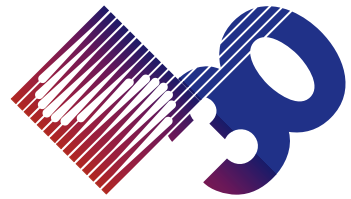




# SIGGRAPH 99

08–13 August 1999

Los Angeles, California



Award Recipients

Papers Sessions

Papers Committee



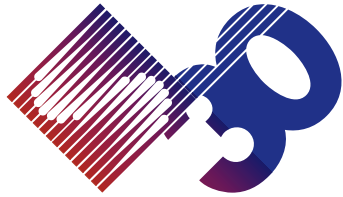


# Award Recipients

Steven A. Coons Award for  
Outstanding Contributions to  
Computer Graphics

Computer Graphics  
Achievement Award

# Papers Sessions



Animation

Modeling

Perception & Lighting

Fluids & Fracture

Efficient Lighting

Data Captures Inverse Modeling

Texturing

Hardware

Image-Based Rendering

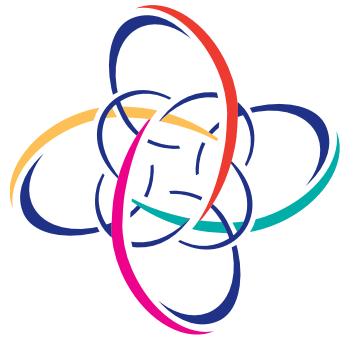
Meshes & Morphing

Virtual Reality

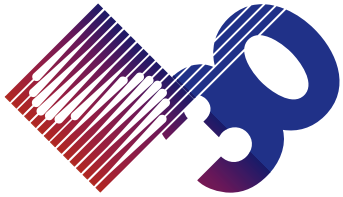
Interactive Techniques

Imaginative Rendering





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# Animation

Chair: Michiel Van de Panne (*University of Toronto*)

## **Physically Based Motion Transformation**

Zoran Popovic (*Carnegie Mellon University*)

Andrew Witkin (*Pixar Animation Studios*)

## **Voice Puppetry**

Matthew Brand (*Mitsubishi Electric Research Laboratory*)

## **Cognitive Modeling: Knowledge, Reasoning and Planning for Intelligent Characters**

John Funge (*Intel Corporation*)

Xiaoyuan Tu (*Intel Corporation*)

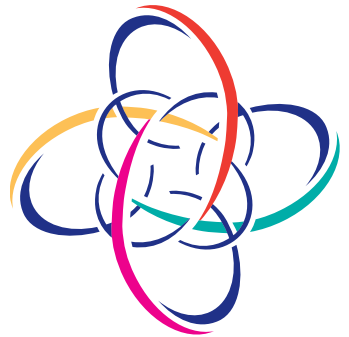
Demetri Terzopoulos (*University of Toronto*)

## **A Hierarchical Approach to Interactive Motion Editing for Human-Like Figures**

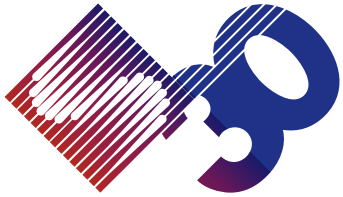
Jehee Lee (*Korea Advanced Institute of Science and Technology*)

Sung Yong Shin (*Korea Advanced Institute of Science and Technology*)





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# Modeling

Chair: Michael Lounsbery (*Alias/Wavefront*)

## **Robust Mesh Watermarking**

Emil Praun (*Princeton University*)

Hugues Hoppe (*Microsoft Research*)

Adam Finkelstein (*Princeton University*)

## **Interpolating Nets of Curves by Smooth Subdivision Surfaces**

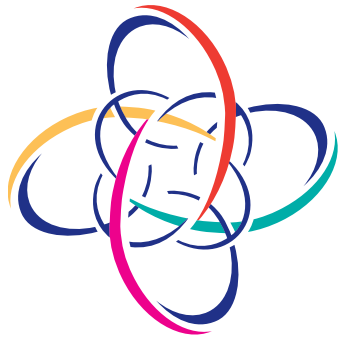
Adi Levin (*Tel Aviv University*)

## **ArtDefo - Accurate Real Time Deformable Objects**

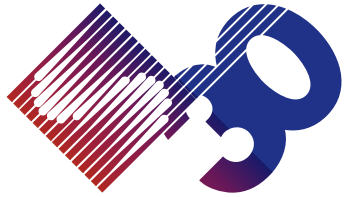
Doug L. James (*University of British Columbia*)

Dinesh K. Pai (*University of British Columbia*)





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# Perception & Lighting

Chair: Gary Meyer (University of Oregon)

## **A Perceptually Based Physical Error Metric for Realistic Image Synthesis**

Mahesh Ramasubramanian (*Cornell University*)

Sumanta N. Pattanaik (*Cornell University*)

Donald P. Greenberg (*Cornell University*)

## **LCIS: A Boundary Hierarchy for Detail-Preserving Contrast Reduction**

Jack Tumblin (*Georgia Institute of Technology*)

Greg Turk (*Georgia Institute of Technology*)

## **A Practical Analytic Model for Daylight**

A.J. Preetham (*University of Utah*)

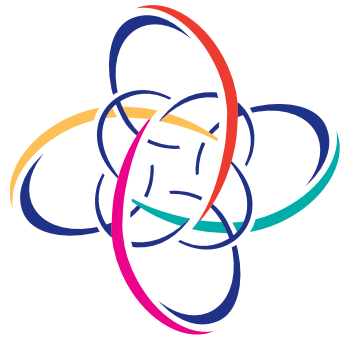
Peter Shirley (*University of Utah*)

Brian E. Smits (*University of Utah*)

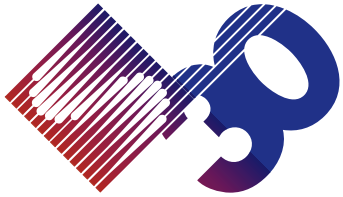
## **Diffraction Shaders**

Jos Stam (*Alias/Wavefront*)





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# Fluids & Fracture

Chair: Chuck Hansen (*University of Utah*)

## **Subdivision Schemes for Fluid Flow**

Henrik Weimer (*Rice University*)

Joe Warren (*Rice University*)

## **Stable Fluids**

Jos Stam (*Alias/Wavefront*)

## **Computational Fluid Dynamics in a Traditional Animation Environment**

Patrick Witting (*DreamWorks SKG*)

## **Graphical Modeling and Animation of Brittle Fracture**

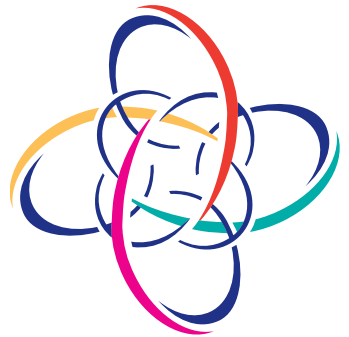
James F. O'Brien (*Georgia Institute of Technology*)

Jessica K. Hodgins (*Georgia Institute of Technology*)



# Efficient Lighting

Chair: Tomoyuki Nishita (*University of Tokyo*)



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## **Direct Illumination With Lazy Visibility Evaluation**

David Hart (*Cornell University*)

Philip Dutré (*Cornell University*)

Donald P. Greenberg (*Cornell University*)

## **Computing Exact Shadow Irradiance Using Splines**

Michael M. Stark (*University of Utah*)

Elaine Cohen (*University of Utah*)

Tom Lyche (*University of Oslo*)

Richard F. Riesenfeld (*University of Utah*)

## **Reflection Space Image Based Rendering**

Brian Cabral (*Silicon Graphics, Inc.*)

Marc Olano (*Silicon Graphics, Inc.*)

Philip Nemec (*Silicon Graphics, Inc.*)

## **Realistic, Hardware-Accelerated Shading and Lighting**

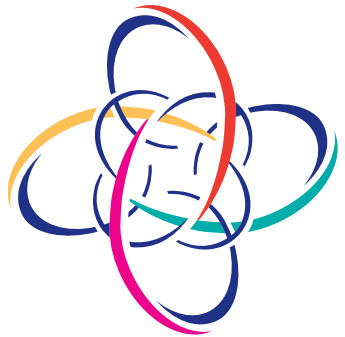
Wolfgang Heidrich (*Universität Erlangen*)

Hans-Peter Seidel (*Universität Erlangen*)

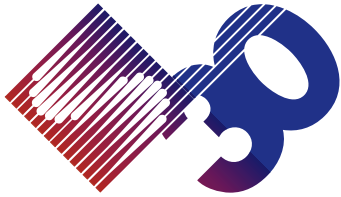
## **Tracing Ray Differentials**

Homan Igehy (*Stanford University*)





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# Data Captures Inverse Modeling

Chair: Markus Gross (*Swiss Federal Institute of Technology*)

## **A Morphable Model for the Synthesis of 3D Faces**

Volker Blanz (*Max Planck Institute for Biological Cybernetics*)

Thomas Vetter (*Max Planck Institute for Biological Cybernetics*)

## **Creating Generative Models From Range Images**

Ravi Ramamoorthi (*Stanford University*)

James Arvo (*California Institute of Technology*)

## **Environment Matting and Compositing**

Douglas E. Zongker (*University of Washington*)

Dawn M. Werner (*University of Washington*)

Brian Curless (*University of Washington*)

David H. Salesin (*University of Washington*)

## **Inverse Global Illumination: Recovering Reflectance Models of Real Scenes From Photographs**

Yizhou Yu (*University of California, Berkeley*)

Paul Debevec (*University of California, Berkeley*)

Jitendra Malik (*University of California, Berkeley*)

Tim Hawkins (*University of California, Berkeley*)







# Texturing

Chair: Luiz Velho (*Instituto de Matematica Pura e Aplicada*)

## **Modeling and Rendering of Weathered Stone**

Julie Dorsey (*Massachusetts Institute of Technology*)

Alan Edelman (*Massachusetts Institute of Technology*)

Justin Legakis (*Massachusetts Institute of Technology*)

Henrik Wann Jensen (*Massachusetts Institute of Technology*)

Hans K hling Pedersen (*Massachusetts Institute of Technology*)

## **Pattern-Based Texturing Revisited**

Fabrice Neyret (*iMAGIS*)

Marie-Paule Cani (*iMAGIS*)

## **Feline: Fast Elliptical Lines for Anisotropic Texture Mapping**

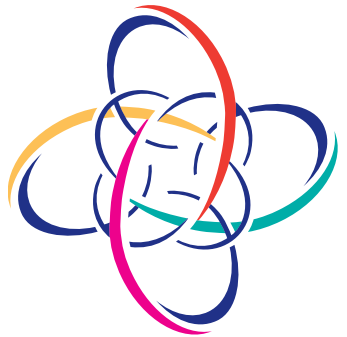
Joel McCormack (*Compaq Computer Corporation*)

Ronald Perry (*Mitsubishi Electric Research Laboratory*)

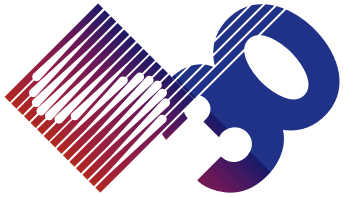
Keith I. Farkas (*Compaq Computer Corporation*)

Norman P. Jouppi (*Compaq Computer Corporation*)





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# Hardware

Chair: Steve Molnar (*NVIDIA Corporation*)

## **The VolumePro Real-Time Ray-Casting System**

Hanspeter Pfister (*Mitsubishi Electric Research Laboratory*)

Jan Hardenbergh (*Mitsubishi Electric Research Laboratory*)

Jim Knittel (*Mitsubishi Electric Research Laboratory*)

Hugh Lauer (*Mitsubishi Electric Research Laboratory*)

Larry Seiler (*Mitsubishi Electric Research Laboratory*)

## **Deep Compression for Streaming Texture Intensive Animations**

Daniel Cohen-Or (*Tel Aviv University*)

Yair Mann (*Tel Aviv University*)

Shachar Fleishman (*Tel Aviv University*)

## **Optimization of Mesh Locality for Transparent Vertex Caching**

Hugues Hoppe (*Microsoft Research*)

## **Fast Computation of Generalized Voronoi Diagrams Using Graphics Hardware**

Kenneth Hoff III (*University of North Carolina at Chapel Hill*)

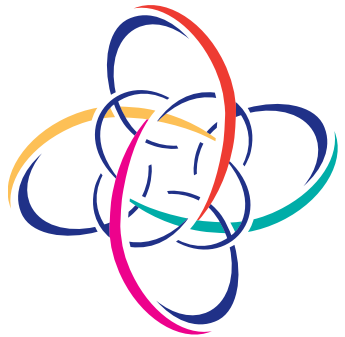
Tim Culver (*University of North Carolina at Chapel Hill*)

John Keyser (*University of North Carolina at Chapel Hill*)

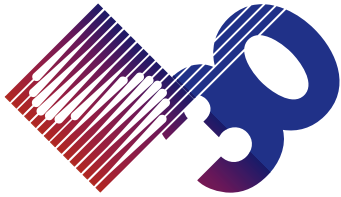
Ming Lin (*University of North Carolina at Chapel Hill*)

Dinesh Manocha (*University of North Carolina at Chapel Hill*)





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# Image-Based Rendering

Chair: Leonard McMillan (*Massachusetts Institute of Technology*)

## **A Real-Time Low-Latency Hardware Light-Field Renderer**

Matthew J.P. Regan (*Interval Research Corporation*)

Gavin S.P. Miller (*Interval Research Corporation*)

Steven M. Rubin (*Interval Research Corporation*)

Chris Kogelnik (*Interval Research Corporation*)

## **LDI Tree: A Hierarchical Representation for Image-Based Rendering**

Chun-Fa Chang (*University of North Carolina at Chapel Hill*)

Gary Bishop (*University of North Carolina at Chapel Hill*)

Anselmo Lastra (*University of North Carolina at Chapel Hill*)

## **Rendering with Concentric Mosaics**

Heung-Yeung Shum (*Microsoft Research*)

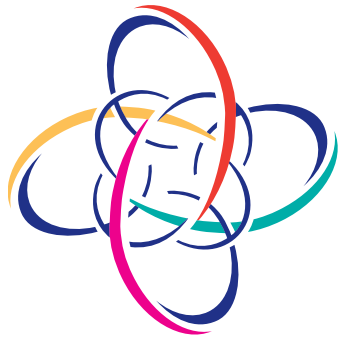
Li-Wei He (*Microsoft Research*)

## **Automatic Image Placement to Provide a Guaranteed Frame Rate**

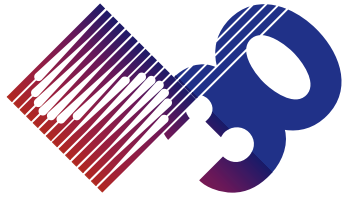
Daniel G. Aliaga (*Bell Labs*)

Anselmo Lastra (*University of North Carolina at Chapel Hill*)





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# Meshes & Morphing

Chair: Hugues Hoppe (*Microsoft Research*)

## **Implicit Fairing of Irregular Meshes Using Diffusion and Curvature Flow**

Mathieu Desbrun (*California Institute of Technology*)

Mark Meyer (*California Institute of Technology*)

Peter Schröder (*California Institute of Technology*)

Alan H. Barr (*California Institute of Technology*)

## **Multiresolution Signal Processing for Meshes**

Igor Guskov (*Princeton University*)

Wim Sweldens (*Bell Labs*)

Peter Schröder (*California Institute of Technology*)

## **Shape Transformation Using Variational Implicit Functions**

Greg Turk (*Georgia Institute of Technology*)

James O'Brien (*Georgia Institute of Technology*)

## **Multiresolution Mesh Morphing**

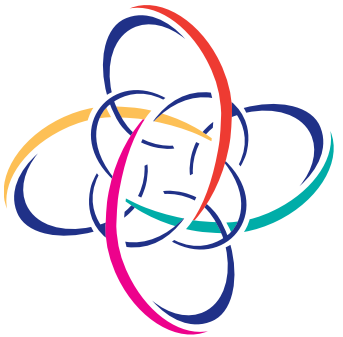
Aaron Lee (*Princeton University*)

David Dobkin (*Princeton University*)

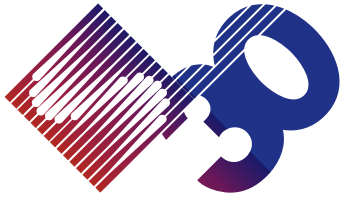
Wim Sweldens (*Bell Labs*)

Peter Schröder (*California Institute of Technology*)





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# Virtual Reality

Chair: Randy Pausch (*Carnegie Mellon University*)

## **Balancing Fusion, Image Depth and Distortion in Stereoscopic Head-Tracked Displays**

Zachary Wartell (*Georgia Institute of Technology*)

Larry F. Hodges (*Georgia Institute of Technology*)

William Ribarsky (*Georgia Institute of Technology*)

## **Walking > Walking-in-Place > Flying, in Virtual Environments**

Martin Usoh (*University College London*)

Kevin Arthur (*University of North Carolina at Chapel Hill*)

Mary C. Whitton (*University of North Carolina at Chapel Hill*)

Rui Bastos (*University of North Carolina at Chapel Hill*)

Anthony Steed (*University College London*)

Mel Slater (*University College London*)

Frederick P. Brooks, Jr. (*University of North Carolina at Chapel Hill*)

## **Real-Time Acoustic Modeling for Distributed Virtual Environments**

Thomas A. Funkhouser (*Princeton University*)

Patrick Min (*Princeton University*)

Ingrid Carlbom (*Bell Labs*)

## **Creating a Live Broadcast from a Virtual Environment**

Chris Greenhalgh (*University of Nottingham*)

Steve Benford (*University of Nottingham*)

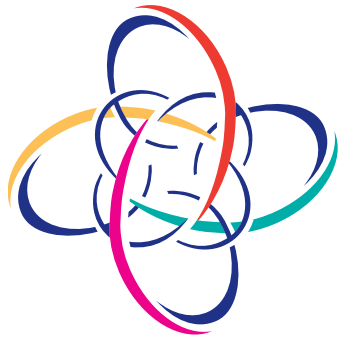
Ian Taylor (*University of Nottingham*)

John Bowers (*Royal Institute of Technology*)

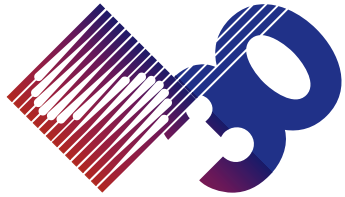
Graham Walker (*BT Laboratories*)

John Wyver (*Illuminations Television*)





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# Interactive Techniques

Chair: Ken Perlin (*New York University*)

## **Emancipated Pixels: Real-World Graphics in the Luminous Room**

John Underkoffler (*Massachusetts Institute of Technology*)

Brygg Ullmer (*Massachusetts Institute of Technology*)

Hiroshi Ishii (*Massachusetts Institute of Technology*)

## **Skin: A Constructive Approach to Modeling Free-Form Shapes**

Lee Markosian (*Brown University*)

Jonathan M. Cohen (*Brown University*)

Thomas Crulli (*Brown University*)

John F. Hughes (*Brown University*)

## **Six Degrees-of-Freedom Haptic Rendering Using Voxel Sampling**

William A. McNeely (*The Boeing Company*)

Kevin D. Puterbaugh (*The Boeing Company*)

James J. Troy (*The Boeing Company*)

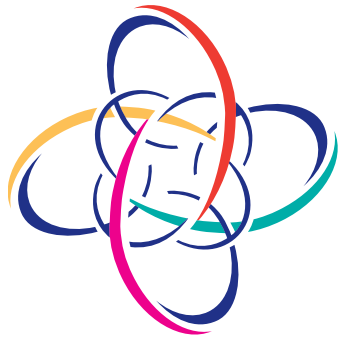
## **Teddy: A Sketching Interface for 3D Freeform Design**

Takeo Igarashi (*University of Tokyo*)

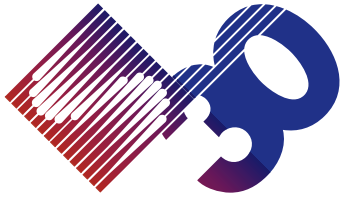
Satoshi Matsuoka (*Tokyo Institute of Technology*)

Hidehiko Tanaka (*University of Tokyo*)





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# Imaginative Rendering

Chair: Adam Finkelstein (*Princeton University*)

## Digital Facial Engraving

Victor Ostromoukhov (*EPFL*)

## Multi-Color and Artistic Dithering

Victor Ostromoukhov (*EPFL*)

Roger D. Hersch (*EPFL*)

## Art-Based Rendering of Fur, Grass, and Trees

Michael A. Kowalski (*Brown University*)

Lee Markosian (*Brown University*)

J. D. Northrup (*Brown University*)

Lubomir Bourdev (*Adobe Systems, Inc.*)

Ronen Barzel (*Pixar Animation Studios*)

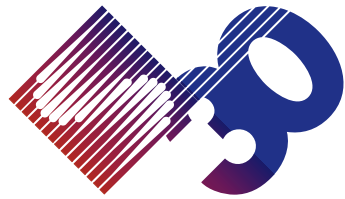
Loring S. Holden (*Brown University*)

John F. Hughes (*Brown University*)

## View-Dependent Geometry

Paul Rademacher (*University of North Carolina at Chapel Hill*)





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Kurt Akeley (*Silicon Graphics, Inc.*)  
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Kellogg Booth (*The University of British Columbia*)  
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Rob Cook (*Pixar*)  
Andries van Dam (*Brown University*)  
Tony DeRose (*Pixar Animation Studios*)  
David Dobkin (*Princeton University*)  
George Drettakis (*iMAGIS/GRAVIR*)  
Eugene Fiume (*Alias/Wavefront - University of Toronto*)  
Adam Finkelstein (*Princeton University*)  
Henry Fuchs (*University of North Carolina*)  
Markus Gross (*Swiss Federal Institute of Technology*)  
Chuck Hansen (*University of Utah*)  
Hugues Hoppe (*Microsoft*)  
Michal Irani (*Dept. of Applied Math and Computer Science*)  
Thomas Jensen (*think3*)  
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Alyn Rockwood (*Power Take-Off Software, Inc.*)  
Pete Shirley (*University of Utah*)  
Mel Slater (*University College London*)  
Greg Turk (*Georgia Institute of Technology*)  
Luiz Velho (*Instituto de Matematica Pura e Aplicada*)

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James Foley (*ITA - Mitsubishi Electric Information Technology Center America*)  
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Jim Kajiya (*Microsoft Corporation*)  
Gary Watkins (*Evans & Sutherland*)  
Turner Whitted (*Microsoft Corporation*)

