



SIGGRAPH 97 Conference Proceedings

SIGGRAPH 97 Papers Chair
Turner Whitted (University of North Carolina)

SIGGRAPH 97 Panels Chair
Barbara Mones-Hattal (George Mason University)

**Steven A. Coons Award for Outstanding
Creative Contributions to Computer Graphics**

Dr. James A. Foley

**ACM SIGGRAPH
Computer Graphics Achievement Award**

Dr. Przemyslaw Prusinkiewicz

Virtual Reality and Applications

Chair: Frederick P. Brooks, Jr.

Quantifying Immersion in Virtual Reality

Randy Pausch, Dennis Proffitt, George Williams

Moving Objects in Space: Exploiting Proprioception In
Virtual-Environment Interaction

Mark R. Mine, Frederick P. Brooks, Jr., Carlo H. Séquin

Virtual Voyage: Interactive Navigation in the Human Colon

Lichan Hong, Shigeru Muraki, Arie Kaufman, Dirk Bartz, Taosong He

Interactive Simulation of Fire in Virtual Building Environments

Richard Bukowski, Carlo H. Séquin

Illumination

Chair: Eugene Fiume

Fitting Virtual Lights For Non-Diffuse Walkthroughs

*Bruce Walter, Gün Alppay, Eric P. F. Lafortune, Sebastian Fernandez,
Donald P. Greenberg*

Instant Radiosity

Alexander Keller

Interactive Update of Global Illumination Using A
Line-Space Hierarchy

George Drettakis, François Sillion

Metropolis Light Transport

Eric Veach, Leonidas J. Guibas

Visibility

Chair: Thomas Funkhouser

Visibility Culling Using Hierarchical Occlusion Maps

Hansong Zhang, Dinesh Manocha, Thomas Hudson, Kenneth E. Hoff III

The Visibility Skeleton: A Powerful and Efficient Multi-Purpose
Global Visibility Tool

Frédo Durand, George Drettakis, Claude Puech

Rendering Complex Scenes with Memory-Coherent Ray Tracing

Matt Pharr, Craig Kolb, Reid Gershbein, Pat Hanrahan

Illustrating Surface Shape in Volume Data via Principal
Direction-Driven 3D Line Integral Convolution

Victoria L. Interrante

Fur, Film, and Light

Chair: Holly Rushmeier

Non-Linear Approximation of Reflectance Functions

Eric P. F. Lafortune, Sing-Choong Foo, Kenneth E. Torrance,

Donald P. Greenberg

Fake Fur Rendering

Dan B. Goldman

A Model for Simulating the Photographic Development Process
on Digital Images

Joe Geigel, F. Kenton Musgrave

A Model of Visual Masking for Computer Graphics

James A. Ferwerda, Sumanta N. Pattanaik, Peter Shirley,

Donald P. Greenberg

Animation

Chair: Andy Witkin

Adapting Simulated Behaviors For New Characters

Jessica K. Hodgins, Nancy S. Pollard

Anatomy-Based Modeling of the Human Musculature

Ferdi Scheepers, Richard E. Parent, Wayne E. Carlson,

Stephen F. May

Anatomically Based Modeling

Jane Wilhelms, Allen Van Gelder

Modeling the Motion of a Hot, Turbulent Gas

Nick Foster, Dimitris Metaxas

Surface Simplification

Chair: Greg Turk

View-Dependent Refinement of Progressive Meshes

Hugues Hoppe

View-Dependent Simplification of Arbitrary Polygonal
Environments

David Luebke, Carl Erikson

Surface Simplification Using Quadric Error Metrics

Michael Garland, Paul S. Heckbert

Progressive Simplicial Complexes

Jovan Popović, Hugues Hoppe

Image-Based Rendering and Panoramas

Chair: Michael Cohen

Tour Into the Picture: Using a Spidery Mesh Interface to Make
Animation from a Single Image

Youichi Horry, Ken-ichi Anjyo, Kiyoshi Arai

Rendering with Coherent Layers

Jed Lengyel, John Snyder

Multiperspective Panoramas for Cel Animation

*Daniel N. Wood, Adam Finkelstein, John F. Hughes, Craig E. Thayer,
David H. Salesin*

Creating Full View Panoramic Mosaics and Environment Maps

Richard Szeliski, Heung-Yeung Shum

Geometry

Chair: John M. Snyder

Interactive Multiresolution Mesh Editing

Denis Zorin, Peter Schröder, Wim Sweldens

Interactive Boolean Operations for Conceptual Design of
3-D Solids

Ari Rappoport, Steven Spitz

Guaranteeing the Topology of an Implicit Surface Polygonization
for Interactive Modeling

Barton T. Stander, John C. Hart

Fast Construction of Accurate Quaternion Splines

Ravi Ramamoorthi, Alan H. Barr

Hardware and Anti-Aliasing

Chair: Frank Crow

InfiniteReality: A Real-Time Graphics System

*John S. Montrym, Daniel R. Baum, David L. Dignam,
Christopher J. Migdal*

Efficient Bump Mapping Hardware

Mark Peercy, John Airey, Brian Cabral

Hardware Accelerated Rendering of Antialiasing Using a Modified
A-Buffer Algorithm

Stephanie Winner, Michael Kelley, Brent Pease, Bill Rivard, Alex Yen

Antialiasing of Curves by Discrete Pre-Filtering

A. E. Fabris, A. R. Forrest

Devices and Multimodal I/O

Chair: Mike Moshell

The Two-User Responsive Workbench: Support for Collaboration
Through Independent Views of a Shared Space

*Maneesh Agrawala, Andrew C. Beers, Bernd Fröhlich, Pat Hanrahan,
Ian McDowall, Mark Bolas*

SCAAT: Incremental Tracking with Incomplete Information

Greg Welch, Gary Bishop

The Haptic Display of Complex Graphical Environments

Diego C. Ruspini, Krasimir Kolarov, Oussama Khatib

Video Rewrite: Driving Visual Speech with Audio

Christoph Bregler, Michele Covell, Malcolm Slaney

Texture, Reflection & Designs

Chair: Demetri Terzopoulos

Multiresolution Sampling Procedure for Analysis and Synthesis
of Texture Images

Jeremy S. De Bonet

Recovering High Dynamic Range Radiance Maps from
Photographs

Paul E. Debevec, Jitendra Malik

Object Shape and Reflectance Modeling from Observation

Yoichi Sato, Mark D. Wheeler, Katsushi Ikeuchi

Design Galleries: A General Approach to Setting Parameters for
Computer Graphics and Animation

*J. Marks, B. Andalman, P. A. Beardsley, W. Freeman, S. Gibson, J. Hodgins,
T. Kang, B. Mirtich, H. Pfister, W. Ruml, K. Ryall, J. Seims, S. Shieber*

Non-Photorealistic Rendering

Chair: Julie Dorsey

Orientable Textures for Image-Based Pen-and-Ink Illustration

Michael P. Salisbury, Michael T. Wong, John F. Hughes, David H. Salesin

Processing Images and Video for an Impressionist Effect

Peter Litwinowicz

Real-Time Nonphotorealistic Rendering

Lee Markosian, Michael A. Kowalski, Samuel J. Trychin,

Lubomir D. Bourdev, Daniel Goldstein, John F. Hughes

Computer-Generated Watercolor

Cassidy J. Curtis, Sean E. Anderson, Joshua E. Seims, Kurt W. Fleischer,

David H. Salesin

The Implications of a Theory of Play for the Design of Computer Toys

Organizer: Bill Kolomyjec

Panelists: Justine Cassell, Yasmine B. Kafai, Mary Williamson

Facial Animation: Past, Present, and Future

Organizer: Demetri Terzopoulos, Barbara Mones-Hattal

Panelists: Beth Hofer, Frederic Parke, Doug Sweetland, Keith Waters

Can We Get There From Here?: Current Challenges in Cloth Modeling, Design, and Animation

Organizer: David E. Breen

*Panelists: Jeffrey W. Eischen, Michael Kass, Nadia Magnenat Thalmann,
Maurizio Vecchione*

Narrative Environments: Virtual Reality as a Storytelling Medium

Organizer: Celia Pearce

Panelists: Brad deGraf, C. Scott Young, Jim Ludtke, Athomas Goldberg

Motion Capture and CG Character Animation

Organizer: Gordon Cameron

Panelists: Andre Bustanoby, Ken Cope, Steph Greenberg, Craig Hayes, Olivier Ozoux

The Difference Between Here and There: What Graphic Design Brings to E-Space

Organizer: Lisa Koonts

Panelists: Andrew Blauvelt, Edwin Utermohlen, Laura Kusumoto, Anne Burdick, Louise Sandhaus, Natalie Buda

Interfacing Reality: Exploring Emerging Trends Between Humans and Machines

Organizer: Eric Paulos

Panelists: John Canny, Eduardo Kac, Ken Goldberg, Mark Pauline, Stelarc

What 3D API for Java Should I Use and Why?

Organizer: Dave Nadeau

Panelists: Brad Grantham, Colin McCartney, Mitra, Henry Sowizral

Community/Content/Interface: Creative Online Journalism

Organizer: Mark Tribe

Panelists: Armin Medosch, Kathy Rae Huffman, Lev Manovich, Gary Wolf

**Educating the Digital Artist for the Entertainment Industry:
The Collision of Academia and Business**

Organizer: Charles S. Swartz

Panelists: Edwin E. Catmull, Robin King, Richard Weinberg, Jane Veeder

**Medical Visualization: Why Do We Use CG and Does It
Really Make a Difference in Creating Meaningful Images?**

Organizers: Virginia McArthur, Carrie L. DiLorenzo

Panelists: Jane Hurd, Marsha Jessup, Casey Herbert, Patrick Lynch

**Putting a Human Face on Cyberspace: Designing Avatars
and the Virtual Worlds They Live In**

Organizer: Bruce Damer

*Panelists: Steve DiPaola, Ioannis Paniaras, Kirk Parsons, Bernie Roel,
Moses Ma*

Sounding Off on Audio: The Future of Internet Sound

Organizer: Paul Godwin

Panelists: James Grunke, Eythor Arnolds, William L. Martens, Tim Cole

Image-Based Rendering: Really New or Déjà Vu?

Organizer: Michael Cohen

Panelists: Eric Chen, Marc Levoy, Leonard McMillian, Jitendra Malik

The Rhetoric of the Synthetic: Images of the Body in Technology, Business, and Culture

Organizer: Lorne Falk

Panelists: Bill Kroyer, Heidi Gilpin, Val Marmillion, Mark Resch

Experiences with Virtual Reality Applications

Organizer: William R. Sherman

*Panelists: Nina Adams, Rita Addison, R. Bowen Loftin, Ben Britton,
Donna Cox, Robert Patterson*

A Framework for Realistic Image Synthesis

*Donald P. Greenberg, Kenneth E. Torrance, Peter Shirley, James Arvo,
James A. Ferwerda, Sumanta Pattanaik, Eric P. F. Lafortune,
Bruce Walter, Sing-Choong Foo, Ben Trumbore*