FIFTH ANNUAL CONFERENCE ON COMPUTER GRAPHICS AND INTERACTIVE TECHNIQUES

Sponsored by

SIGGRAPH

ACM'S SPECIAL INTEREST GROUP ON COMPUTER GRAPHICS

AUGUST 23-25, 1978

HYATT-REGENCY ATLANTA

PROGRAM & EXHIBITS

TECHNICAL PROGRAM AND SPECIAL EVENTS

Wednesday, August 23, 1978

8:30 Lancaster — **Welcome** — S. H. Chasen, Lockheed Ga. Co.

8:45-10:45 Lancaster — **Raster Graphics I** — J. F. Blinn, JPL/CIT, Pasadena

The Use of Grayscale for Improved Raster Display of Vectors and Characters
by F. C. Crow, Univ. of Texas Austin

A Hidden-Surface Algorithm with Anti-Aliasing
by E. Catmull, N.Y. Inst. of Tech., Old Westbury, N.Y.

Color Gamut Transform Pairs
by A. R. Smith, N.Y. Inst. of Tech., Old Westbury, N.Y.

Color Spaces for Computer Graphics
by G. H. Joblove and D. Greenberg, Cornell Univ., Ithaca, N.Y.

A Scan Line Algorithm for Computer Display of Curved Surfaces
by T. Whitted, N.C. Univ., Raleigh, N.C.

A Scan Line Algorithm for Displaying Parametrically Defined Surfaces
by J. F. Blinn, JPL/CIT, Pasadena

8:50-10:45 Tudor — **Industry Users—Experiences, Requirements, and Management (Panel)**
(H. Selling, Ford Motor Co. — Moderator)

Mike Smith, Graphics Gp. Northrup Airc., Hawthorne, Ca.
Erbie Moak (Member of Edison Electric Institute) Southern Co., Atlanta, Ga.
Rex L. Smith, Structural Dynamics Research Corp., Cincinnati, Ohio
Mary Caneian, Clifford Stewart Associates, Boston, Mass.

8:45-4:45 Pheonix — ***Atlanta Showcase Spectacular*** (Will be shown each hour beginning at 8:45)

10:45-11:00 — ***Break***

11:00-12:20 Lancaster — **Languages and Systems** — J. D. Dill, Gen. Motors, Res. Lab, Warren, Mich.

Towards the Design of an Intrinsically Graphical Language
by R. P. Futrelle and G. Barta, Univ. of Ill., Urbana, Ill.

Basic Zgrass -- A Sophisticated Graphics Language for the Bally Home Library Computer
by T. DeFanti, Univ. of Ill., at Chicago Circle
by J. Fenton, Dave Nutting Assoc., Arlington Heights, Ill., and N. Donato, Univ. of Ill. at Chicago Circle

Definition and Use of Higher-Level Graphics Input Tools
by J. van den Bos, Univ. of Nijmegen, Nijmegen, The Netherlands

A Graphics-Based Programming-Support System
by H. P. Frei, N. D. Weller, and R. Williams, IBM, Res. Div., San Jose, Calif

12:30-2:00 Main Lobby — ***Deli-Luncheon and Swim Suit Fashion Show***

2:00-5:00 Tudor — **Poster Session** — H. W. Moellering - Ohio St. Univ., Columbus

A Microcomputer Based System for Automated Pattern Digitization and Editing
by T. J. Pavliscak, Union Special Corp., Chicago, and G. W. Stowell and M. J. Bailey, Purdue Univ., W. Lafayette, Ind.

GAIN: An Interactive Program for Teaching Interactive Computer Graphics Programming
by T. Towle and T. Defanti, Univ. of Ill. at Chicago Circle

The Interactive Digitizing of Polygons and the Processing of Polygons in a Relational Database
by J. F. McIntosh, Univ. of Mich., Ann Arbor

A Fixed Grid Curve Representation for Efficient Processing
by W. Burton, Mich. Tech. Univ., Houghton, Mich.

3-D Graphics DIsplay of Discrete Spatial Data by Prism Maps
by Wm. R. Franklin and H. R. Lewis, Harvard Univ., Cambridge, Mass.

A High Performance Graphics System for the CRAY-1
by R. H. Ewald and L. D. Maas, Los Alamos Scientific Lab., Los Alamos, N.M.

Computer Graphics in Support of Space Shuttle Simulation
by R. Weinberg, Lockheed Electronics Co., Inc., Houston, Texas

System Design and Implementation of BGRAF2
by A. A. Kaufman, Ben-Gurion Univ. of the Negev, Beer Sheva, Israel

Application of Shape-Preserving Spline Interpolation to Interactive Editing of Photogrammetric Data
by L. E. Deimel, Jr., C. L. Doss, II, R. J. Fornaro, D. F. McAllister, and J. A. Roulier, N. C. St. Univ., Raleigh

The Effect of System Response Time on Interactive Computer Aided Problem Solving
by T. Goodman and R. Spence, Imperial College, London, England

A Sensor Simulation and Animation System
by T. Zimmerlin, J. Stanley, and W. Stone, Technology Service Corp., Santa Monica, Calif.

How to Color in a Coloring Book
by H. Lieberman, M.I.T., Cambridge, Mass.

A Microprocessor Display Controller for Combining Refresh and Storage Tube Graphics
by G. Satterfield, F. Rodriguez, and D. F. Rogers, U.S. Naval Academy, Annapolis, Maryland

A Fast and Economic Scan-to-Line-Conversion Algorithm
by Gerd Woetzel, Gesellschaft fur Mathematik and Datenverarbeitung (GMD St. Augustin 1, West Germany

Thursday, August 24, 1978

8:30-5:00 Tudor — **Poster Session (Cont'd.)**

8:30-11:00 Lancaster — **Pattern Recognition and Image, Processing Techniques** — R. M. Haralick, Univ. of Kansas, Lawrence

Algorithms for Image/Vector Conversion
by A. Rosenfeld, Univ. of Maryland, College Park

Data Structures For Picture Processing
by L. G. Shapiro, Kansas St. Univ., Manhattan

Computer Generation of Texture Using a Syntactic Approach
by K. S. Fu, Purdue Univ., West Lafayette, Inc., and S. Y. Lu, Syracuse Univ., Syracuse, N.Y.

Three-Dimensional Representation for Computer Graphics and Computer Vision
by N. Badler and R. Bajcsy, Univ. of Pennsylvania, Philadelphia

Filling Algorithms for Raster Graphics
by T. Pavlidis, Princeton Univ., Princeton, N. J.

11:00-11:15 — ***Break***

11:15-12:00 Lancaster — **Display Systems** — Carl Machover, Machover Assoc. White Plains, N.Y.

On Display of Space Filling Atomic Models in Real-Time
by J. Staudhammer, N.C. St. Univ., Raleigh

Hidden Line Removal for Vector Graphics
by M. Wein, P. Tanner, G. Bechthold, and N. Burtnyk, National Res. Council, Ottawa, Canada

A Chip for Low-Cost Raster-Scan Graphics Display
by P. Matherat, E. N. Superieure, Paris, France

12:00-1:15 — ***SIGGRAPH Executive Board & Business Meeting (Open to all attendees)***

1:15-2:30 Lancaster — **Applications I** — Duane Marble, St. Univ. of N.Y., Buffalo

Conversion of Complex Contour Line Definitions into Polygonal Element Mosaics
by H. Christiansen and T. W. Sederberg, Brigham Young Univ., Provo, Utah

Comparing Figures by Regression
by W. R. Tobler, Univ. of Calif., Santa Barbara

Computer Generated Images for Medical Applications
by A. Sunguroff and D. Greenberg, Cornell Univ., Ithaca, N.Y.

Spatial Management of Information
by W. C. Donelson, M.I.T., Cambridge, Mass.

2:30-2:45 — ***Break***

2:45-5:15 Lancaster — **Graphics Usability: Designing for the User** — or Victor Wallace, Univ. of Kansas, Lawrence, and J. Bennett, IBM Res. Lab. San Jose, Calif.

One-Point Touch Input of Vector Information for Computer Displays
by C. F. Herot, Computer Corp. of Amer., Cambridge, Mass., and G. Weinzapfel, M.I.T., Cambridge, Mass.

Interaction with a Color Computer Graphics System for Archaeological Sites
by N. I. Badler, Univ. of Pennsylvania, Philadelphia, and V. R. Badler, Univ. of Toronto, Canada

Making Nested Rotations Convenient for the User
by E. G. Britton, J. S. Lipscomb, and M. E. Pique, Univ. of N. C., Chapel Hill

User Performance Under Several Automated Approaches to Changing Displayed Maps
by F. L. Moses and R. E. Maisano, U. S. Army Res. Inst. Alexandria, Va.

6:30-8:00 Ivy Hall — ***Reception featuring Dixieland Quartet from Ray Block Orchestra***

8:30-10:30 Lancaster — ***Show and Tell - (Tom Defanti) a special session of stand-alone visual media and preview of materials SIGGRAPH is considering for publication on videotape and microfiche. Some surprises are in store. Participation and feedback by attendees is encouraged.***

Wednesday (Cont'd)

TextureTile Considerations for Raster Graphics
by W. Dungan, Jr., A. Stenger, and G. Sutty, Technology Service Corp., Santa Monica, Calif.

6:00-7:30 Ivy Hall — ***Wine and Cheese Tasting Party*** *(Sponsored by Control Data Corp.)*

8:00-10:00 Lancaster — ***Vendor Forum — A presentation of the technical aspects to vendor hardware and software (Dick Mueller, Coordinator)***

Friday, August 25, 1978

8:15-10:30 Lancaster — **Geometric Modeling** — Richard Riesenfeld, Univ. of Utah, Salt Lake City, and A. R. Forest, Univ. of East Anglia, Norwich, England

Presentation of an overview of geometric modeling
by David Evans, Evans (Southerland Comp. Corp.)

Characterizing Non-Ideal Shapes in Terms of Dimensions and Tolerances
by R. Hillyard and I. C. Braid, Univ. of Cambridge, Cambridge, Great Britain

Object Models for Computer Aided Design: An Overview
by R. J. Athay, Colo. St. Univ., Fort Collins

Clipping Using Homogeneous Coordinates
by J. F. Blinn, JPL/CIT, Pasadena, Calif. and M. E. Newell, XEROX/PARC, Palo Alto, Calif.

10:00-10:15 — ***Break***

10:15-11:15 Lancaster — **Geometric Modeling Continued.**

On Storing and Changing Shape Information
by I. C. Braid, Univ. of Cambridge, Cambridge, Great Britain

The PADL-1.0/2 System for Defining and Displaying Solid Objects
by H. Voelcker, A. Requicha, E. Hartquist, W. Fisher, J. Metzger, R. Rilove, N. Birrell, W. Hunt, G. Armstrong, T. Check, R. Moote, and J. McSweeney, The Univ. of Rochester, N.Y.

A Unified Approach to Geometric Modelling
by A. R. Forrest, Univ. of East Anglia, Norwich, England

12:30-2:00 Tudor — **Graphics Packages** — B. Herzog, Univ. of Colo., Boulder

TIGS An Overview of the Terminal Independent Graphics System
by R. L. Heilman, Battelle Columbus Labs, Columbus, Ohio and J. M. Marchant, Control Data Corp., Arden Hills, Minn.

Core Standard Graphic Package for the VGI 3400
by K. Levine, Vector Gen., Inc., Woodland Hills, Calif.

DIGRAF - A FORTRAN Implementation of the Proposed GSPC Standard
by J. R. Warner, M. A. Polisher, and R. N. Kopolow, Univ. of Colo. Computer Center, Boulder, Colo.

An Implementation of the ACM/SIGGRAPH Proposed Graphics Standard in a Multisystem Environment
by R. G. Kellner, T. N. Reed, and A. V. Solem, Los Alamos Scientific Lab., Los Alamos, New Mexico

A Microprocessor-Assisted Graphics System
by G. Hamlin, Jr., Los Alamos Scientific Lab, Los Alamos, N. M., and T. Crockett, NASA Langley Res. Center, Hampton, Va.

A Flexible, High Performance Interactive Graphics System
by R. J. Hubbold and P. J. Bramhall, Univ. of Manchester, Manchester, England

12:30-2:00 Lancaster — **Raster Graphics II** — D. Greenberg, Cornell Univ., Ithaca, N.Y.

Casting Curved Shadows on Curved Surfaces
by L. Williams, N.Y. Inst. of Tech., Old Westbury, N.Y.

Polygon Shadow Generation
by P. Atheton, K. Weiler, D. Greenberg, Cornell Univ., Ithaca, N.Y.

Spherical Shading
by T. K. Porter, National Inst. of Health, Bethesda, Maryland

Simulation of Wrinkled Surfaces
by J. F. Blinn, JPL/CIT, Pasadena, Calif.

2:00-2:10 — ***Break***

2:10-3:30 Lancaster — **Applications II** — David Loendorf, ICASE, NASA Langley Res. Center, Hampton, Va.

A Generalized Graphics Preprocessor for Two-Dimensional Finite Element Analysis
by R. Haber, M. Shephard, J. Abel, R. Gallagher, and D. Greenberg, Cornell Univ., Ithaca, N.Y.

An Interactive Graphics Application to Advanced Aircraft Design
by D. L. Bouquet, Lockheed-Georgia Co., Marietta, Ga.

A System for Interactive Modeling of Physical Curved Surface Objects
by J. N. England, N.C. St. Univ., Raleigh

The Development of Three-Dimensional Spatial Modeling Techniques for the Construction Planning of Nuclear Power Plants
by H. J. Borkin, J. F. McIntosh, and J. A. Turner, The Univ. of Mich., Ann Arbor

3:30-3:40 — ***Break***

3:40-4:40 Lancaster — **Animation** — Charles Csuri, Ohio State Univ., Columbus, Ohio

The Problems of Computer-Assisted Animation
by E. Catmull, N. Y. Inst. of Tech., Old Westbury, N.Y.

NUDES 2: A Numeric Utility Displaying Ellipsoid Solids, Version 2
by D. Herbison-Evans, Univ. of Sydney, Sydney, Australia

Dynamic Graphics Using Quasi Parallelism
by K. M. Kahn and C. Hewitt, M.I.T., Cambridge, Mass.

A.C.M. SIG GRAPH
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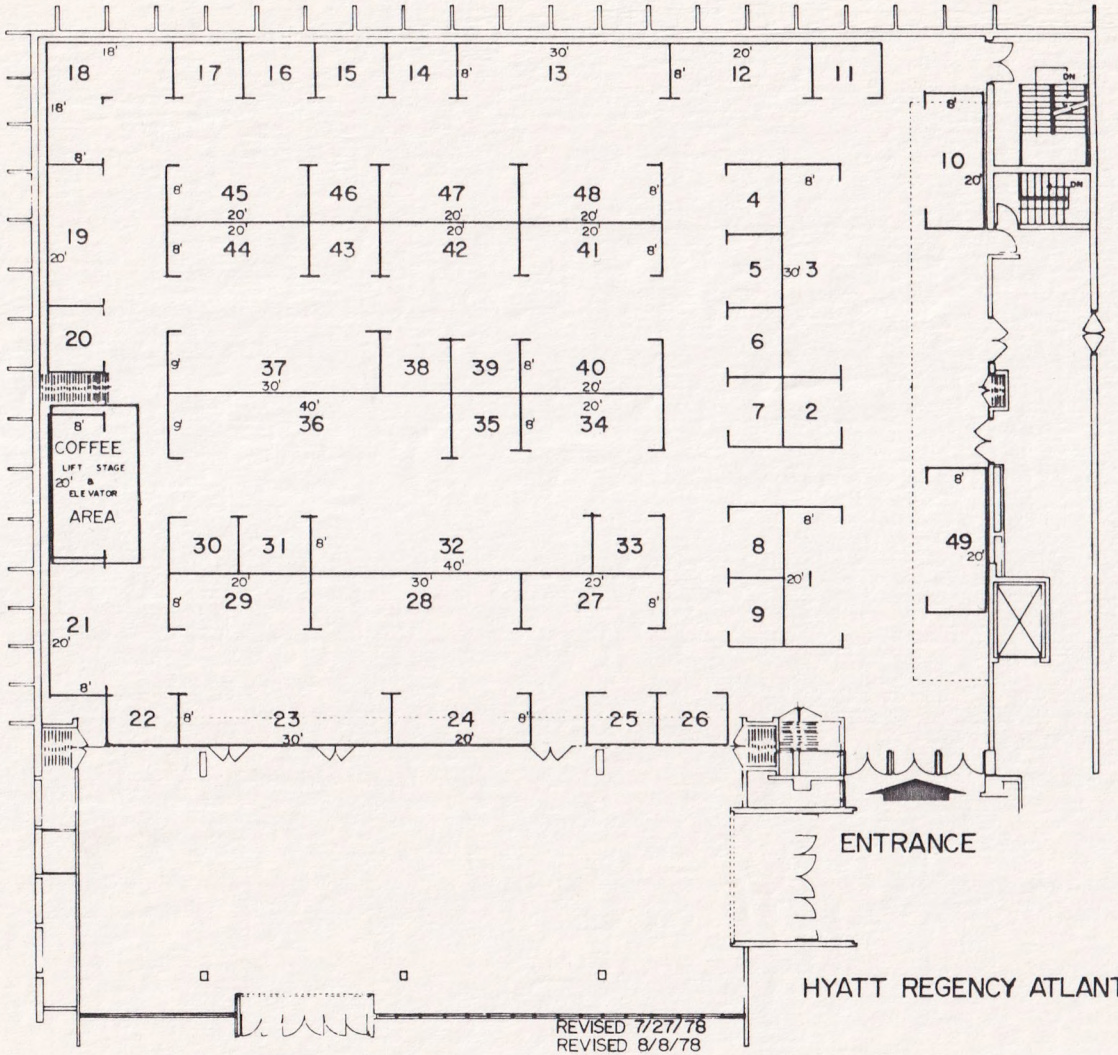

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42	TALOS SYSTEMS
15-16	TEKTRONIX, INC.
26	THREE RIVERS COMPUTER COMPANY
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EXHIBITS

SIGGRAPH '78 FEATURES AN EXTENSIVE EXHIBITION OF GRAPHIC SYSTEMS.

EXHIBITION HOURS: 10 a.m.—6 p.m. Wednesday & Thursday 23-24 August
9 a.m.—Noon, Friday, 25 August

COMPANY	EXHIBIT NO.
Adage, Inc.	44
Altek Corporation	38
Applicon, Inc.	27
Aydin Controls	43
Calcomp, Inc.	47
Calma	18
Celco	48
Child Incorporated	22
Chromatics, Inc.	15
Computervision Corp.	36
Control Data Corporation	40
Datamart, Inc.	39
DeAnza Systems, Inc.	9
Dicomed Corporation	28
Evans & Sutherland	6
Genisco Technology Corp.	21
Gould, Inc.	1
Hewlett Packard	32
Houston Instrument	4
IBM Corporation	37
Integrated Software Systems	11
Intelligent Systems Corp.	33

COMPANY	EXHIBIT NO.
Interpretation Systems, Inc.	7
Lektromedia	20
Logic Sciences	46
M & S Computing	23
Magnavox	25
Megatek	3
Princeton Electronic Products	24
Printronix	35
Productivity International, Inc.	8
Ramtek Corporation	12
Spatial Data Systems	2
Summagraphics	19
Synercom Technology	41
Talos Systems, Inc.	42
Tektronix, Inc.	14
Three Rivers Computer Company	26
Varian Data Machines	45
Vector General	13
Versatec	29
Xerox Information Systems Corp.	10
Xynetics	34
Zeta Research, Inc.	5