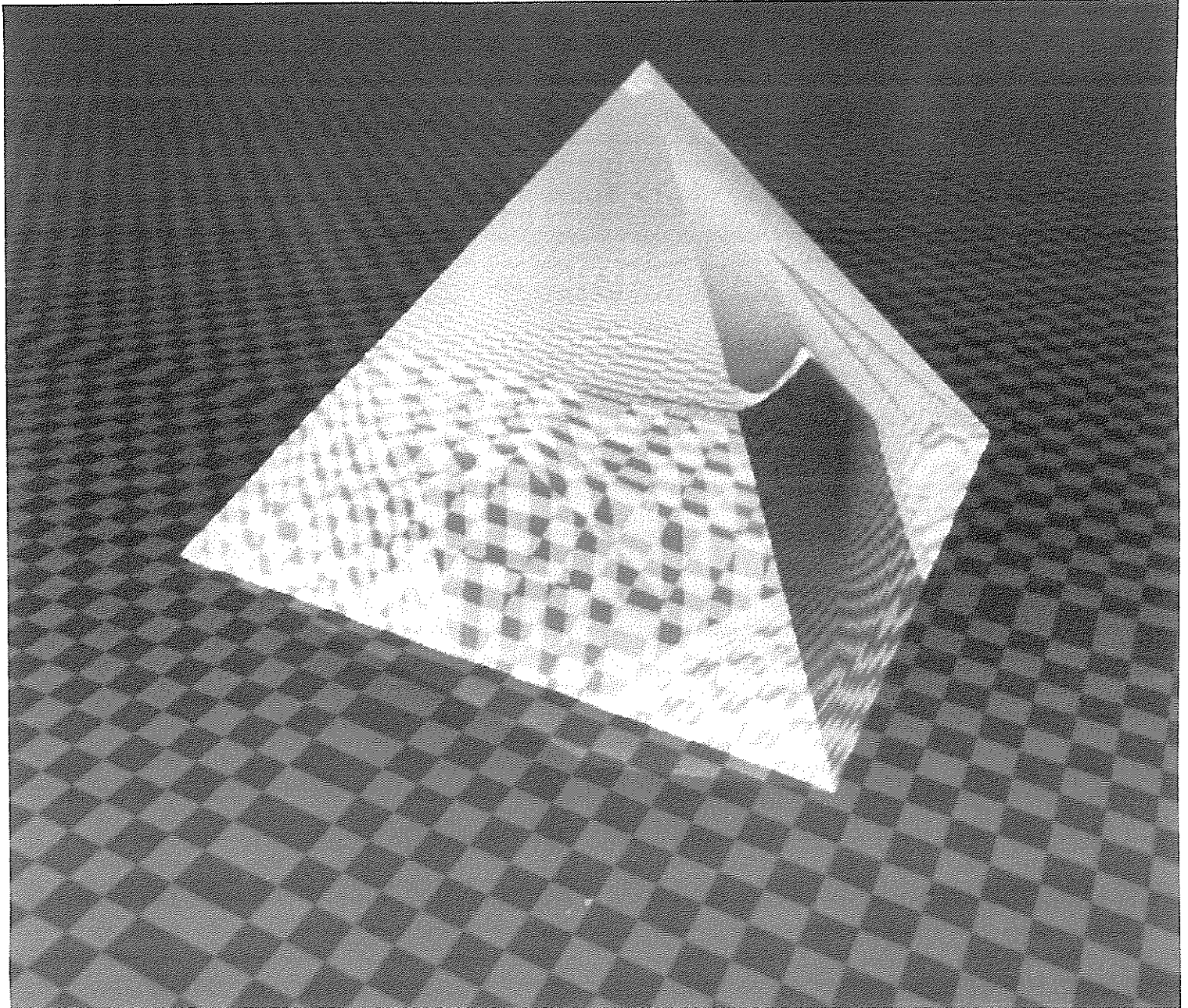


SIGGRAPH

JANUARY '87

ASSOCIATION FOR COMPUTING MACHINERY

Los Angeles ACM / Special Interest Group on Computer GRAPHics
P.O. Box 90698, World Way Postal Center, Los Angeles, CA 90009



SIGMEETING.....: Ray Tracing Corporation.
SIGDATE.....: Tuesday, January 12, 1987.
SIGCOORDINATES: UCLA, Moore Hall, Room 100, 504 Hillgard Ave.,
LA (Westwood). UCLA is just east of the San Diego Fwy., between
Wilshire and Sunset Blvds. Park in lot #2 if possible. Parking
is \$2.00. Refreshments will be served at 6:30.

"Of all synthetic images, those rendered by ray tracing stand above the rest in realism" [1].

Greg Passmore, President of the Ray Tracing Corporation (RTC), will discuss several areas of ray tracing. **CONTINUED ON NEXT PAGE**

NEWSLETTER INFO - EDITOR, RANDY RANDALL.....: (213) 280-1179
 IMAGE PRODUCTION SERVICE, SUITE 400, THE FILMCORP BUILDING
 10000 Washington Blvd., Culver City, CA 90232

SIGGRAPH MEETING - SECOND TUESDAY OF EACH MONTH.: JANUARY 13, '86
 NEWSLETTER DEADLINE - FRIDAY FOLLOWING MEETING.: JANUARY 16, '86
 MEMBERSHIP, MEETINGS & EVENTS INFO, SUGGESTIONS.: (213) 392-1074
 EXECUTIVE COUNCIL MEETING - 01/27/87 - TO ATTEND: (213) 392-1074

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is the monthly newsletter for the special interest group on computer graphics (SIGGRAPH) of the Los Angeles Chapter of the Association for Computing Machinery (ACM). An average monthly circulation of 1,066 reaches professionals, academicians and students with an interest in the use of computers to produce synthetic images and animation. Monthly meetings feature guest speakers and demonstrations representing the cutting edge of applied computer graphics technology.

ACM sponsors many other special interest groups and the many publications of ACM are among the finest and most up to date in the computer industry. For further information, contact any of the officers above or leave your name with the newsletter office at (213) 280-1179.

>>>> L.A. ACM MEMBERSHIP CONTEST <<<<

There is only one more month in the annual membership drive for the LA Chapter of ACM. To be eligible for credit toward winning one of the prizes, new membership applications must be received at the Chapter P.O. Box by January 31, 1987. Remember, Joan Collins has accepted a challenge from the L.A. ACM Chapter. She says SIGGRAPH will recruit more new members than all of the other SIG chapters combined.

To receive contest credit for new memberships, the "Recommended by" line at the bottom of the membership form must be completed with the name of the contestant and the word "SIGGRAPH" next to it. A membership form is included in this issue. The member who recruits the most new applicants will have a choice: Either two tickets to the Digital Computer Association (DCA), or two dinners at the home of the LA Chapter of ACM.

The winner must choose the award as soon as he or she is informed that they have won. If the winner chooses two chapter dinners, he or she may receive their award at any Chapter meeting or meetings through the last meeting of the year before summer (June 1987). The winner may bring a guest and collect both dinners at a single meeting. If DCA does not schedule a meeting next year (unlikely) the prize will revert to the Chapter dinners. RACHEL BLACHLY.

If we deliver on Joan's pledge for SIGGRAPH to sign up more new members than all of the other SIG chapters combined, Randy Randall, your editor, will contribute his Commodore C-64 as a bonus prize to the winner.

RAY TRACING, CONTINUED FROM THE FIRST PAGE:

Ray tracing incorporates the laws of optical physics to follow the paths of light rays as they shoot through a scene. The reflection, absorption and refraction of those rays, between the light source(s) and the point of observation, are computed to determine the illumination and color of objects apparent at the picture plane.

In the late 1960's, ray tracing was first used for picture making at MAGI Corporation, to solve certain hidden surface imaging problems [2]. Its original practical applications were research into the properties of radar and other high frequency waves for the government. Its use for the production of pictures has been limited, until recently, to research projects because of the enormous computation requirements. However, new developments in ray tracing algorithms appear to make ray tracing more practical.

At the January meeting, the properties of these new ray tracing algorithms will be examined for their advantages and disadvantages. Difficulties and delights inherent to the ray tracing method will be discussed. Slides showing distinct algorithm behavior will allow immediate comparisons of their unique characteristics.

Passmore will also outline the development cycle of ray tracing programs, their common obstacles, tricks and solutions. The results of research will also be presented which describe the benefits gained by vector processing on supercomputers. With this technique, rendering solutions are computed in parallel by taking advantage of the special hardware characteristics available on powerful scientific computers.

Finally, Mr. Passmore will share some personal insights he has had as an independent consultant & entrepreneur in the turbulent computer graphics industry. COLLIER/RANDALL.

[1] Kajiya, Jim (Proceedings, SIGGRAPH '82).
 [2] Rogers, David F., "Procedural Elements for Computer Graphics," Hidden Lines and Hidden Surfaces, pp. 206.



Association
for Computing
Machinery

Los
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Chapter

Membership Application and Renewal Form

P.O. BOX 90696, WORLDWAY POSTAL CENTER, LOS ANGELES, CALIFORNIA 90009-0696

NEW MEMBER RENEWAL ADDRESS CHANGE NAME CHANGE*

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_____ \$10.00 LA CHAPTER ASSOCIATE (NONVOTING) OR VOTING MEMBERSHIP
(VOTING MEMBERSHIP REQUIRES NATIONAL ACM MEMBERSHIP**)
LA CHAPTER SPECIAL INTEREST GROUPS (SIGs)

_____ NATIONAL ACM
MEMBERSHIP NUMBER
(if member)

_____ \$2.00 SIGAda*** Ada Topics
_____ \$3.00 SIGBDP Business Data Processing
_____ \$15.00 SIGGRAPH Computer Graphics
_____ \$3.00 SIGNUM Numerical Analysis
_____ \$1.00 SIGPLAN Programming Languages
_____ \$1.00 SIGSOFT Software Engineering

**I AM INTERESTED IN THE FOLLOWING
LA CHAPTER STANDING COMMITTEES:**

- | | |
|--|-------------------------------------|
| <input type="checkbox"/> Arrangements | <input type="checkbox"/> Membership |
| <input type="checkbox"/> Data-Link | <input type="checkbox"/> Ombudsman |
| <input type="checkbox"/> Education | <input type="checkbox"/> Program |
| <input type="checkbox"/> Government | <input type="checkbox"/> Publicity |
| <input type="checkbox"/> Industry Reps | |

\$_____ Total Enclosed (Make Checks Payable to "Treasurer ACM")

** National ACM membership requires separate application form and payment
*** Ada is a trademark of the Department of Defense (Ada Joint Program Office)

I would like information on:

- National ACM San Gabriel Valley ACM San Fernando Valley ACM Orange County ACM Arrowhead ACM

ACM occasionally makes its membership list available to companies and other societies for computer-related mailings.

Please check one of the following to indicate how the use of your name should be restricted.

If you do not check one of the two boxes, it will be assumed that you do not wish to restrict the use of your name.

- Official ACM chapter functions only ACM and sister society functions only.

PLEASE FILL IN COMPLETE NAME, ADDRESS, AND EMPLOYER INFORMATION IF NO LABEL APPEARS BELOW.

Please check one of the following to indicate where announcements should be sent. If you do not check one of the boxes, announcements will be sent to your home. HOME BUSINESS

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EMPLOYER: _____

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BUSINESS ADDRESS: _____

EXT: _____

_____ CITY _____ ST. _____ ZIP

*PREVIOUS NAME: _____

Recommended by (optional) _____



TWO COURSES IN VIDEO GRAPHICS AND SPECIAL EFFECTS

Video graphics and special effects extend widely the possibilities for imaginative expression in both film and video production. These two courses--a two-day lecture/demonstration seminar and a four-day studio workshop--provide a comprehensive illustration of the current capabilities and broad applications for computer graphics and digital video effects technology. Both programs are conducted by **Richard Thorne**, Senior Vice President of The Post Group.

VIDEO GRAPHICS AND SPECIAL EFFECTS: THE LATEST DEVELOPMENTS

On two Saturdays, participants view many samples of current devices and processes and learn how to plan for and incorporate graphics and special effects in their productions.

Topics include:

- An overview of the world of graphics and special effects
- Basic equipment: ADO, Mirage, paint systems, 3-D graphics systems, digital recording, video mixing
- The importance of the "thought" elements: idea, detail, execution
- Tricks: ADO, and Mirage texture mapping, defocusing, glows
- Digital disk recording for multi-layering
- Digital matte painting: how to make a still frame come to life
- Digital motion control
- Ultimate (blue screen) techniques.

CEU Noncredit Program
MPTV 856.21 0.6 CEU
Fee: \$75 EDP T8051

2 Saturdays, 10 am-4 pm, **January 24 & 31**
UCLA: 100 Moore Hall

STUDIO WORKSHOP IN VIDEO GRAPHICS AND SPECIAL EFFECTS

A studio workshop held at The Post Group on four Saturdays, this course provides participants with the opportunity to practice digital effects production on state-of-the-art equipment. Students enrolled in this course may attend the two Saturday sessions of **Video Graphics and Special Effects: The Latest Developments**.

Credit 3 units
MPTV X 478.121
Fee: \$495 EDP T8045

4 Saturdays, 10 am-4 pm, **January 24-March 21**
UCLA: 100 Moore Hall (first two mtgs. only,
subsequent mtgs. at The Post Group, 6335 Homewood
Avenue, Hollywood).

GENERAL INFORMATION

A service charge of \$15 is withheld from all refunds (full refund if course is canceled or rescheduled). Parking on the UCLA campus without permit is \$3 per entry. There will be attendants at designated gates to collect parking fee (dollar bills preferred).

TO ENROLL WITH MASTERCARD OR VISA, CALL (213) 825-9971, 8 am-5 pm weekdays. FOR MORE INFORMATION, CALL MS. FREEMAN, THE ARTS (213) 825-9064, 8 am-5 pm, weekdays.

>>>> COMPUTER GRAPHICS EDUCATION <<<<

If you have been inspired by the impressive images at SIGGRAPH events, perhaps you've wondered how you might realize your own visions. Local colleges and universities offer one good place to begin. The tools at a student's disposal are becoming increasingly sophisticated; and as a student you are not likely to have to spend long hours modeling the inside of a vacuum cleaner for a commercial account. This article will discuss some of the opportunities available at southland institutions.

Good introductory courses are available at several locations. These will usually offer an overview of computer graphics concepts and hands-on experience with some kind of computer paint system. If your background is primarily artistic rather than technical, and your interest is to evaluate the practicality of incorporating computer design into your existing business, then these courses may offer all you are looking for.

By computerizing the painting process, paint systems facilitate change and experimentation by creating, modifying and storing still images in realtime. With patience, you too can create these images. Introductory courses are available at Antelope Valley College, Art Center College of Design, California Institute of the Arts, Cal State Long Beach, Cal State Los Angeles, Columbia College, The Learning Tree, Orange Coast College, Otis / Parsons School of Design, Rancho Santiago (formerly Santa Ana College), UCLA Extension, USC and West Coast University. Of these, the most sophisticated equipment for 2-D work is probably found at Cal State Los Angeles, Cal State Northridge, Columbia and West Coast.

The step from 2-D to 3-D systems is a large one, in concept as well as hardware and software. A 2 dimensional image is created with a straight forward process similar to drawing, using computerized pens or brushes and a palette of electronic colors. In three dimensional computer graphics, a mathematical model, or data base, is created. Views of that model are created by massaging the numbers to create a final image, or series of images for animation. Defining the required lighting models and moving objects with animation files adds another order of magnitude of difficulty. Still, the rewards are quite exciting and several courses are available for those who wish to try their hand at 3-D, with more courses on the way.

For the latest in state-of-the-art research and development, the place to be is Cal Tech. The emphasis there is not so much on the creation of interesting images, but on the creation of the tools which make the images. Cal Tech computer courses are available to full time students only, and non-techies with less than brilliant records need not apply. Fortunately, there may be a way to get your hands on those tools without pursuing an engineering degree.

The Art Center College of Design in Pasadena offers an independent project seminar conducted at Cal Tech and supervised by instructors from both colleges. This seminar makes Cal Tech resources available to students - including VAX 11/780 and PDP 11/34 computers, as well as software for ray tracing, rendering, animation and additional software still under development. For some reason, Art Center students don't seem to be taking advantage of this opportunity; but it's there if you care to pursue it. In addition to this seminar, the Art Center offers a variety of 2-D and 3-D courses at its own facilities.

At the California Institute of the Arts, computer graphics is accomplished on the Cubicomp system. The Cubicomp has always

become the standard for 3-D motion graphics, at colleges and universities, by being the first affordable system with the necessary horsepower.

Cal Arts has a primarily artistic bent; but students can expect to learn enough programming to create their own tools when the need arises. The institution has recently acquired an Iris workstation running Wavefront software (a couple of cuts above the Cubicomp in terms of sophistication). Currently, however, there is no formal course on the Iris. Cal Arts is open to full time students only.

The UCLA Extension offers instruction on the Cubicomp system as well. To get into the Cubicomp courses (currently one per term) you will probably have to cut your teeth on Apples, however. This is because the extension offers a Computer Graphics Certificate, earned by completing thirteen required courses and two electives. Since there is currently only one Cubicomp available for this program, enrollment in the 3-D courses is limited, and students seeking a Certificate are given priority. Of course, if you want to take Color for Designers, in addition to computer graphics, this program could be for you.

Cubicomps are also available at Rancho Santiago and will be in use soon at Fullerton College (not to be confused with Cal State Fullerton). Both schools have installed several machines, and are in the process of finalizing course offerings. Instruction at Rancho Santiago began in October for solid modeling (the first animation course should be offered next spring). Fullerton College will probably begin its solid modeling in the spring, with the first animation course scheduled for fall '87. You may find the wait worthwhile; since it is a community college, the price at Fullerton is only fifty dollars per quarter.

For those who would like more flexibility than is currently available on a Cubicomp system, and who don't cringe at the thought of programming, an alternative exists at Cal State Los Angeles, Otis/Parsons and West Coast University. Actually, the Otis/Parsons courses are being offered thru West Coast University, on their VAX running GIGI software, augmented by in-house utilities. 3-D work at Cal State Los Angeles is also accomplished on a VAX, with virtually the same software configuration as West Coast, but slightly lower fees.

Finally, for those with patience (or a current lack of funds), in the fall of '87, the Fine Arts Department of UCLA (not to be confused with UCLA Extension) hopes to be running Robert Abel software on IBM PC/RT's, in addition to offering Cubicomp instruction of its own. This will not be a new computer graphics program, but rather the integration of computers into the existing programs for design and animation.

Hey gang, the opportunities are out there. Now,



CALENDER OF EVENTS

>>>> CALENDER OF LOCAL EVENTS <<<<

JAN. 1: NCGA LOCAL CHAPTER MEETING. Social: 6 pm, meeting: 7 pm. Info: Kathy Talbert, (818) 988-2600, ext. 4117.

JAN. 1: INDEPENDENT COMPUTER CONSULTANTS MEETING - Proud Bird Restaurant, 11022 Aviation Blvd., LA. Social: 6 pm, dinner: 7 pm, speaker: 8pm. Reservations: (805) 252-3736.

JAN. 7: LA/ACM MONTHLY MEETING - Amfac Hotel, 8601 Lincoln Blvd. Westchester. Social: 6 pm, dinner: 7 pm, speaker: 8 pm. For info: Dixie Baker (213) 615-4365.

JAN. 11: LA ACM/SIGGRAPH RESOURCE COMMITTEE MEETING - (3 pm) Rose Cafe, 220 Rose Ave. (@ Main St), Venice. Info: Maroun Harb (213) 452-6604.

JAN. 13: LA ACM/SIGGRAPH MEETING: RAY TRACING CORPORATION - UCLA, Moore Hall, Room 100, 504 Hillgard Ave., LA (Westwood). Info (213) 392-1074 or (213) 280-1179.

JAN. 16: LA SIGGRAPH NEWSLETTER DEADLINE. Send submissions to: Randy Randall, Editor, LA SIGGRAPH, 10000 Washington Blvd., Suite 400, Culver City, CA 90232; (213) 280-1179.

JAN. 20: VISUAL MUSIC ALLIANCE (VMA) - (7:30pm) - EZTV Video Gallery, 8547 Santa Monica Blvd., West LA. Info: Ange Pike (818) 885-7316.

FEB. 4: LA/ACM MONTHLY MEETING - Amfac Hotel, 8601 Lincoln Blvd. Westchester. Social: 6 pm, dinner: 7 pm, speaker: 8 pm. For info: Dixie Baker (213) 615-4365.

FEB. 5: NCGA LOCAL CHAPTER MEETING. Social: 6 pm, meeting: 7 pm. Info: Kathy Talbert, (818) 988-2600, ext. 4117.

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>>> NATIONAL/INT'L EVENTS AND CONFERENCES <<<

JAN. 8-10: MACWORLD EXPO - Moscone Center, 747 Howard St., San Francisco, CA. Info: Mitch Hall Assoc. (617) 329-7466.

JAN. 28-31: SEYBOLD DESKTOP COMMUNICATIONS CONFERENCE - Hyatt Regency Hotel, San Francisco, CA.

JAN. 28-30: NEW YORK COMPUTER GRAPHICS '87 - Jacob K. Javits Convention Center, New York, NY.

FEB. 1: SECOND LA INTERNATIONAL ANIMATION CELEBRATION - Entry deadline. Info: Animation Celebration, Extended Entertainment, 2222 S Barrington Ave., L.A. CA 90064; (213) 473-6701.

FEB. 26-28: ICIA '87/COMMTX - Georgia World Conference Center, Atlanta, GA. Programs hosted by the Assoc. for Multi-Image International (AMI), International Television Assoc. (ITVA), Assoc. of Audio-Visual Technicians (AAVT) and Health Sciences Communications Assoc. (HeSCA).

MAR. 23-26: COMPUTER GRAPHICS '87 - NATIONAL COMPUTER GRAPHICS ASSOCIATION (NCGA) - Philadelphia Civic Center, Philadelphia, PA. Registration Hotline: (800) 225-NCGA.

MAR. 23-26: NATIONAL CUBICOMP USERS GROUP - In conjunction with the NCGA Computer Graphics '87, Philadelphia, PA. Info: Becky Newell, Cubicomp Corp., (415) 887-1300.

MAR. 28-31: NATIONAL ASSOCIATION OF BROADCASTERS (NAB) - Dallas

WINTER 87: FIRST INTERNATIONAL CONFERENCE ON ELECTRONIC ART, SCCA. Info: Admiraliteitskada 9a, 3063 EA Rotterdam, The Netherlands.

1ST INTERNATIONAL COMPUTER GRAPHICS ART CONTEST. Info: Dataplotting Services Inc. 225 Duncan Mill Rd., Don Mills, Ontario, Canada M3B 3K9.

APR. 17: SIGGRAPH '87 - FILM AND VIDEO SHOW Deadline for submissions of preliminary 3/4" video tape with FINAL imagery. CG categories: Research, Corporate Communication, Science and Industry, Broadcast, Fine Art, Music Visualization & Theatrical Motion Picture. Montage pieces may not include imagery from different categories, separate entries should be made in each category.

JULY 27-31: SIGGRAPH 87 CONFERENCE - Anaheim Convention Center, Anaheim, California.

CALL FOR PROPOSALS - Art Com Electronic Network. Individuals and organizations who desire on-line access for their projects and information resources. Info: Whole Earth 'lectronic Link.

>>>> ORGANIZATIONS OF INTEREST <<<<

ASSOCIATION FOR COMPUTING MACHINERY (ACM): 11 West 42nd Street, New York, NY 10036; (212) 869-7440.

INDEPENDENT COMPUTER CONSULTANTS ASSOCIATION: P.O. Box 9118 Marina Del Rey, CA 90291; (213) 884-6792.

INTERNATIONAL ANIMATED FILM SOCIETY - ASIFA - HOLLYWOOD: 5301 Laurel Canyon Blvd., #250, North Hollywood, CA 91607; (818) 508-5224.

LA ASSOCIATION FOR COMPUTING MACHINERY (LA/ACM): P.O. Box 90698, Airport Station, Los Angeles, CA 90009. Chairman: Dave Oppenheim (818) 785-8000; Membership: Mike Walsh (213) 297-3034.

LA SIGGRAPH: P.O. Box 90698 World Way Postal Center, Los Angeles, CA 90009. Chairman: Joan Collins (213) 392-1074; Secretary (Membership): Rachel Blachly (213) 392-1074; Editor (Newsletter): Randy Randall (213) 280-1179.

NATIONAL COMPUTER GRAPHICS ASSOCIATION (NCGA): 2722 Merrilee Dr., Suite 200, Fairfax, Virginia 22031; (703) 698-9600.

SIGGRAPH '87: Co-Chairmen: James J. Thomas and Robert J. Young (714) 830-5680. Film and Video Show, 11920 W. Olympic Blvd., Los Angeles, CA 09964. Show Chair: Joan Collins (213) 392-1074. F&V Show Tech. Dir: Frank Foster (213) 826-3777.

VISUAL MUSIC ALLIANCE (VMA): 8435 Geysler Ave., Northridge, CA 91324. Info: (818) 885-7316.

WHOLE EARTH 'LECTRONIC LINK (WELL): Modem: (415) 332-6106, enter "g acen" at the "OK" prompt. Voice: (415) 431-7524.

WOMEN IN DESIGN: 1500 Glyndon Ave., Venice CA 90291. Info: Lorraine Fiamengo (213) 452-1341.

YLEM: P.O. Box 749, Orinda, CA 94563. Free sample journal for artists using science and technology.