CONFERENCE AT A GLANCE

PRELIMINARY PROGRAM

MORNING SESSIONS

WED JULY 20

APPLICATIONS — D. Kasik, Batelle Columbus Labs

"ECOSITE: An Application of Computer-Aided Design to the Composition of Landforms and Reclamation," R. Mallary, University of Massachusetts

"Three-Dimensional Computer Reconstruction and Display of Neuronal Structure," J. Mazziotta, B. Hamilton and H. K. Huang, National Biomedical Research Foundation, Georgetown University Medical Center

"Graphical Pre- and Post-Processors for 2-Dimensional Finite Element Method Programs," F. T. Tracy, Department of the Army, Waterways Experiment Station

"CASS - Computer Assisted Stereotaxic Surgery," P. A. Hawrylyshyn, R. R. Tasker and L. W. Organ, University of Toronto

GRAPHIC LANGUAGES — T. Lucido, Ohio State University

"Association of Graphic Images and Dynamic Attributes," A. Kaufman and S. Bergman, Ben-Gurion University

"Language for a Design Information System," C. M. Eastman, Carnegie-Mellon University

VISUAL DYNAMICS

Opening session remarks by Stephen Levine, General Conference Chairperson, Lawrence Livermore Laboratory

THURS JULY 21

GRAPHICS STANDARDS REPORT — B. Herzog, University of Colorado, and R. Dunn, U. S. Army Electronics Command

A particularly important feature of SIGGRAPH 77 will be the presentation of the first report of the SIGGRAPH Graphics Standards Planning Committee. Since the committee was reactivated at SIGGRAPH 76, many computer graphics professionals have participated in numerous meetings and have contributed to the preparation of a substantial report, which will be distributed at SIGGRAPH as part of the conference proceedings. The report will include the following:

- A review and comparison of many popular packages for both plotting and interactive graphics.
- A discussion of the goals and limitations of standards, the conceptual view of graphics leading to recommendations for proposed graphics system standards, and a methodological view of standards.
- Recommendation for a proposed standard "Core System" graphics package which is meant to serve as the basis for plotting and interactive applications. It is expected that the Core will evolve into a national and international standard.
- A detailed discussion of the design alternatives considered and the reasons for the decisions made in formulating the Core System.

FRI JULY 22

GRAPHICS RESEARCH — D. Evans, Evans and Sutherland Computer Corp.

Panelists

K. Knowlton, Bell Laboratories
M. Newell, University of Utah
R. Shoup, Xerox Palo Alto Research Center
J. Warnock, Evans and Sutherland

DATA BASE GRAPHICS — R. Phillips, University of Michigan

"A Query Language for a Network Data Base with Graphical Entities," R. L. Phillips, University of Michigan

"GED-QUEL: A System for the Manipulation and Display of Geographic Data," M. Stonebraker and R. Berman, University of California, Berkeley

ALGORITHMS — R. Clark, Argonne National Laboratory

"Models of Light Reflection for Computer Synthesized Pictures," J. F. Blinn, University of Utah

"Line Tracking for Incremental Devices," R. A. Earnshaw, University of Leeds

"Raster-Scan Hidden Surface Algorithm Techniques," G. Hamlin and C. W. Gear, ICASE

"Hidden Surface Removal Using Polygon Area Sorting," K. Weiler and P. Atherton, Cornell University

"A Graph-Theoretic Real-Time Visible Surface Editing Technique," S. L. Tanimoto, University of Connecticut

"General Clipping on an Oblique Viewing Frustrum," R. F. Puk, Sandia Laboratories

"Optimal Surface Reconstruction from Planar Contours," H. Fuchs, S. P. Uselton and Z. M. Kedem, University of Texas at Dallas

LUNCH

POOLSIDE LUNCHEON
AND FASHION SHOW

RECENT DEVELOPMENTS IN RASTER SCAN GRAPHICS — W. Newman, Xerox Palo Alto Research Center

Panelists

E. Catmull, New York Institute of Technology
J. Maleson, University of Rochester
M. Newell, University of Utah
N. Szabo, Singer Simulation Products

BUSINESS — J. S. Potts, Social Security Adm.

"Interactive Graphics: An Aid to Health Planning and Decision Making," C. G. Willard, University of Minnesota

"Computer Graphics for Facilities Management," N. V. Renfrow, Cost, Planning and Management International, Inc.

"Interactive Analysis and Display of Tabular Data," W. H. Benson and B. Kitous, Lawrence Berkeley Laboratory

ANIMATION — C. Csuri, Ohio State University

"ANIMA II: A 3-D Color Animation System," R. J. Hackathorn, Ohio State University

"A Color Animation System Based on the Multi-plane Technique," M. Levoy, Cornell University

"Real-Time Playback in Animation Systems," M. J. Potel, University of Chicago

POSTER — T. Wright, NCAR and D. Weller, IBM

"The Buffalo Crime Mapping System: A Design Strategy for the Display and Analysis of Spacially Referenced Crime Data," K. Brassel, P. O. Hanson III and J. J. Utano, State University of New York at Buffalo

"TRANS — Use of Graphics in the Study of Transformations," L. Dror, E. Hefez and P. Nesher, University of Haifa

"An Interdisciplinary Laboratory for Graphics Research and Applications," D. P. Greenberg, Cornell University

"Techniques for the Display of Ocean Data on a Raster Driven Color CRT," L. E. McCleary, Dept. of the Navy, Naval Undersea Center

"A Practical Approach to Line Printer Graphics," J. R. Rumsey and R. S. Walker, Harris Corporation

"A Simple Approach to Computer Aided Milling with Interactive Graphics," S. G. Satterfield and F. Rodriquez, U. S. Naval Academy

"GPGS — A Device-independent General Purpose Graphic System for Stand-alone and Satellite Graphics," J. Van den Bos, Nijmegen University

"Moving, Computer-Generated Images via Integral Holography," D. L. Vickers, Lawrence Livermore Laboratory

"A FORTRAN IV Program for Enhanced Graphic Characters," N. M. Wolcott, National Bureau of Standards

"Machine Independent Metacode Translation," T. Wright, National Center for Atmospheric Research

3D INPUT TECHNIQUES — D. Greenberg, Cornell University

"An Interactive Computer Graphics Approach to Surface Representation," S. Wu, J. F. Abel and D. P. Greenberg, Cornell University

"Visual Interaction with Overhauser Curves and Surfaces," D. C. Anderson and J. A. Brewer, Purdue University

"A System for Sculpting 3-D Data," R. E. Parent, Ohio State University

CARTOGRAPHY — H. Moellering, Ohio State University

"Structuring Cartographic Data within a Digital Cartographic Data Base," D. T. Edson and G. Y. G. Lee, U. S. Dept. of Interior, Geological Survey

"The MIRAGE Program: Vector Graphics Approaches for Mapping Matrix Data," G. H. Dutton, Harvard University

"Automated Contour Mapping Using Triangular Element Data Structures and an Interpolant Over Each Irregular Triangular Domain," C. M. Gold, T. D. Charters and J. Ramsden, University of Alberta

TUTORIALS — D. Bergeron, University of New Hampshire

"A Homogeneous Formulation for Lines in 3 Space," J. F. Blinn, University of Utah

"Shadow Algorithms for Computer Graphics," F. C. Crow, University of Texas at Austin

EDUCATION — R. Puk, Sandia Laboratories

"Computer Art for Computer People - A Syllabus," G. C. Hertlein, California State University, Chico

"Automated Display Techniques for Linear Graphs," R. B. 'Maguire, University of Regina

LOW COST COMPUTER GRAPHICS — W. Etra, New School for Social Research

"Real-time Graphics in an Analog/Digital Graphics Habitat," T. DeFanti, University of Illinois

"Some Notes on Designing Inexpensive Computer Video Peripherals," L. Felsenstein, Loving Grace Cybernetics, Inc.

"What You Can Do With All This Stuff," L. Katz. Columbia University

"Color Graphics with Micro-computers: The Architecture of the Dazzler and Super-Dazzler," R. Melen, Cromemco, Inc.

"The Computer as a Compositional Tool for Video," W. Etra, New School for Social Research

"A Low Cost, High Quality Graphics Terminal," M. Fischer, Child, Inc.

"Chip Design Development for Low Cost Graphics," S. Beck

"The SOL Terminal Computer (Software for Videographics Systems)," S. Dompier, Processor Technology, Inc.

AFTERNOON SESSIONS

RECEPTION AND BARBEQUE

DINNER EVENING

MEDIA SPECTACULAR

WORKSHOPS JULY 18-19

Programmers! . . . System Analysts! . . . Project Managers! . . . Decision Makers!

Two concurrent tutorial workshops on computer graphics:

- Introduction to Computer Graphics
- Raster Scan Computer Graphics — an advanced course for those with some computer graphics background

are being offered prior to the actual conference for those interested in learning more about one of the fastest growing and most exciting sectors of computer technology.

INTRODUCTION TO COMPUTER GRAPHICS

Chm: Kellogg Booth, Univ. of Waterloo

Staff: Lansing Hatfield, Univ. of Calif., Davis
George Michael, Lawrence Livermore Laboratory
Richard Shoup, Xerox Palo Alto Research Center
Donald Vickers, Lawrence Livermore Laboratory
Marcelli Wein, National Research Council of Ottowa

- Computer graphics software
- Data structures
- Transformations
- Computer graphics hardware
- Commercial systems
- System configurations
- Display technologies
- Visual examples, applications, case studies
- Animation

RASTER SCAN COMPUTER GRAPHICS

Chm: Martin Newell, Univ. of Utah

Staff: James Blinn, Univ. of Utah
James Clark, Univ. of Calif., Santa Cruz
William Newman, Xerox Palo Alto Research Center

- Raster scan technology and devices
- Primitives and support software
- Rastering effects and cures
- Three-dimensional graphics
- Visible surface algorithms
- Lighting models
- Photographing computer graphics

Choose one of these exciting, intensive, informative tutorials. Additional highlights of these sessions include:

- Luncheons Monday and Tuesday, July 18 and 19
- Reception and dinner Monday, July 18
- Wine and Cheese Tasting event Tuesday night, July 19

CONFERENCE HIGHLIGHTS

LOW COST GRAPHICS . . . The professional and the hobbyist always want the best and the most for the least. Bill Etra of the New School for Social Research will host a session on inexpensive graphics hardware/software ($600-$6000) which promises to inform us how to achieve just that.

POSTER SESSION . . . A SIGGRAPH first, this session, organized by Tom Wright of NCAR and Dan Weller of IBM, gives the system designer a chance to demonstrate packages to interested individuals on a one-to-one basis, allows hands-on experience with the packages, and will hopefully promote software exchanges.

RASTER GRAPHICS—RECENT DEVELOPMENTS . . . This panel session, chaired by William Newman, Xerox PARC, will be a lively, highly informative presentation of current raster graphics research.

GRAPHICS STANDARDS REPORT . . . A SIGGRAPH Graphics Standards Planning Committee report will be presented by Bertram Herzog, Univ. of Colorado, and Robert Dunn, U. S. Army Electronics Command. The report will include a review of graphics packages, a conceptual view of graphics leading to recommendations for proposed graphics system standards, and a proposed standard "core system" graphics package.

FASHION SHOW & POOLSIDE LUNCH . . . Dine poolside at the Hyatt beneath swaying palms while Joe Scala of Syracuse Univ. stages a computer-assisted fashion show. These fashions use computer graphics, not only in fabric patterning, but, in some cases, to create the form of the clothing itself.

CLOSED CIRCUIT TELEVISION . . . A closed circuit television showing of computer-generated films and videotapes for late night viewing pleasure is being put together by Patsy Scala of CAST, Collaboration in Art, Science and Technology, Inc.

MEDIA SPECTACULAR . . . A Hollywood-style extravaganza, a potpourri of the best film and video footage both about computers and by computers, is currently being compiled by Tom DeFanti of the University of Illinois.

WINE & CHEESE TASTING . . . When told that California is having a drought, the Queen exclaimed, "Let them drink wine!" And so we shall, as one should not visit California without sampling the yields of a selected few of our local wineries. Plan to be on hand for the Tuesday evening bacchanal!

BARBEQUE . . . It's the traditional SIGGRAPH banquet in a not-so-traditional poolside setting. A reception and barbeque will be held poolside beneath the stars.

USERS' GROUP MEETING . . . DISSPLA and Vector General will be holding their annual users' group meetings in conjunction with this year's conference. DISSPLA's will be held Monday and Tuesday; Vector General's, Tuesday afternoon.