical Modeling and Animation of Brittle Fracture,” in the conference proceedings.

**Contributors:**

Director: James F. O'Brien  
James F. O'Brien, Wayne L. Wooten, Jessica K. Hodgins, Brad Y. Andalman

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## 05 Hollow

**Producer:** Ringling School of Art and Design

**Summary:**

In "Hollow," a pumpkin-headed surgeon brings a new version of himself to life only to be "replaced" when he hands his scalpel to his invention. "Hollow's" art direction is influenced by artists like Tim Burton, Terry Gilliam, Alex Proyas, Orson Welles and Alfred Hitchcock. This piece was created using Alias/Wavefront PowerAnimator v.8.5 on an SGI 02.

**Contributors:**

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## 06 scinema event

**Producer:** Roger Guillen

**Summary:**

Developed as a 25 second open for the Sci Fi Channel's Thursday night movie, this spot shows a fly-through of an alien world that turns out to be a kernel of popcorn! It was made by shooting a kernal of popcorn with an electron microscope. After the photographs were scanned, Softimage was used to create 3D geometry. The photographs then were reapplied as projection end displacement maps.

**Contributors:**

Director: Jeff Linnell  
Ed Manning, Scot Zindorf, Sean Eno, Walter Labinsky

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## 07 The Fort at Mashantucket

**Producer:** Raymond Doherty

### **Summary:**

Modeled using SGI workstations and Alias|Wavefront PowerAnimator, "The Fort at Mashantucket" is a 3D modeled tour of a 40,000 square-foot Pequot living site from the 17th Century. The project's objective was to provide means of interactively depicting and interpreting the archaeology of the site for visitors at the Mashantucket Pequot Museum and Research Center. It is one of six interactive installations that Nicholson NY created for the museum.

This two-and-a-half minute tour includes eleven stopping points where the viewer can learn more about found artifacts and the archaeology of the site. At the various stopping points within the Fort, visitors can access documentary video segments interpreting the site and the objects depicted in the Fort model.

All texture maps, including the 360° sky and landscape panoramas, are original art, photo-illustration created by the production team. The ground geometry was generated using actual topographical data of the site area. The scores of objects found in the fort model are either precise reproductions of artifacts found in the excavation, or are based on extensive historical research supported by the Nicholson NY content staff. The vegetation includes plants native to the area at the time. An 18th century cornfield was modeled to demonstrate Native American methods of cultivation.

### **Contributors:**

Director: Guido Jiménez  
Yun Rhee, Alberto Forero,  
Peter Weishar, Liju Huang,  
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## 08 Body Story

**Producer:** 4:2:2 Makers

### **Summary:**

“Body Story” is comprised of six human dramas that reveal a fascinating insight into how our bodies miraculously cope with the rigors of everyday life. From the natural miracle of childbirth to the shattering effects of a heart attack, this series uses a combination of drama and 3D computer generated graphics to show what happens during a medical crisis. Hardware/Software used in the production includes PowerAnimator, Maya, Softimage, 3D Studio Max, Quantel Hal.

### **Contributors:**

Collaborator: Wall to Wall Television UK

Client: Channel 4 UK

Head of 3D: Peter Bailey

3D Animators: Stuart Love,

Mark Fox, Rory Fellowes,

Andy Wheeler, Francis Offei,

Tia Perkins, Nick Mackie,

Chelfyn Baxter, Chris Hooper

Art Director: Chris Hart

Production Assistant: Katrina Boyd

Technical Support:

Russell Curgenvin

Compositor/Designer:

Adrian Woodward

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## 09 Galaxy Cluster Dynamics

**Producer:** John Dubinski

### Summary:

An educational video, "Galaxy Cluster Dynamics" includes a series of animations that show the interactions and evolutions of galaxy clusters. The first set depicts the collision and merging of two simulated galaxies that were designed to represent the Milky Way and Andromeda galaxies. Using a self-consistent field algorithm, the simulation follows over three million particles . A second group of animations shows an N-body simulation of 100 smaller disk galaxies into a cluster.

### Contributors:

Director: John Dubinski, CITA,  
McLennan Labs, Univ. of Toronto  
Joel Welling, Anjana Kar, Greg Foss

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## 10 Twinkle, Twinkle, Shooting Star...

**Producer:** Aki Yamada

### Summary:

The mischievous star spirit blows a star pipe and gathers all of the stars that have scattered about a town to create a beautiful night sky. In the morning, the stars again scatter in all directions. This high definition television spot was created using 3Dequalizer for perspective matching, and Soft Image 3D for 3DCG flame composite and painting effects.

### Contributors:

Director: Yasuhiro Yamaguchi,  
Kumiko Hosaka, Takaaki Matsubara

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## 11 The Round Earth Project

**Producer:** Andrew Johnson, Jason Leigh

### Summary:

This video describes the Round Earth Project, which investigates how virtual reality technology can be used to help teach concepts that are counterintuitive to a learner's currently held mental model. It demonstrates how virtual reality can be used to provide an alternative cognitive starting point that does not carry the baggage of past experiences.

In this piece, VR is used to help teach young children that the Earth is spherical. It accomplishes this by allowing the children to explore a small asteroid where the implications of living on a spherical body are more apparent.

### Contributors:

Jim Costigan, the Round Earth team

### Contact:

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## 12 Tightrope

**Producer:** Scott Ross

### Summary:

Created over the course of 11 months "Tightrope" is a 5 minute, all CG animated short film. This allegorical tale showcases Digital Domain's ability to bring art and technology together to create a beguiling story. Animated in Softimage, the team of artists developed new real-time controls to create complex facial expression and nuance.

### Contributors:

Director: Daniel Robichaud  
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## 13 LIDAR: Reality Capture

**Producer:** Dennis Martin

### **Summary:**

The story of long range 3D scanning technology is just beginning. Currently it is an ideal system for measuring large and challenging structures and surfaces. For example, laser scanners now can measure distances 10 meters away with 6 millimeters of accuracy. The long range laser scanning works by sending out a pulsed laser beam of light. After measuring the time it takes for the light to hit a surface and make its return, the scanner records the point into a 3D visualization program. All of this happens in seconds. The animation presented here highlights some of the amazing results.

### **Contributors:**

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Ben Kacyra, Grant McKinney

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## 14 Paper Chase

**Producer:** Amy Sanders

### **Summary:**

Featuring the fictional brand of Softy Puffs, "Paper Chase" is a parody of the world of toilet paper advertising. Pursued by a low grade roll of toilet paper, a walking bottom is saved in the nick of time by a cushy, heroic toilet paper competitor. This spot was produced using Maya, PowerAnimator, Composer, StudioPaint and Photoshop.

### **Contributors:**

Director: Shannon Gilley

Supervising Producers: Terry Friedlander, Kelly McManus

Creative Director: Don Bajus

Lead Technical Director:

Matthew Durante

Lead Animator: Brian Newlin

Lead Modeler: Evan Olson

Technical Directors: Christopher

Ebbert, David Novak

Animators/Modelers: Alison

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## 15 Oddworld: Abe's Exoddus

**Producer:** Sherry McKenna

**Summary:**

DON'T THINK—DRINK! The hard working Glukkons entrepreneurs at SoulStorm Brewery have distilled the ultimate beverage: tasty, refreshing and 100% addictive. Better yet, the main ingredient of finely aged Mudokon bones is freely available in the ancient Mudokon burial grounds.

Enter Abe, ex-slave and unlikely savior of the Mudokons. As Abe tries to stop the Glukkons from emptying the Mudokon graveyards, the SoulStorm Brewery marketing campaign swings into high gear. All of Abe's friends soon become addicted to the fresh, clean taste of SoulStorm Brew. To get more, they must become lifetime "employees" of SoulStorm Brewery where early retirement is the only "benefit."

Friendless and alone, Abe has to save the Mudokons from SoulStorm Brewery—and themselves—before it is too late. All this and funny subtitles too!

**Contributors:**

Executive Producer: Sherry McKenna

Creator/Director: Lorne Lanning

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## 16 Ronin Romance Classics

**Producer:** Bruce Pukema

**Summary:**

This piece explores the hidden benefits of reading romance novels.

**Contributors:**

Musical Score: Paul Hartwig

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## 17 The Duck Father

**Producer:** Tomoyuki Harashima

**Summary:**

A naughty rabbit notices three ducks, but when he runs to harm them, a big and weird black shadow appears... This short, funny cartoon-like animation was created using SGI O2 and PowerAnimator

**Contributors:**

Tomoyuki Harashima

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## 18 Sandland

**Producer:** Heiko Lueg

**Summary:**

Nils, the lighthouse keeper of Sandland, does not have any contact with the outside world. One day, a grump named Onk lands on the island, changing things forever... A fantastic adventure, "Sandland" is a 3D computer animation film with some 2D effects. It was created using Softimage 3D, SGI - Indy and O2 workstations.

**Contributors:**

Character Animation:  
Heiko Lueg, Matthias Wittmann  
Special Effects: Heiko Lueg,  
Jan Stoltz  
Editor: Arndt Stüwe  
Music: Marius Ruhland  
Sound Design and Mix: Uli Auer  
Story and Production Design:  
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## 19 The Jester

**Producer:** Mark Sagar

**Summary:**

A completely digital actor mimes over her body, mind and spirit. Utilizing Pacific Title/Mirage Studio's proprietary Life F/X facial capture and animation technology, this realistic computer generated actor comes alive!

**Contributors:**

Director: William Plant  
Pacific Title/Mirage Studio Staff,  
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## 20 Moebius - The City of Fire

**Producer:** Thalia Tau

**Summary:**

Inspired by Moebius, the comic writer, this animation simulates the mood and tone of Moebius's work. Look for "City of Fire" to be developed into a TV series. It was created using Intergraph TDZ2000, Softimage, Mental Ray.

**Contributors:**

Director: Victor Wong  
Menfond Electronic Art

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## 21 To Build A Better Mousetrap

**Producer:** Digital Filmworks

**Summary:**

The mousetrap of tomorrow is here today! Another miracle from Blackmire Industries, *The Merchant of Death 2000* doesn't just trap mice—it seeks out and destroys them! "To Build a Better Mousetrap" was modeled, animated, and rendered with PowerAnimator 8.5, using an SGI Indigo 2, Octane, and Onyx.

**Contributors:**

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## 22 Fishing

**Producer:** JR Robeck

**Executive Producer:** Carl Rosendahl

**Summary:**

"Fishing" tells the tale of a greedy fisherman whose wildest dream becomes his worst nightmare. PDI in-house software was used to render the tale in a style of living watercolor painting.

**Contributors:**

Director: David Gainey  
Cassidy Curtis and a host of PDI personnel.

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## 23 Mighty Joe Young

**Producer:** Tom Jacobson, Ted Hartley

### **Summary:**

Nominated for an Academy Award® for Best Visual Effects, “Mighty Joe Young” presented special challenges for Dream Quest’s digital team. To realize the performance of the title character, a photorealistic CG gorilla was created to capture not only the likeness of the animatronic gorilla, but also the nuances of a suited actor’s performance. Other challenges included modeling and character animation, controls for the internal skeleton, a proprietary facial animation system, skin shader technology, and most importantly, proprietary software to generate several million individual dynamic hairs.

### **Contributors:**

Director: Ron Underwood; Visual Effects Supervisor: Hoyt Yeatman; Visual Effects Producer: Anjelica Casillas; DQI Executive Producer: Dennis Hoffman; Associate Visual Effects Supervisor: Dan DeLeeuw; Animation Supervisor: Chris Bailey; Supervising Character Animator: Rob Dressel; Digital Compositing Supervisor: Blaine Kennison; Digital Producer: Kristina Reed; Lead Compositors: Saki Mitchell, David Lauer, Amy Pfaffinger; Compositors: Brian Adams, Michael F. Miller, Jeffery Arnold, Jeff Olm, Tony Noel, Daniel Miller, Marc Scott, Cynthia Hyland; Animators: Steven F. Yamamoto, Stephen Baker, Jason McDade, Steward Burris, Robert Skiena, Dave Mullins, Michael Polvani, Aaron Campbell, Kevin Culhane, Cory Barlog, Bill Miller; CG Hair Texturing and Grooming: Colin Eckart; CG Lighting Artists: Adolph Lusinsky, Jessi Chan, Andrew McPhillips, Natasha Rand, Freddi Rokaw, Mohammed Davoudian; Facial Animation System: Patrick Taylor; Modelers: Hal Lewis, Chris Keene, Teunis Deraat; Technical Supervisors: Danny Speck, Bruce Wright, Paul Jordan; 3D Paint and Texturing: Mark Siegel; CG Effects Animator: Chris Biggs; Hair Rendering Software Developer: Rev Leberedian; Software Development: Mark Rubin, Sean Jenkins, Jacob Sisk, Bruce Tartaglia, Chu Tang; Head of Digital Technology: Rob Burton; Digital Department Supervisor: Mitch Dobrowner

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## 24 MTV - Forests

**Producer:** Filmakademie Baden-Wurtemberg

### Summary:

A maniac cuts down the trees in a forest in need of protection. How can he recognize the harm he is doing if he is not a tree? This computer animation was created using acrylic paint on paper, hand painted textures, and Softimage 3D on SGI and Intergraph workstations.

### Contributors:

Director: Piotr Karwas  
Wojtek Wawarczyk

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## 25 All Is Full Of Love

**Producer:** Glassworks, Ltd.

### Summary:

"All Is Full Of Love" depicts two white androids being assembled and falling in love. Computer graphics were used to create moving heads, necks, and arms. To suggest work being done to create the androids, large robotic arms were built and animated. Flame was utilized to restore elements of pop star Björk's face onto the 3D surface. Real robots were used help render the androids with human characteristics.

### Contributors:

Director: Chris Cunningham  
Production: Cindy Burnay  
Post Production: Sally Mattinson  
Animators: James Mann,  
Herve Dhone  
Flame Operator: Pasi Johansson

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## 26 Spatial Frames

**Producer:** Rob Jensen

**Summary:**

This disturbing story exposes the mechanics of a character's world and addresses a fundamental philosophical problem—the “evil demon” hypothesis.

**Contributors:**

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## 27 Masks

**Producer:** Andrea Osterhorn

**Summary:**

A search for identity as a faceless person constructs endless masks to find the perfect one. Computer animation done with Softimage 3D on SGI and Intergraph workstations. Hand painted textures, acrylic paint on paper.

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Stephan Krumbiegel

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