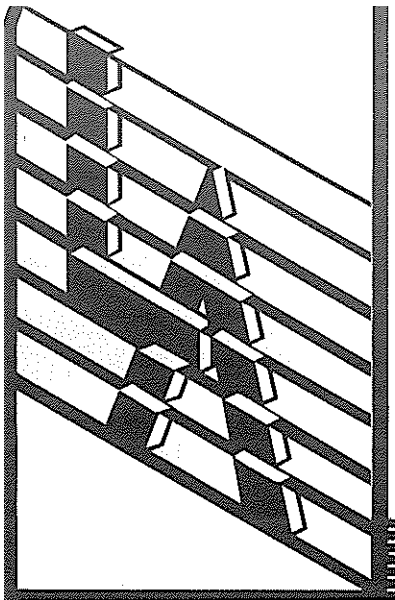


SIGGRAPH

Sept. 1984

Chairman - Molly Morgan - (213) 546-5355
Vice-Chairman - DEREK LEE - (714) 641-5193
Secretary - ERNIE SASAKI - (818) 577-2643
Treasurer - ED KRAMER - (213) 392-4301
Editor - RANDY RANDALL - (213) 394-7408

P.O. Box 90698, Worldway Postal Center, Los Angeles, CA 90009

SIGGRAPH '84 OVERVIEW

From July 23 to 27, Minneapolis, Minnesota was truly the Hollywood of the computer graphics world. The Eleventh Annual Conference on Computer Graphics and Interactive Techniques, more commonly referred to as SIGGRAPH '84, shined its spotlight on 20,000 software designers, animation artists, CG system creators, algorithm inventors, inspired students and everyone who could swing a ticket to the Twin Cities. Minneapolis, a city of surprising charm, served as a beautiful backdrop to the exciting developments within the hotels.

The Minnesota Museum of Science and Industry, in downtown St. Paul, contributed to the occasion by presenting a staggering display of 70 mm computer generated imagery in its Omnimax theater. The work of 16 computer animation artists from around the world illustrated the diversity and complexity of computer imagery in 1984.

Obviously it would be impossible to mention all of the latest gadgets, from over 200 manufacturers, but there were some interesting trends worth noting. Many new products were based on the 68010 microprocessor, and some even employed 32-bit technology. There was support for the Graphical Kernel System (GKS) and there were a number of paint and rendering systems running off the IBM PC or other micro-computers. These included the Artronics PC2000E and Cubicomp's CS-5 solid modeling software. Megatek introduced the Merlin 9200, which combines advanced graphics capabilities with local database and task processing, for under $40,000. Quintar Corp. introduced a low-cost color graphics interface enabling your micro-computer to output to a high res. color monitor. Another new company, Sogitec, introduced a real-time interactive flight simulator. Terrain such as vegetation, oceans, roads and buildings could be user-specified up to 150,000 polygons, covering over 46,000 square miles! Yet another new product was the "3-Space" 3-D digitizer for creating and mani-

LAST STARFIGHTER AND BEYOND

Members who attended the July meeting enjoyed a trip beyond our usual L.A. - Orange County sphere. We traveled from the Century City Plitt Theater to the farthest reaches of outer space! Our vehicle was the marvelous film "The Last Starfighter." We thank Debby Winsberg, our guide, who made arrangements for our voyage. The film features over 20 min. of computer generated imagery produced on the Cray X-MP by Digital Productions.

From my perspective, shooting film effects the traditional way, the significance of D.P.'s work on "Starfighter" is the achievement of FILM QUALITY realism with solid objects, & manageable production logistics. "Tron," by comparison, had a video "look" & required the resources of many companies, always a producer's nightmare. Depiction of real looking objects opens the door for use of this technique with more mundane subjects, & will encourage the use of CGI for a greater variety of scripts. This is the goal D.P. is working toward. In addition to substituting computer graphics for miniatures, producers will also find that scripts previously considered too expensive for screen treatment will now become practical properties. Screenplays, & even books (which anticipate a later film version), could be written to take advantage of the new CGI techniques. Matte paintings, which are static, can remain on screen for only a few seconds before the audience will detect a "fake." The ability to move thru a CGI scene allows a longer process shot to be used, telling the story in a new way.

The steps required to bring this level of CGI realism to the screen are complex & expensive. $3-8,000/SECOND is a recommended budget. Below-the-line costs in a major film can run $1000 / sec. or less. Matte shots with miniatures, however, often cost over $20,000 for a few seconds of screen time. Another consideration is the time required to set-up & test for special effects or exotic locations. On "Close Encounters," I shot tests for many weeks be-

SIGGRAPH '84

One and two day courses were offered on diverse pics, from "Starting and Growing a Computer Graphs Business" to "State-of-the-art In Image Synthes." Lecturers were noted scholars, designers and gineers from around the world, including such Lusfilm personalities as Alvy Ray Smith and Loren rpenter, Turner Whitted from Chapel Hill, N.C. and A. SIGGRAPH members Jim Blinn, Frank Dietrich, Art rinski and Vibeke Sorensen.

The technical program included both panel disssions and presentation of papers. Topics includ- Modeling, Hardware, Visible Surface Algorithms, y Tracing, Interactive Systems, Shading & Texturg, Painting and Matting, and Graphics Standards. terestingly, about 25% of all papers delivered is year were descriptions of research conducted at casfilm, Ltd.

The highlight of SIGGRAPH '84 was, as it always , the Film and Video Show. Chairperson Maxine own, another L.A. SIGGRAPH member, succeeded in tting together two evenings of the most entertaing "Electronic Theater" to be found anywhere. ere were over 50 pieces, including commercial demo els from Robert Abel, Digital Productions, Cransn/Csuri, Pacific Data Images and Omnibus. Abract, or non-commercial offerings, showcased comter artists, university research demos and interting experiments which interfaced computer imagery th electronic music. Live performances were also the program. A laser show was presented by Laser ntasy. Ed Tannenbaum and Marci Javril produced a ve dance performance accompanied by real-time ime processing displayed on large screen video.

This year's "Electronic Theater" illustrated sotions to a number of last year's simulation probms. We saw convincingly real human and animal lomotion in the film "Bio-Sensor" from Osaka Univerty in Japan. The short film "The Adventures of dre and Wally B.," from Lucasfilm, illustrated new complishments in animating motion blur and eating 3-D characters with personality and humor. D vegetation & trees literally "grew" from algorhms and soft, textured or fuzzy surfaces were genated with the "particle system" technique.

SIGGRAPH is always fascinating, educational, inirational & downright fun. It's a time to meet new iends and get reacquainted with old ones. Most portantly, it is a time to realize that none of us alone. There is a network of people, throughout e country, excited by all that "neat stuff" that r less enlightened friends take for granted. See u in San Francisco in '85! ED KRAMER.

OGO WINNER

Our thanks to all of the SIGGRAPH members who ntributed designs for the L.A. SIGGRAPH Logo Const. The winning design appears on our cover & is e work of Ed Arroyo. Ed is a graduate of UCLA & a mber of I.A.T.S.E. as well as other film associaons. His current work includes set decoration for reams," a Fall series premier on CBS. Ed also is producer/designer for Second Genesis CGI, a group volved in design & direction of computer graphics scene simulation. Ed was on the national Perfornce Committee of SIGGRAPH '84 & has produced film video shows for conferences at Art Center and Cal-

LAST STARFIGHTER

With computer generated material, at D.P., this type of evaluation can be made in less time & with fewer production people on payroll. This reduces the OVERALL production budget.

Digital Productions will also work with others who wish to buy time on the Cray for their own work ($6,000/hr. & up but VERY fast).

Let's see how the magicians at Digital Productions work....

STEP ONE: ARTISTIC DESIGN - STORY BOARD. A film producer will always have a "set of boards" for bidding purposes. D.P. staff artists then draw high quality renderings. A special skill is the artist's knowledge of what shapes are difficult or easy for the computer to execute. They also take advantage of the latest sexy algorithms from the programmers.

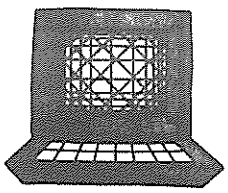
STEP TWO: ENGINEERING. Blueprint elevations are drawn, by hand, from the artist's story boards.

STEP THREE: PICTURE FILE. Ramtek RM9460 imaging systems are used to capture information from the blueprints & produce the "Picture File," a data base for object shapes. The client is then brought in for consultation & design approval. Low-res raster display consists of 1280x1024x24 bit display. Evens & Sutherland PS-300 Picture Systems are also used for display & motion analysis.

STEP FOUR: MOVIE FILE. After key-frame & motion parameters are determined, a frame by frame action file, the "Movie File," is created. This is the 2nd major data base. Object size, rotation, movement & perspective are fixed. Camera point of view, effective lens angle, zooms & moves are determined.

STEP FIVE: SURFACE FILE. Surfaces, textures, reflections, lighting & shadows are added at this stage. The "Surface File" is the 3rd data base. Here the available choices, versatility & real time display are anything but routine. It helps to have a Cray with which to play! The modeling software resides on the Cray and is accessed with a proprietary language called "FIFTH." The artist logs onto the Cray in a 100% interactive mode, even for development work. One result of all of this computing power is the ability to use an unlimited number of light sources of any combination of intensity, specularity, or color. Motion picture realism often requires the use of many lights to "cheat." I have used more than 10 on one miniature. If the lighting isn't right on the display, it can be changed in real time; something no gaffer can do on the set! Other effects available include metamorphosis, variable soft-edge contours, fluid-dynamics & depth queing to soften focus on distant objects.

STEP SIX: DATA PROCESSING & FILM EXPOSURE. D.P. uses 2 VAX 11/782 super-minis as a front end. The Cray employs a microwave oven size black box, called the "Station," to communicate with the outside world. During processing, the Cray will request data from hard disk memory. Data fills an 8 million word buffer in the "I/O Subsystem," a million dollar Mini-Cray in appearance. When full, the I/O Subsystem transfers data to the Cray at 100 million words/sec. Whew! The world's fastest production computer has 400 times the speed of the familiar VAX.



like the layout, your comments/suggestions are welcome. We invite ALL MEMBERS to contribute synopsis of magazine articles, event reviews or original material. Submit no later than the 3rd Monday of the month. RANDY RANDALL (213) 394-7408.

* CONTRIBUTIONS WILL RECEIVE WIDE EXPOSURE, WE HAVE 600 MEMBERS NATION WIDE.

* NEWSLETTER SPONSOR: In order to provide a larger, informative newsletter, we are seeking sponsors for each issue. If you, your company or an organization you know would benifit from exposure to SIGGRAPH members, get in touch. This box will provide recognition for contributors in future issues.

I NEED DIGITIZED PHOTOS on 5-1/4" disks (MS-DOS, CP/M or Apple format). MARGARET CHOCK (213) 828-4788

A program called "Filming Cues" calls up the icture," "Movie" & "Surface" files. High res. disay data is processed for each frame of motion picre film in sequence, a step requiring 30 to 300 conds. The resultant data is sent to a frame buf- r. An R.G.B. signal processor reads the buffer & splays a B&W image on a 5" monitor for separate d, green & blue film exposures thru color filters. solution is equal to 6000 x 4000 pixels. However, solution is higher during computation. When the w Kodak low-speed, super-high-resolution film is ailable, I'm sure D.P. will be able to handle it.

Exciting as the graphics were in "The Last Starghter," better graphics are coming. M.G.M.'s 010" will feature significant D. P. footage. New chniques are invented almost weekly at D. P. The eam for the not-too-distant future is to make beevable everyday backgrounds a practical reality. en that day comes, a significant portion of the 4 llion dollar annual motion picture budget will ift to Computer Generated Imagery. "The Last Starghter" may well be the first significant digital ghter for major motion picture dollars.
NDY RANDALL.

********** NEXT MEETING **********

Our host for the September general Meeting will the Robert Bosch Corp. Bosch, a forerunner in the levision broadcast industry for over fifty years, ll present the FGS-4000 Video Graphics Animation stem. This system recently received overwhelming sponse at the national SIGGRAPH meeting.

The FGS-4000 is both a real-time and a frame-by- me animation system. The operator has the abili- in real time, to build objects, establish anima- n key frames, and animation sequences. Other fea- es of the FGS-4000 include: multiple light sourc- , hidden surface processing, texture mapping, nt capabilities, 16 levels of transparency and 384 displayable colors in real time. Film effects h as glows, streaks & script-on are also avail- e. A technical representative will be present to swer questions regarding the product & its effec- e use in the broadcast/animation environment.

THE MEETING WILL BE AT THE PACIFICA HOTEL, 6161 TINELA AVE. HOTEL PHONE (213) 649-1776.
(left at "T" on Centinela)
DIRECTIONS: The hotel is a large brown building t west of the 405 Fwy. and south of the 90 Fwy. m the 405, go west on the 90 (NOT THE 91!) & exit th on Centinela Ave. We meet in the "Newport m, East and West." A cocktail social hour will in at 6:30 P. M., and the program at 7:30 P.M. re will be a $1.00 fee for members, and $3.00 for -members, payable at the door. Following the gram, there will be coffee and tea.

PLEASE CALL FRAN, AT BOSCH, (213)559-5631 TO RE-

********** PARTY! PARTY! PARTY! **********

The famous SIGGRAPH social committee is planning a cook-out! There will be incredible food & drinks! An incredible ocean view from Pacific Palisades! Incredible fun with your favorite SIGGRAPH members!

The park has facilities for softball, vollyball, a community center & everthing you could imagine for kids. L.A. SIGGRAPH members, their friends and families will swap stories, mingle & have a great time. Arrive early, for the best parking, & to participate in all the activities. Food & beverages (including beer!) is a mere $5.00. Make checks payable to ACM SIGGRAPH. Give them to Debby Winsberg at the next meeting or send to 2901 E. 6th St., #3, Long Beach, CA 90814. The cut-off date for checks is Wednesday, Sept. 19. Questions? Call Debby at (213) 438-3964 or Nancy Collier at (213) 242-6653.

MAJESTIC HESS PARK IN PALOS VERDES, ON SATURDAY, SEPT. 22ND, FROM 11 A.M. TO 8 P.M. DON'T MISS THIS!

DIRECTIONS: From the 405 Fwy., take Crenshaw Blvd., south approx. ten miles. You will cross P.C.H. and Palos Verdes Ave. Turn right onto Silver Spur. After a few blocks, turn left onto Hawthorne Blvd. The park is about 1/2 mile, on your left. You can't miss it, see you there! DEBBY WINSBERG.

******* THE CREATIVE COMPUTER NEEDS YOU *******

NEWS ITEM: The California Museum of Science & Industry has opened a new exhibit entitled "The Creative Computer." It features several "state-of-the-art" computer graphics systems.

We are searching for artists who will demonstrate these systems for museum visitors. It is especially important that artists are able to communicate effectively with an audience & exhibit various artistic skills. The selection of artists will be based on artistic ability & a willingness to commit at least 4 hrs. a week, for 6 months or more. Training on the systems will be provided & personal access time will be made available. Computer graphics experience is neither required nor expected.

Applications will be sent upon request. Two non-returnable slides, which reflect your artistic talents, should be enclosed when you return your completed application. If you are interested, please send a self-addressed, stamped envelop to:

CREATIVE COMPUTER STEERING COMMITTEE
C/O LAURIE McCREARY
19602 LANARK STREET, RESEDA, CA 91335

********** MEMBERSHIP INFORMATION **********

For membership information, contact Ernie Sasaki

COMPUTER CLASSES

The following computer graphics related classes are offered by local colleges. If you know of a school program, that is not mentioned here, please give Ernie Sasaki a call (213) 577-2643. We will update the list on an ongoing basis.

CAL STATE LONG BEACH (213) 498-5471
- Computer Graphics & Design
- Intro To Computer Graphics
- Computer Graphics
- Advanced Computer Graphics

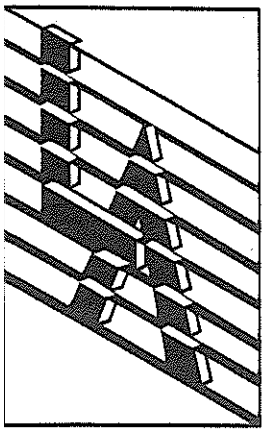
CAL STATE LOS ANGELES (213) 224-3521
- Computers For The Artist & Designer
- Advanced Computer Graphics

CAL STATE NORTHRIDGE (818) 885-1200
- Computer Graphics
- Computer Graphics and Design
- Computer Graphics Applications
- Graphics For Engineers
- An Intro To CAD/CAM Systems

ORANGE COAST COLLEGE (714) 432-5629
- Intro To Computer Graphics
- Color & Design For Computer Graphics
- Motion Graphics
- Math Topics For Computer Graphics
- Programming For Computer Graphics
- Documentation For Computer Graphics
- Photo Computer Graphics (Spring '85)
- Beginning CAD ***** Advanced CAD

U.C.L.A. EXTENSION (213) 825-9971
- The Aesthetics of Computer Graphics
- Intro To The Role & Application of The Computer In Graphic Design
- Computer Graphics For Print & Electronic Transmission
- CAD/CAM For Graphic, Product & Industrial Design (A hands-on class)
- Graphic Design: Intro To The Use Of The Computer (A hands-on class)
- Graphics: Microcomputer Software Packages For The Graphics Designer
- Designing For Computers: New Design Concepts & Processes
- Computer-Aided-Design/Graphics: For Graphics Designers, Interior Designers, Architects & Landscape Architects (A hands-on class)
- Intro To Image Processing
- Device Independent Computer Graphics
- Applied Interactive Computer Graphics
- Computer-Aided-Design Of Dynamic Systems
- CAD/CAM Management: Today's Issues

U.S.C. CONTINUING EDUCATION (213) 743-4343 x120
- Digital Video Effects
- Computer Graphics



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