ACM SIGGRAPH VIDEO REVIEW

ISSUE 36

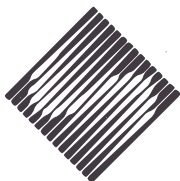### SIGGRAPH '87 Film & Video Show

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Video Review

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SIGGRAPH '87
Film & Video Show

1. Stanley and Stella: Breaking the Ice

Contact:
Michael Wahrman
Symbolics Graphics
Division
1401 Westwood Blvd., 3rd
Floor Los Angeles, CA
90024
(213)478-0681

Summary:
The motion of the flocks of birds and schools of fish are based on Symbolics' experimental behavioral simulation/animation programs, developed by Craig W. Reynolds. Technical aspects are discussed in the SIGGRAPH technical paper, "Flocks, Herds, and Schools: A Distributed Behavioral Model."

Hardware:
Symbolics 3600 Workstations

Software:
Symbolics Animation Software

2. Balloon Guy

Contact:
Chris Wedge,OSU

Advanced Computing Center for the Arts and Design
1501 Neil Avenue
Columbus, OH 43201
(614)292-3416

Summary:

A rubber Balloon Guy is out for a stroll in the clouds. His motion has been generated with flexible dynamics simulation software and spline interpolation software developed by the Ohio State University Computer Graphics Research Group.

Credits:

Hardware support by J. Campbell, and software/ system integration by J. Donkin and S. Dyer.

Hardware:
Animated on a Convex C-1

Software:
OSU ACCAD

3. Red's Dream (excerpt)

Contact:
Ralph J. Guggenheim
Pixar
3240 Kerner Blvd.
San Rafael, CA 94901
(415)258-8100

Summary:
What do unicycles dream about on rainy nights?

Hardware:
Created on the Pixar Image Computer, Dunn Instruments, and a 635 Compactcolor Camera

Software:
ChapReyes and Volume Rendering software.

4. Fabricated Rhythm

Contact:
Gerald Weil
AT&T Bell Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974
(201)582-7833

Summary:
This piece illustrates research in the area of animating cloth. Pieces of cloth with varying stiffness and elasticity are blown in the wind, draped over furniture, and formed into clothing to the rhythm of the music.

Software:
Fabricated Rhythm was created with software by J. Weil and D. Mitchell.

5. Mental Images

Contact:
Rolf Herkin
Mental Images GmbH & Co. KG
Rankestrasse 9
West Berlin 30
Germany 1000
030/882 10 88

Summary:
mental images is a visual journey that begins on Berlin's underground. The journey continues along the Berlin Wall on a rainy night and ends with a surprise in a strange room next to the border.

Credits:
Software support by A.C. Dirksen, C. Hege, R. Hoedicke and W. Krueger.

Hardware:
Produced with a Silicon Graphics 3030, a GEI Celerity C1260, an Eikonix Camera (2K x 2K), an Ampex VPR6 VTR, and a Dunn 8000 Film Recorder with DEC11/73 file server.

Software:
Wavefront and programs developed by Mental Images

Advanced Computing Center for the Arts & Design, Ohio State University
1501 Neil Avenue
Columbus, OH 43201
(614)292-3416

Summary:
Using a discrete simulation technique to model the physical properties of objects and interactions with surrounding environments, realistic motion of a wide variety of flexible objects can be automatically generated. Preliminary motion tests of paper, cloth, flexible spheres, rods and cables are demonstrated using this technique.

Hardware:
Created on a Symbolics 3670

Software:
Written in common LISP by B. Guenter, and S. Amkraut.

6. Cooking with Kurt

Contact:
Kurt Fleischer
Schlumberger Palo Alto Research
3340 Hillview Avenue
Palo Alto, CA 94304
(415)496-4600

7. The Conquest of Form

Contact:
David Haumann

8. Sun and Shade

Contact:
Nelson Max
Lawrence Livermore National Lab
P.O. Box 808
Livermore, CA 94550
(415)422-4074

Summary:
This Film shows changing lighting effects on three trees, with leaves fluttering in the breeze as clouds obscure the sun. Moving shadows on the ground include the penumbra from the sun and the effects of illumination from

the sky and clouds.
Hardware:
Created with the Cray XMP and Dicomed D48C.

Software:
Computed from the point-source shadows by an FFT-based convolution with a combined sun and sky brightness raster.

9. Moon

Contact:
Nelson Max
Lawrence Livermore
National Lab
P.O. Box 808
Livermore, CA 94550
(415)422-4074

Summary:
This Film shows shadows from simulated craters on the moon. Craters are defined by a texture map of bump heights and shaded by Jim Blinn's normal perturbation method. Shadows are from a table of angles to the horizon in eight compass directions. This horizon map table is computed from the bump heights. Each frame took 2 1/2 seconds to compute on the Cray XMP.

10. C.G. Town

Contact:
Eihachiro Nakamae
Hiroshima University
Electric Machinery Lab
Saijo
Higashi-hiroshima
Japan 724
0824 22 7111

Summary:
This work represents the lighting effects of headlights, street lamps, and sky light under cloudy and clear weather, and also represents the motion of clouds when the weather changes to clear. Clouds and trees mapped onto the transparent planes are reflected in the windows of buildings. To represent these effects mini-processors are used, the program consists of many modules and employs a montage method.

Produced by:
Wayne Lytle

Hardware:
Produced with TOSBAC Data System 600/80 and Graphica M-508.

11. Agusta A-129 Real-Time Simulation

Contact:
Ken Kilner
General Electric Co.
1800 Volusia Avenue
Daytona Beach, FL 32015
(904)258-2906

Summary:
This piece is one of a series of short video presentations de-

signed to demonstrate the capability of G.E.'s COMPUSCENE IV Visual Simulation System. This video shows a real-time simulation of the Agusta A-129 Helicopter moving through high-detail terrain.

12. Molecular Dynamics of Solutions

Contact:
William L. Luken
IBM
Neighborhood Road
B/963 - MS/428
Kingston, NY 12401
(914)385-0429

Summary:
This computer graphics animation represents the results of molecular dynamics simulations of liquids and solutions. The first example presents a simulation of a 0.43 molar solution of lithium fromate. The second example is based on a simulation of z-DNA in water.

Molecular dynamics calculations employed 1851 water molecules surrounding one turn of z-DNA. The animations show the z-DNA alone and with selected subsets of the water molecules.

Hardware:
Hardware used includes IBM 308x, 3090 (ICAP Configuration), and a TARGA Frame Buffer.

Software:

Produced with in-house molecular dynamics and ray-tracing codes with parallel processing.

13. Boom Boom Boom

Contact:
Gerald Weil
AT&T Bell Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974
(201)582-7833

Summary:
This animation is the product of a system for designing computer-generated pyrotechnics. A combination of particle systems and two-dimensional image filtering are used to create the images. Each individual sound was placed to digitally trigger against the video picture in this final sequence.

14. Curtain

Contact:
David Haumann
Advanced Computing Center for the Arts & Design, Ohio State University
1501 Neil Avenue
Columbus, OH 43201
(614)292-3416

Summary:
A curtain lazily flutters in the breeze.

15. Sign of the Times

Contact:
Clayton E. Whitney
Mix Efex/Pacific Video
800 North Cole Avenue
Hollywood, CA 90038
(213)460-4875

Summary:
The lyrics of Sign of the Times by Prince are computer animated using 2-D characters in a 3-D universe.

Hardware:
Animation produced on a Bosch FGS 4000.

16. One Minute Past Forever

Contact:
Suguru Sato
NHK Osaka
3 43, Banba-cho,
Higashi-ku Osaka
Japan 540
06 941 0431

Summary:
(no description provided)

17. Computer Graphics and Animation Group

Contact:
David Zeltzer
MIT Media Lab
20 Ames Street
Cambridge, MA 02139
(617)293-5995

Summary:
Locomotion of the "creatures" in this animated sequence is computed automatically. They can adjust their crawling, walking and "pronking" to adapt to uneven terrains. The "inch worms" use automatic path planning to compute foot placement down the stairs, which may vary in rise and run. Inverse kinematics to control their leg motions are computed for the pronkers to simulate their bounding movements.

Hardware:
Created with Symbolics 3600 Lisp with 24-bit color.

Software:
3D toolkit by K. Sims and J. Salem of Thinking Machines Corp.; inverse kinematics, dynamics and gait control by K. Sims.

18. Jo, Beauberg and CiO

Contact:
Thomson Digital Image
22 rue Hegesippe Moreau
Paris, France 75018
1/43 87 58 58

Summary:
JO: Simulation for the film for the candidacy of the City of Par-. is for the 1992 Olympic Games.

BEAUBERG: Promotional film for the Tenth Anniversary of the Georges Pompidou Museum.

CIO: Olympic rings logo animation for the International Olympic Committee.

Hardware:
Animation created on IRIS 3130 and a PC-based system from Logigraphics

Software:
TDI Explore software.

19. TDI Science & Industry

Contact:
Thomson Digital Image
22 rue Hegesippe Moreau
Paris, France 75018
1/43 87 58 58

Summary:
LE STADE: Simulation of the Olympic Stadium Project Film for the 1992 Olympic Games.

LE CORBUSIER: Architectural Simulation scenes of Le Corbusier's City of three million inhabitants, for the Le Corbusier Film (centennial of Le Corbusier's birth).

Centre d'Animatique, National Film Board of Canada

Hardware:
Produced on IRIS 3130 and a PC- based system from Logigraphics.

Software:
TDI Explore software

20. Syntex Opener

Contact:
Joanne P. Culver
LAZERUS
2821 Ninth Street
Berkeley, CA 94710
(415)845-1237

Summary:
Created for the SYNTEX Chemical Company, this corporate identity was realized on the LAZERUS 432 which that allows shaded true-color models and up to 32 lights moved and altered in real-time. Final sequences composited with the LAZERUS 432 digital matting. Models of up to 60,000 polygons per frame were interactively Phong-shaded, texture-mapped, positioned and lighted.

Hardware:
Created on a LAZERUS 432

Software:
RADIANT software

21. JCGL Demo for SIGGRAPH '87

Contact:
Junichi Motoi
Japan Computer Graphics

605 E. Springfield Ave.
152 Computing Applications Building
Champaign, IL 61820
(217) 244-2003

Summary:

Project Sci-Vi is a demo tape of the work produced by the Scientific Visualization Program of the National Center for Supercomputing Applications at the University of Illinois. The program was established to aid scientists in visualizing their data to decrease the amount of time and effort required to analyze large datasets.

Hardware:

Wavefront Technologies and in-house software were used to produce work on and view images on Raster Tech framebuffers. Final rendering is performed on an Alliant F/X-80 and recorded on 3/4" videotape via an Abekas A62 digital video store.

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