LUCASFILM ENTERTAINMENT COMPANY, LTD.

Information Packet

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TYPES OF JOBS AT
INDUSTRIAL LIGHT & MAGIC AND SKYWALKER SOUND

This section presents profiles for various positions with either of the Lucasfilm Entertainment Company, Ltd divisions, Industrial Light & Magic or Skywalker Sound. ***A listing here does not mean there is a current opening.***

- Audio Technician
- Character Animator
- Creature Developers
- Compositor
- Computer Graphics Technical Assistant
- Digital Matte Artist
- Digital Resource Assistant
- Editorial Technical Assistant
- Modeler – Organic & Hard Surface
- Production Assistant
- Rotoscope Artist
- Systems/Tools Programmer
- Technical Director
- Video Engineer

For a listing of current opportunities view our website at ilm.com

AUDIO TECHNICIAN

Division: Skywalker Sound

Duties: Audio Technicians include Mix Technicians, Transfer Operations Technicians, Recordists, Central Operators and Projectionists. Responsibilities vary depending on the specific job title. However, duties may include setting up and operating technical equipment for a mix, aligning the recording, playback and projection equipment; assisting with the locating, setting up and breakdown of outboard equipment; completing billing forms such as mix logs and master inventory tracking sheets, and assisting clients with various technical needs.

Requirements: Two years work experience or training in audio post-production is required. Candidates must have extensive knowledge of both digital and analog audio recording techniques. Knowledge of digital audio workstations and computers is highly desirable. To apply, submit a resume.

Other info: Most often, Audio Technicians work "on call" including weekend, swing and graveyard shifts.

CHARACTER ANIMATOR

Division: Industrial Light & Magic**,** Computer Graphics Department

Duties: Character Animators comprehend and execute direction from the Animation Supervisor or Animation Director to create the motion and personality of computer graphics characters. The Character Animator will use various high-end animation software packages such as SoftImage, Maya and proprietary software. As a member of the production team they participate by providing feedback to other members of the production and by attending dailies on a regular basis. Character Animators are generally from a traditional background in cel or stop motion animation who now take a computer modeled character or object and bring it to life via the computer.

How to prepare yourself/what we look for: Technical skills are necessary for the position although the candidate's artistic skills are the most important attribute. Successful animators have knowledge of traditional animation principles: acting, film production and compositional design. They have the ability to visually express believable motion and acting with characters and/or creatures. In addition to these core artistic skills, it would be advisable to pursue classes in 3D animation and ultimately produce a short film (approximately 3 minutes) to demonstrate an understanding of the basics of animation, acting and filmmaking. To apply, submit a resume, reel and/or portfolio. Your 2D portfolio should show an understanding of basic pose, structure and attitude through life drawings of both sustained poses and quick sketches. In your reel and/or portfolio, show sketches, gesture poses, pencil tests and short animation films. Individuals without proven skill will not be considered for a Character Animator position. (Refer to the section titled "Application Process")

Other Info: This is a union position.

COMPUTER GRAPHICS TECHNICAL ASSISTANT

Division: Industria l Light & Magic, Computer Graphics Department

Duties: Provide general but crucial support to all current productions. Computer Graphics Technical Assistants (TAs) retrieve files from tapes, process conversions, transfers, and the backing up of data to tape. They have the opportunity to develop simple scripts and tools to streamline operations and also provide assistance in monitoring shots.

How to prepare yourself/what we look for: Strong technical knowledge and problem-solving skills are the key to this position. We look for candidates with a Bachelor's degree in Computer Science and solid UNIX experience, as well as strong programming and scripting skill. A strong artist eye and familiarity with film and video post-production techniques will be necessary later on, if you should pursue the Technical Directing career path, for which this entry-level position will provide a solid foundation. To apply submit a resume and demo reel.

Other info: This is a union position and candidates must be willing to work day, swing, graveyard and/or weekend shifts.

COMPOSITOR

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Compositors seamlessly integrate all the layers or elements of a shot, including live-action and computer graphic elements. At ILM, in-house proprietary compositing software runs on Linux and UNIX-based systems. There is also a department of high-speed Discreet-based compositing workstations. Both groups work closely with the Visual Effects Supervisor and CG Supervisor compositing the numerous elements that complete a visual effects shot. The Compositor performs many 2D tasks including blue/green screen extractions, tracking, stabilization, painting, rotoscoping, and color continuity**.** The Compositor is usually the last person to work on a shot before it goes out to film.

How to prepare yourself/what we look for: Traditional artistic and design skills, including a good knowledge of composition and color. Knowledge of photography and practical lighting is helpful in this position. Compositors should have a working knowledge of UNIX or experience working with the Discreet compositing products. Shell scripting is a plus. To apply submit a resume and reel. A reel should demonstrate the artistic ability is necessary for this role. We look for experience in challenging extractions and multiple element composits. Film or Commercial production experience is preferred.

Other info: This is a union position.

DIGITAL MATTE ARTIST

Division: Industrial Light & Magic**,** Computer Graphics Department

Duties: Digital Matte Artist works with the Visual Effects Supervisor to create digital set extensions and virtual environments. Digital paint and photo manipulation skills are used to create vistas, cityscapes and backdrops of all kinds that fool the eye and look real. The Digital matte artist is often responsible for designing, creating and incorporating animation and 3D elements into the matte "painting." Research is often required to locate and obtain appropriate visual reference materials.

How to prepare yourself/what we look for: Excellent artistic and design skills are necessary. We look for a background in Fine Art, Photography, Industrial Design or Architecture. Individuals in this role have a good knowledge of cameras, lenses, photography and perspective. To apply submit a resume, demo reel and/or a portfolio. Overall we look for demonstrated skills in reproducing photo-real imagery with digital tools. On a reel we like to see a breakdown of matte paintings in a final shot as well as a visual or written breakdown of elements. In a portfolio, present only your best work, both computer generated and traditionally based. Excellent Photoshop skills are important, and technical competency in other packages such as After Effects, FormZ, Electric Image, LightWave and Maya are helpful. Film and/or television experience is preferred.

Other info: This is a union position.

DIGITAL RESOURCE ASSISTANT

Division: Industrial Light & Magic, Computer Graphics Department

Duties: The Digital Resource Assistants (RA) serve as the primary liaison for resource information between Production, CG Artists and Computer Graphics Technical Assistants. They are responsible for tracking all information through the digital pipeline using various tools. They ensure information is accurate in bringing files online and off-line to meet the needs of the digital artists and production. They also track the status and location of all files used by artists. This is an entry-level position that can provide a strong foundation/experience in postproduction, leading to various career growth opportunities.

How to prepare yourself/what we look for: Bachelor's degree in Film, Computer Science or related field. Two years of related experience required, preferably in computer graphics or postproduction. Must be computer literate. Experience with UNIX required. Exposure or interest in graphic programs preferred. Must be a self-starter, able to work as a team, with strong organization skills and the ability to handle a variety of tasks in an efficient manner. To apply, submit a resume.

Other info: This is a non-union position, typically working a minimum of 50 hours per week (8 am - 7 pm). Interviews and relocation costs are usually *not* refundable.

EDITORIAL TECHNICAL ASSISTANTS

Division: Industrial Light & Magic, Editorial Department

Duties: The Editorial Technical Assistant (TAs) are responsible for various editorial support tasks including video dubbing on Betacam, Digital Beta 3/4", VHS, Hi8, D1, DAT and DDR, providing support/tape changes for CMX and Avid sessions, video support and tape changes for production dailies.

How to prepare yourself/what we look for: Bachelor's degree in Film/Television or equivalent work experience. Strong editing skills (machine to machine editing), solid knowledge of video techniques (insert vs. assemble editing, time-codes, black encoding, etc.), and a familiarity with routers, vector scopes, waveform monitors and other video equipment. Computer experience with Macs & PCs; knowledge of UNIX a plus. To apply, submit a resume.

Other Info: This is a union position. Interview and relocations costs are usually *not* refundable.

CREATURE DEVELOPERS

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Enveloping is an ILM term for creating the skin motion of a CG creature. Creature Developers, are primarily responsible for ensuring that models maintain an anatomically correct and sculpturally detailed form while moving through animated motions. Achieving this goal requires proficiency in the tasks of connecting the rendered surfaces of models to animation controls, creating procedurally animated simulations of hair, cloth, muscles and flesh, and generally making sure that models proceed through the animation and render pipeline of a shot in good form.

How to prepare yourself/what we look for: Bachelor's degree in Computer Science or a related field with a strong technical aptitude. Proficiency in UNIX and a working knowledge of SoftImage is highly recommended. Experience with 3D modeling of organic models, animation control rigging, and character animation is necessary. Feature film or commercial production experience is highly regarded. To apply, submit a resume and reel. An ideal reel for this area would demonstrate a mix of artistic and technical

skills. Complete shots and polished renders, while good to see, are not as important as breakdowns featuring character set-up, models going through motion tests which demonstrate skin control, and control over procedural animation systems such as cloth, particles, and rigid body dynamics. 2D artwork and photographs of traditional sculptures, which demonstrate a candidate's understanding of anatomy and biological form, are also very informative.

Other Info: This is a union position.

MODELER - ORGANIC & HARD SURFACE

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Modelers work closely with Art Directors, Visual Effects Supervisors, Animation Supervisors to turn 2D concept art and traditionally sculpted maquettes into high detail, topologically sound 3D wireframe models. They will continue to assist the Technical Animator and Enveloper as the model has a skeleton put in place and the skin is developed. Following this, the model may be handed back to the Modeler, who will proceed to sculpt facial expressions and any specific muscle tension/jiggle shapes required.

How to prepare yourself/what we look for: Artistic abilities are the most important attribute, combined with technical skills. Practice understanding the human anatomy (and if possible the anatomy of a quadroped), through life drawing classes and observational studies. Clay/plastiline/sculpy work is encouraged, as well as traditional sketching and paint work. Once you feel confident with traditional work, then it would be advisable to pursue classes teaching more technical/computer aided skills. To apply, submit a resume, reel and/or portfolio. Keep your portfolio concise and provide only what you consider to be your best work, both computer generated and traditionally based. Sketchbooks are also a good addition to include along with your portfolio (copies are sufficient). (Refer to the section titled "Application Process")

Other info: This is a union position.

MOTION CAPTURE TECHNICAL ASSISTANT

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Motion Capture is a technique for recording performances from actors and applying those performances to digital characters. ILM uses this technique to animate a wide range of digital characters for feature films and commercials.

The Motion Capture Technical Assistant performs technical support tasks for the Motion Capture Group. The primary role of the TA is to processes mocap data to reconstruct and deliver clean data that accurately represents the captured performances. This involves cleaning up noise artifacts, thinning oversampled data, reconstructing missing trajectory segments, and blending multiple motion capture performances.

How to prepare yourself/what we look for: Preferably, a Motion Capture Technical Assistant will have a Bachelor's degree in Computer Science. This position requires proficiency in managing large volumes of data in both UNIX and PC Windows environments. In addition, a TA must be able to work under deadlines and learn new tasks and facilities quickly. This work is detail oriented and requires a good eye for motion as well as technical proficiency. To apply, submit a resume.

Other info: This is a union position.

PRODUCTION ASSISTANT

Division: Industrial Light & Magic, Production Department

Duties: Provide administrative support and back-up to the production team including typing memos, documents and schedules; photocopying, filing, preparing, maintaining and distributing storyboards and other reports; organizing dailies, helping with live action stage and location shooting as needed including craft service and errands.

How to prepare yourself/what we look for: A minimum of two years related experience is required. Bachelor's degree in Film or equivalent is highly preferred. Must be computer literate. To apply, submit a resume.

Other info: This is a non-union position working 50 hours per week. Interview and relocation costs are *not* refundable.

ROTOSCOPE ARTIST

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Working very closely with Compositors, Rotos Artists modify and remove isolated elements for digitally composited sequences using both procedural and hand-painting methods. They perform plate clean-up and create digital articulate mattes as well as doing background repairs, wire removals and blue screen extractions.

How to prepare yourself/what we look for: Knowledge of compositing techniques and paint animation desired. Bachelor's degree in graphic design, drawing, animation or equivalent artistic background and education required. Requires a minimum of 2 years production experience in computer graphics, animation or video; more preferred. Experience with UNIX, 2D image processing, Harry/Henry/Matador /Macintosh software or other similar systems. To apply, submit a reel and resume.

Other info: This is a union position.

SYSTEMS/TOOLS PROGRAMMER

Division: Industrial Light & Magic, Production Engineering Department

Duties: The Script/Tools Programmers improve, develop, maintain and document the "generic scripts" used by the Render Support Department in tracking the shots rendering for each production. The generic scripts are programs and control files written in C shell, python, or other high-level computer languages. New versions of the scripts are delivered to the render support personnel by the Script/Tools Programmer who then assists with the integration of the tool as well as following up should any problems occur. They will also receive show specific script changes from the Assistant Technical Directors and then assist in integrating changes into the generic scripts. When necessary, the Render Support Department may ask for other programming tasks to be completed also.

How to prepare yourself/what we look for: Bachelor's degree in Computer Science. Knowledge of UNIX, LINUX, C shell, and some scripting language such as python, TCL, or Perl and C or C++ required. SQL and database experience required. Computer graphics production experience is necessary. To apply, submit a resume.

Other info: This is a union position.

SYSTEMS DEVELOPER

Division: Industrial Light & Magic, Systems Research & Development

Duties: Systems Developers are responsible for design, prototype and construction of complex computer and data storage systems needed to create cutting edge graphical images. They define and build applications, including software and hardware, needed to support the artists in fulfilling their mission of creating visual images for the motion pictures. Systems Developers function as a liaison with the application software groups and artistic groups.

How to prepare yourself/what we look for: Systems Developers at ILM range anywhere from the junior level (right out of school with some hands on work experience and/or internship) to our senior level (5+ yrs of hands on experience). It is useful to obtain a degree in BS/CS/EE and be exposed to the development of complex compute/imaging/storage systems. Classes in and/or hands-on work experience using C/ C++ and/or Java is useful. It is essential to have work experience using UNIX (and its different flavors), Mac OSX, Networks, and Protocols. Relevant experience in System and/or Network Administration is a plus. To apply, submit a resume.

Other info: This is a non-union position.

TECHNICAL DIRECTOR

Division: Industrial Light & Magic, Computer Graphics Department

Duties: Technical Directors (TD) work with direction from the Visual Effects Supervisors and CG Supervisors to create the look of computer generated objects and scenes. They are responsible for lighting, shading, rendering, some compositing and for creating the motion dynamics and look of simulated effects such as water, smoke, fire and hair. TDs work with other artists such as Character Animator, Rotoscope Artists and Compositors to bring the shot together. They must be familiar with the ILM render pipeline and be technically adept to identify and debug any problems.

How to prepare yourself/what we look for: Technical Directors typically combine strong computer programming abilities with visual arts skills. Qualified candidates have a Bachelor's degree in Computer Science or Computer Graphics with at least 2-3 years production experience. A strong working knowledge of UNIX, C programming and shell scripting is necessary as well as knowledge of Maya, Renderman or proprietary high-end software packages. To gain the necessary production experience people typically begin as Computer Graphics Technical Assistants, eventually moving into an Assistant Technical Director before becoming a TD. Other ways to prepare yourself for this role include working on live action/CG integration project, spending time learning how to install CG characters into a plate, light it and applying shadows. To apply, submit a resume and reel (Refer to the section titled "Application Process")

Other info: This is a union position.

VIDEO ENGINEERS

Division: Industrial Light & Magic, Digital Video Engineering Department

How to prepare yourself/what we look for: Video Engineers install and maintain complex video systems and equipment that support the production process, ensuring integration with existing systems. They are responsible for trouble shooting equipment and systems problems along with repairing and maintaining video equipment and systems.

How to prepare yourself/what we look for: Qualified Video Engineers should have a Bachelors degree in Engineering or Computer Science along with 4-6 years experience as a Video Maintenance Technician, preferably with a major video post production facility using professional equipment from Sony, Grass Valley, Abekas, CMX, etc. They should also be highly computer literate with UNIX, MAC and Win95/NT Operating Systems, and have excellent soldering and component level printed circuit repair skills. To apply, submit a resume.

Other info: This is a non-union position.

APPLYING FOR A POSITION

For information on current openings at Industrial Light & Magic or Skywalker Sound please check the job opportunities section of our website at **www.ilm.com.**

Information regarding the other Lucas companies can be found by viewing their web sites at:

Lucasfilm	www.lucasfilm.com
LucasArts	www.lucasarts.com

WHERE TO APPLY

Industrial Light & Magic
P.O. Box 29909
San Francisco, CA 94129
Attn: Recruiting

OR

Apply directly on-line at www.ilm.com

APPLYING FOR COMPUTER GRAPHICS POSITIONS SPECIFICALLY

For positions within the Computer Graphics Department, we require you to submit a reel and/or a portfolio along with your resume.

INCLUDE IN A REEL

- Your reel should demonstrate your artistic abilities:
- Typically 2-3 minutes of your most recent work is sufficient. Don't include old, irrelevant work, i.e. something you did 5 years ago in a school project.
- Show enough of the project to see your work. Repeat it a couple of times if it is a short piece "flashing" by. If it is a short piece, include whole project or sequence in its entirety at the end of your tape.
- You don't need a fancy introduction. A simple card with your name, address, phone number and email address, if available, will do. It is helpful to have a card introducing the title of each piece as it is outlined on your demo reel, if possible.
- Our preference is DVD, 1/2" VHS tapes in either NTSC or PAL format. No Beta tapes please. Digital versions (CD-ROM or disk) will not be reviewed.
- Do not send your Master demo reel. Send duplications only. They will be returned if you include a self-addressed, stamped envelope in your package.

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CREDIT LIST

- List the show, description of the shot and the specific task that you performed including software used. The more specific and descriptive you can be the better.

PORTFOLIO

- Send 8 1/2 x 11 **copies only**. No original artwork please.
- Copies of Slides will not be accepted.

GENERAL HINTS

- Unless instructed to do so, do not telephone to see if we have received your information. You will receive a postcard confirming receipt. If there is interest in having an interview, we will call you.
- Limit your resume to one page. If it's longer than that you're probably including more information than necessary.
- White paper is preferred, as it is easier to read.

WHAT YOU ALWAYS WANTED TO KNOW

(a.k.a. what computer graphics supervisors at ILM would like to see on a reel)

CHARACTER ANIMATION

- If you want to bring a character to life, you need to show its personality and how it moves in its environment. Keep it simple! A multi-layered, textured background is not necessary to show your character animation
- Knowledge of a software is not the key to being a character animator.
- Apply the principles of animation to anything that is receiving a soul:
    - Force / Resistance / Balance = Is there a believable force that initiates and stops the movement?
    - Weight / Center of Gravity = Does the character visually look heavy or light according to design specifications? Does the weight shift properly?
    - Path of Action = Is the movement following a believable path according to the initiating force? Are there drag, delay or overlapping elements of the form that follow through in action?
    - Acting = Does the audience believe that the character thinks, feels, acts, reacts to the environment and others?
    - Timing = Believability in performance, be it acting or action.

MODELING

- Demonstrated knowledge of modeling using spline-based, high-end packages (Alias, Softimage) and to a lesser extent, polygonal modeling.
- Examples of models showing artist's interest (hard surface vs. organic)
- Show the progress of the piece: Final renders, turntables, plastic shaded and wire frame versions of models. These should be at a high-level of finish and should rely on detailing from the modeling as much as possible (rather than bump or displacement maps).
- Additional traditional artwork (sketches, photos of sculptures, etc.) relating to targeted area (hard-surface or organic modeling).

TECHNICAL DIRECTION

- Show the "before and after" to show the shot progression.
- Install a CG character into a plate, light it, put in the shadows, etc.
- Try to light the shot in a creative way while making it look natural to the environment.
- The style of the different parts should be carefully thought out.
- Show some Live Action/CG Integration. It is rare to see this on a student reel but as it is what we do at ILM. It gives us some understanding of the individual's understanding of matching realistic lighting in computer graphics as well as compositing. By sticking to an all computer graphics environment (which is much easier to do than the integration we do) it is difficult to determine how your "eye" will create a photo realistic "look".
- A surprise: It is the defining factor that shows someone is an exception to the rule. by definition it is an unknown element. It might be just some "special" effect or some amazing lighting or particle effect. It is something unique that shows some extra care or special ability.
- Additional traditional art work (such as photography, painting, etc.,)

SAMPLE RESUME

We are often asked what type of information is necessary for a resume. This is an example of the information that is helpful for us to see when reviewing your experiences.

Josephine Candidate
123 State Street
New York, NY 10012

(h) 212 555-1212
(w) 212 555-1234
josephine@statestreet.com

EXPERIENCE:

Oct '99 - Present **Your Current Company**
Present Job Title
2 or 3 lines summarizing your primary responsibilities each day. You can add how many people you supervise or tools you have created important points of your responsibility.

Sept '97 - Oct '99 **The Company Just Prior To Your Present Employer**
Job Title
Good place to outline what your former responsibilities were that are different from what you are currently doing to show why you changed companies.

March '95 - July '97 **The Company Just Prior To The One Listed Above**
Job Title
This is where you are probably going to start showing that you have focused on one area or have figured out what it is you want to do following school or on the job experience.

July '94 - Dec '95 **First Job Out Of School or Training Program**
Job Title
This is probably your first industry-related job where you have done everything from make the first pot of coffee to loading the tape to back up your work.

Summers '92 and '93 **Work Experience While I'm In School, Inc.**
Summer Internship #2

Summer '91 **Work Experience While I'm In School, Inc.**
Summer Internship #1

HARDWARE AND SOFTWARE:

Software:	TDI Explore, Side Effects' PRISMS, Wavefront Preview, ABC Company, Proprietary tools, Renderman, Dynamation, Softimage, Alias, Matador.
Hardware:	Proficient with SGI platforms and Macintosh systems.
Languages:	C/C++, Pascal, Basic, AWK, SNOBOL, SIMULA, LISP, Mathimatica

EDUCATION:

Oct '91 - June '94 **School, College or University,**
BS - Computer Science or BA - Classical Animation (or certified equivalent)
Dean's List, Cum Laude Graduate
ABC Scholarship Society

SAMPLE CREDIT LIST

We are often asked what information is necessary on a credit list. The following sample will give you an idea of the details that are useful to us in determining your specific skills in the work displayed on your demo reel.

Josephine Candidate
123 State Street
New York, NY 10012

(h) 212 555-1212
(w) 212 555-1234
josephine@statestreet.com

TITLE OF PROJECT

Computer/OS used:	SGI
Software used:	Alias, Softimage, Maya
Modeling:	All models created by myself.
Character Animation:	All animation created by myself.
F/X Animation:	All particle effects and laser flares were created by co-worker.
Compositing:	All compositing and rendering was completed by my co-worker.
Production Time:	Approximately 3 weeks.
Problems:	I think my shot is weak in the character animation and the shadows on the back wall is too diffused for the type of light source.

OR

TITLE OF PROJECT

I am a traditionally trained character animator. My demo reel shows how I have applied the principles of animation in each of the following scenes. For this reason, there is simple lighting, no background and very basic modeling. I am aware that what you want to see is my character animation.

Scene 1	Front and side view of running cheetah, normal speed
Scene 2	Front and side view of running cheetah, slow motion
Scene 3	Front and side view of walking man, normal speed
Scene 4	Front and side view of walking man, slow motion
Scene 5	Front and side view of man pulling bucket full of water from the well by a rope, normal speed
Scene 6	Front and side view of man pulling bucket full of water from a well by a rope, slow motion

Software:	No experience, traditional animation only
Hardware:	Touched a keyboard to do my homework in high school but haven't since then

LUCASFILM ENTERTAINMENT COMPANY, LTD. STUDENT INTERNSHIP PROGRAM

PROGRAM INFORMATION

Industrial Light & Magic and Skywalker Sound offers student internship opportunities for highly motivated students who wish to pursue technical and business careers in visual effects and sound design for feature films. It is an opportunity to work with talented teams of artists and other professionals who do incredibly creative work in an atmosphere that is both dynamic and highly collaborative. Industrial Light & Magic and Skywalker Sound's Internship Program is an important part of our recruiting strategy; an internship could be the starting point for employment in a staff position with the company. The number of student internships and the areas in which they are available each session are determined by the projects in production. In the past internships have been offered in such areas as art, sound, editorial, computer graphics (CG) software and training, computer systems & software engineering, web development, human resources, finance, accounting, media library, and video engineering. For details on the program requirements and how to apply please view our web site at ilm.com.

UNIVERSITIES, COLLEGES AND SCHOOLS

We are often asked what one should do to gain the education and training needed for a career in the digital industry. The following is just a short list representing the numerous universities, colleges and schools where some of our employees completed their undergraduate and graduate education.

Art Center College of Design	Pasadena, CA
Bournemouth Polytechnic University	Bournemouth, England
Brigham Young University	Provo, UT
Brown University	Providence, RI
Carnegie Mellon University	Pittsburgh, PA
Harvey Mudd College	Claremont, CA
Massachusetts Institute of Technology	Cambridge, MA
New York School of Visual Arts	New York, NY
Ohio State University	Columbus, OH
Pratt Institute	Brooklyn, NY
Rhode Island School of Design	Providence, RI
Ringling School of Art and Design	Sarasota, FL
San Jose State University	San Jose, CA
San Francisco State University	San Francisco, CA
Savannah College of Art and Design	Savannah, GA
Sheridan College	Oakville, Ontario, Canada
Stanford University	Stanford, CA
Texas A&M	College Station, TX
University of British Columbia	Vancouver, B.C., Canada
University of Calgary	Calgary, Alberta, Canada
University of California at Berkeley	Berkeley, CA
University of California at Davis	Davis, CA
University of California at Los Angeles	Los Angeles, CA
University of California at Santa Cruz	Santa Cruz, CA
University of Illinois at Chicago	Chicago, IL
University of Illinois at Champaign	Urbana, IL
University of Southern California	Los Angeles, CA
University of Toronto	Toronto, Ontario, Canada
University of Washington	Seattle, WA
Vancouver Film School	Vancouver, B.C., Canada

RECOMMENDED BOOK LIST

American Cinematographer Manual
Compiled and Edited by Charles G. Clarke, A.S.C.
Assisted by Three W. Tyler
An Official Publication of the American Society of Cinematographers

The Animation Book
Kit Laybourne
Crown Publishers/Three Rivers Press

Animation from Script to Screen
Shamus Culhane
St. Martins Press

Artistic Anatomy
Dr. Paul Richer
Watson-Guptill

Cartoon Animation
Preston Blair
Walter Foster Publishers

Chuck Amuck
Chuck Jones
Avon Books

Cinematographer's Field Guide
KODAK Motion Picture Camera Films

Composing Pictures
W. Donald Graham
Van Nostrand Reinhold

Creating Special Effects for TV and Film
Bernard Wikie
A Focal Press Book
Hastings House, Publishers

The Illusion Of Life: Disney Animation
Frank Thomas and Ollie Johnston
Hyperion, Publishers

Industrial Light & Magic
Thomas G. Smith
Ballantine Books, N.Y., Publishers

Industrial Light & Magic: Into The Digital Realm
Mark Cotta Vaz & Patricia Rose Duignan
Ballantine Books, N.Y., Publishers

Professional 16/35MM Cameraman's Handbook
Verne and Sylvia Carlson
American Photographic Book Publishing Co., Inc.

Special Effects in Motion Pictures
Frank P. Clark
Society of Motion Picture and Television Engineers, Inc.

Special Optical Effects In Film
Zoran Perisic
Focal Press Limited, London/New York

The Technique of Special Effects Cinematography
Raymond Fielding
Communication Arts Books
Hastings House, Publishers

The Technique of Special Effects in Television
Bernard Wikie
Focal Press, London
Hastings House, New York

Timing for Animation
Harold Whitaker & John Halas
Focal Press

HISTORY OF LUCASFILM ENTERTAINMENT COMPANY, LTD....

In 1971 George Lucas formed his own independent production company, Lucasfilm Ltd., in Marin County, just north of the Golden Gate Bridge.

In July of 1975, with the Star Wars saga already written and design work begun the previous year, Industrial Light & Magic (ILM) was established to produce the visual effects for *Star Wars*.

That same year Sprocket Systems was established to edit and mix *Star Wars*. It was later to become known as Skywalker Sound.

In 1977 *Star Wars* opened and became the largest grossing film of all time to that date. It received six Academy Awards for original score, film editing, sound, art and set decoration, costume design and visual effects, as well as a Special Achievement Academy Award for sound effects creations.

With the release of *The Empire Strikes Back* in 1980 and a new home in San Rafael, ILM began to establish itself as the leader in visual effects production. The same year, ILM received a Special Achievement Academy Award for visual effects for *The Empire Strikes Back* and began to work on its first non-Lucasfilm picture, *Dragonslayer.*

Throughout the 1980's, ILM continued to receive recognition for its visual effects work, earning 9 Visual Effects Academy Awards during that decade. Included among the films honored are: *The Empire Strikes Back, Raiders of the Lost Ark, E.T.: The Extra-Terrestrial, Return of the Jedi, Who Framed Roger Rabbit?* and *The Abyss.*

Skywalker Sound was also honored with 5 Academy Awards during this period for Best Sound and Best Sound Effects Editing on films including *The Empire Strikes Back, Raiders of the Lost Ark* and *E.T.*

In 1987, construction was completed on the Technical Building at Skywalker Ranch, Lucas's film production facilities in central Marin, allowing Skywalker Sound to move into the 145,000 square-foot facility.

Terminator 2: Judgment Day in 1991 was another milestone in the history of LDL . Additional advancements and achievements in the field of computer graphics were realized. Both ILM and Skywalker Sound were rewarded with Academy Awards for their work on the film.

In 1992 George Lucas was honored by the Academy of Motion Picture Arts and Sciences with the Irving Thalberg Award. This award was voted by the Academy Board of Governors to a "creative producer whose body of work reflects a consistently high quality of motion picture production" and is given only in years when the Board feels there is a deserving recipient. Steven Spielberg presented the Thalberg award to Lucas at the Academy Awards Ceremony on March 30th.

The following year, in 1993, a new corporate structure was set up among Lucas' various companies to allow for management flexibility and accountability. Three separate companies were the result of the restructure:

- Lucasfilm Ltd. - Film and Television Production and Lucas Licensing.
- LucasArts Entertainment Company - Games and Learning
- Lucasfilm Entertainment Company, Ltd..- Industrial Light & Magic and Skywalker Sound

Additionally, the George Lucas Educational Foundation (GLEF) was founded in 1991 as a non-profit organization focused on creating media materials (films, books, newsletters and a Web site) which promote a vision of learning where students are challenged and engaged, learn by doing, having access to interactive technologies and are supported by inspired teachers and involved parents and communities.

That same year, ILM completed the visual effects for *Jurassic Park*, creating computer graphic dinosaurs which blended flawlessly with the live action footage while Skywalker Sound was in charge of creating the audio effects. Again, both units were recognized with Academy Awards for their work in Sound, Sound Effects Editing and Visual Effects.

The nineties saw continued success and awards for both companies. Notable films that benefited from their expertise

included *Forrest Gump*, *The Mask*, *Twister* and *Saving Private Ryan*.

In 1997, the twentieth anniversary of *Star Wars*, all three movies in the *Star Wars* trilogy were re-released. New and refined digital footage was inserted and the sound was enhanced. Record crowds greeted familiar characters with applause and delight and *Star Wars* once again became the one of the largest grossing movies of all time.

In 1999, we released the eagerly awaited *Star Wars: Episode 1 "The Phantom Menace,"* the third highest grossing picture in motion picture history, with renowned digital effects. Hundreds of fans slept on sidewalks in front of theaters, waiting to be among the first to see the film.

We continue to want to ensure that viewers are astounded and moved by what we have to offer!

FILM CREDITS

CREDITS

2006	**EIGHT BELOW**	Disney
2005	**MUNICH**	DreamWorks SKG
2005	**THE CHRONICLES OF NARNIA: THE LION, THE WITCH AND THE WARDROBE** Academy Award Nomination – Best Visual Effects British Academy Nomination – Best Visual Effects	Disney
2005	**RENT**	Revolution
2005	**HARRY POTTER AND THE GOBLET OF FIRE**	Warner Bros.
2005	**JARHEAD**	Universal
2005	**CHICKEN LITTLE**	Disney
2005	**THE ISLAND**	DreamWorks SKG/Warner Bros.
2005	**WAR OF THE WORLDS**	Paramount/DreamWorks SKG
2005	**HERBIE: FULLY LOADED**	Disney
2005	**THE ADVENTURES OF SHARK BOY AND LAVA GIRL**	Dimension Films
2005	**STAR WARS: EPISODE III "Revenge of the Sith"**	Lucasfilm Ltd.
2005	**XXX: STATE OF THE UNION**	Revolution
2005	**THE AMITYVILLE HORROR**	MGM
2005	**EROS**	Masti
2005	**THE PACIFIER**	Disney
2005	**SON OF THE MASK**	New Line Cinema
2005	**ARE WE THERE YET?**	Revolution
2004	**LEMONY SNICKET'S A SERIES OF UNFORTUNATE EVENTS**	Paramount
2004	**SKY CAPTAIN AND THE WORLD OF TOMORROW**	Paramount
2004	**THE VILLAGE**	Disney
2004	**THE BOURNE SUPREMACY**	Universal
2004	**THE CHRONICLES OF RIDDICK**	Universal
2004	**HARRY POTTER AND THE PRISONER OF AZKABAN**	Warner Bros.
2004	**THE DAY AFTER TOMORROW**	20th Century Fox
2004	**VAN HELSING**	Universal
2004	**HIDALGO**	Disney
2004	**TWISTED**	Paramount
2004	**ALONG CAME POLLY**	Universal
2003	**PETER PAN**	Universal/ Columbia/ Revolution
2003	**STUCK ON YOU**	20th Century Fox
2003	**TIMELINE**	Paramount
2004	**MASTER AND COMMANDER: THE FAR SIDE OF THE WORLD** Academy Award Nomination – Best Visual Effects	20th Century Fox
2003	**ONCE UPON A TIME IN MEXICO**	Miramax
2003	**11'9"01 - SEPTEMBER 11 (SEGMENT USA)**	Empire Pictures
2003	**THE LEAGUE OF EXTRAORDINARY GENTLEMEN**	20th Century Fox
2003	**PIRATES OF THE CARIBBEAN**	Disney
2003	**TERMINATOR 3: THE RISE OF THE MACHINES**	Warner Bros.
2003	**THE HULK**	Universal
2003	**DREAMCATCHER**	Warner Bros.
2003	**TEARS OF THE SUN**	Revolution Studios
2003	**THE HUNTED**	Paramount
2002	**GANGS OF NEW YORK**	Miramax
2002	**HARRY POTTER AND THE CHAMBER OF SECRETS**	Warner Bros.
2002	**HARRY POTTER AND THE CHAMBER OF SECRETS**	Warner Bros.
2002	**STAR WARS BOUNTY HUNTER**	LucasArts Entertaiment

2002	**PUNCH-DRUNK LOVE**	Revolution
2002	**BLOOD WORK**	Warner Bros.
2002	**SIGNS**	Disney
2002	**K-19: THE WIDOWMAKER**	Paramount
2002	**MEN IN BLACK 2**	Sony Pictures 2002
2002	**MINORITY REPORT**	Fox
2002	**THE BOURNE IDENTITY**	Universal
2002	**STAR WARS: EPISODE II "Attack of the Clones"**	Lucasfilm
2002	**BIG TROUBLE**	Disney
2002	**E.T.: THE EXTRA-TERRESTRIAL (Re-release)**	Universal
2002	**THE TIME MACHINE**	Warner Bros./DreamWorks SKG
2002	**IMPOSTER**	Miramax/Dimension
2001	**THE MAJESTIC**	Warner Bros.
2001	**HARRY POTTER AND THE SORCERER'S STONE**	Warner Bros.
2001	**PLANET OF THE APES**	20th Century Fox
2001	**JURASSIC PARK III**	Universal
2001	**A.I.: ARTIFICIAL INTELLIGENCE**	Warner Bros./DreamWorks SKG
	Academy Award Nomination – Best Visual Effects	
2001	**THE MUMMY RETURNS**	Universal
2001	**PEARL HARBOR**	Disney
	Academy Award Nomination – Best Visual Effects	
2000	**IMPOSTOR**	Miramax/Dimension
2000	**SPACE COWBOYS**	Warner Brothers
2000	**POLLOCK**	Pollock Film, Inc.
2000	**THE PERFECT STORM**	Warner Bros.
2000	**THE ADVENTURES OF ROCKY AND BULLWINKLE**	Universal
2000	**MISSION TO MARS**	Disney
1999	**SWEET AND LOWDOWN**	Sony Pictures Classics
1999	**MAGNOLIA**	New Line Cinema
1999	**SNOW FALLING ON CEDARS**	Universal
1999	**GALAXY QUEST**	DreamWorks SKG
1999	**THE GREEN MILE**	Warner Bros.
1999	**SLEEPY HOLLOW**	Paramount
	British Academy Nomination - Best Visual Effects	
1999	**BRINGING OUT THE DEAD**	Paramount/Disney
1999	**DEEP BLUE SEA**	Warner Brothers
1999	**THE HAUNTING**	DreamWorks SKG
1999	**WILD WILD WEST**	Warner Brothers
1999	**STAR WARS: EPISODE I "The Phantom Menace"**	20th Century Fox/Lucasfilm Ltd.
	Academy Award Nomination – Best Visual Effects	
	British Academy Nomination - Best Visual Effects	
1999	**THE MUMMY**	Universal
	British Academy Nomination - Best Visual Effects	
1999	**OCTOBER SKY**	Universal
1998	**THE LAST DAYS**	October Films
1998	**MIGHTY JOE YOUNG**	Disney
	Academy Award Nomination - Best Visual Effects	
1998	**JACK FROST**	Warner Brothers
1998	**CELEBRITY**	Miramax
1998	**MEET JOE BLACK**	Universal
1998	**REACH THE ROCK**	Gramercy Pictures
1998	**SNAKE EYES**	Paramount/Disney
1998	**SAVING PRIVATE RYAN**	DreamWorks SKG/Paramount
	British Academy Award - Best Visual Effects	
1998	**SMALL SOLDIERS**	DreamWorks SKG/Universal
1998	**DEEP IMPACT**	DreamWorks SKG/Paramount
1998	**MERCURY RISING**	Universal/Imagine Films
1998	**DEEP RISING**	Disney
1997	**DECONSTRUCTING HARRY**	Fine Line Features
1997	**AMISTAD**	DreamWorks SKG
1997	**TITANIC**	20th Century Fox/Paramount

1997	**FLUBBER**	Disney
1997	**MIDNIGHT IN THE GARDEN OF GOOD & EVIL**	Warner Brothers
1997	**STARSHIP TROOPERS**	TriStar/Touchstone
1997	**SPAWN** New Line Cinema	
1997	**CONTACT**	Warner Brothers
1997	**MEN IN BLACK**	Columbia
	British Academy Award - Best Visual Effects	
1997	**SPEED 2: CRUISE CONTROL**	20th Century Fox
1997	**THE LOST WORLD: JURASSIC PARK**	Amblin/Universal
	Academy Award Nomination - Best Visual Effects	
1997	**STAR WARS TRILOGY SPECIAL EDITION**	20th Century Fox/Lucasfilm Ltd.
1996	**MARS ATTACKS!**	Warner Brothers
1996	**STAR TREK: FIRST CONTACT**	Paramount
1996	**101 DALMATIANS**	Disney
1996	**DAYLIGHT**	Universal
1996	**SLEEPERS**	Warner Brothers
1996	**TRIGGER EFFECT**	Universal
1996	**ERASER**	Warner Bros.
1996	**DRAGONHEART**	Universal
	Academy Award Nomination - Best Visual Effects	
1996	**TWISTER**	Warner Bros./Universal
	Academy Award Nomination - Best Visual Effects	
	British Academy Award - Best Visual Effects	
1996	**MISSION: IMPOSSIBLE**	Paramount
1996	**SPECIAL EFFECTS (AN IMAX FILM)**	WGBH
1995	**JUMANJI**	TriStar Pictures
1995	**THE AMERICAN PRESIDENT**	Castle Rock/Columbia
1995	**SABRINA**	Paramount
1995	**THE INDIAN IN THE CUPBOARD**	Paramount
1995	**CONGO** Paramount	
1995	**CASPER**	Amblin/Universal
1995	**VILLAGE OF THE DAMNED**	Universal
1995	**IN THE MOUTH OF MADNESS**	Katja/New Line Cinema
1994	**DISCLOSURE**	Warner Brothers
1994	**STAR TREK: GENERATIONS**	Paramount
1994	**RADIOLAND MURDERS**	Lucasfilm Ltd./Universal
1994	**THE MASK**	New Line Cinema
	Academy Award Nomination - Best Visual Effects	
	British Academy Award Nomination - Best Visual Effects	
1994	**FORREST GUMP**	Paramount
	Academy Award - Best Visual Effects	
	British Academy Award - Best Visual Effects	
1994	**BABY'S DAY OUT**	20th Century Fox
1994	**WOLF**	Columbia
1994	**MAVERICK**	Warner Brothers
1994	**THE FLINTSTONES**	Amblin/Universal
1994	**THE HUDSUCKER PROXY**	Warner Brothers
1993	**SCHINDLER'S LIST**	Amblin/Universal
1993	**JURASSIC PARK**	Amblin/Universal
	Academy Award - Best Visual Effects	
	British Academy Award - Best Visual Effects	
1993	**FIRE IN THE SKY**	Paramount
1993	**RISING SUN**	20th Century Fox
1993	**MALICE**	Castle Rock/Warner Brothers
1993	**METEORMAN**	MGM
1993	**LAST ACTION HERO**	Columbia
1993	**MANHATTAN MURDER MYSTERY**	TriStar Pictures
1993	**THE NUTCRACKER**	Warner Brothers
1992	**DEATH BECOMES HER**	Universal
	Academy Award - Best Visual Effects	
	British Academy Award - Best Visual Effects	
1992	**ALIVE**	Disney/Paramount

1992	**ALIEN ENCOUNTER** Simulator Ride	Showscan
1992	**MEMOIRS OF AN INVISIBLE MAN**	Warner Brothers
1992	**THE YOUNG INDIANA JONES CHRONICLES**	Lucasfilm Ltd.
1991	**HOOK** Academy Award Nomination - Best Visual Effects	Columbia/Amblin
1991	**STAR TREK VI** Academy Award Nomination - Best Visual Effects	Paramount
1991	**SPACE RACE** Simulator Ride	Showscan
1991	**TERMINATOR 2: JUDGMENT DAY** Academy Award - Best Visual Effects British Academy Award - Best Visual Effects	Carolco/TriStar
1991	**THE ROCKETEER**	Disney
1991	**BACKDRAFT** Academy Award Nomination - Best Visual Effects	Imagine Films
1991	**HUDSON HAWK**	TriStar
1991	**THE DOORS**	TriStar
1991	**ARACHNOPHOBIA**	Amblin/Universal
1991	**SWITCH**	HBO Films
1991	**MICKEY'S AUDITION**	Disney
1990	**DIE HARD 2**	20th Century Fox
1990	**BACK TO THE FUTURE, PART III**	Amblin/Universal
1990	**THE HUNT FOR RED OCTOBER**	Paramount
1990	**GHOST**	Paramount
1990	**THE GODFATHER, PART III**	Paramount
1990	**JOE VERSUS THE VOLCANO**	Warner Bros.
1990	**AKIRA KUROSAWA'S DREAMS**	Kurosawa Prods./Warner Brothers
1990	**ROLLER COASTER RABBIT**	Disney
1989	**ALWAYS**	Amblin/Universal
1989	**BACK TO THE FUTURE, PART II** Academy Award Nomination - Best Visual Effects British Academy Award - Best Visual Effects	Amblin/Universal
1989	**THE ABYSS** Academy Award - Best Visual Effects	GJP Productions/ 20th Century Fox
1989	**GHOSTBUSTERS II**	Columbia
1989	**INDIANA JONES AND THE LAST CRUSADE**	Lucasfilm Ltd./Paramount
1989	**FIELD OF DREAMS**	Universal
1989	**TUMMY TROUBLE**	Disney
1989	**MICKEY - EISNER SPOT**	Disney
1989	**BODY WARS** Simulator Ride for Disney World's EPCOT Center	Disney
1989	**SKIN DEEP**	Blake Edwards Co
1989	**THE 'BURBS**	Renfield Productions/Universal
1988	**THE LAST TEMPTATION OF CHRIST**	Universal
1988	**COCOON, THE RETURN**	20th Century Fox
1988	**CADDYSHACK II**	Warner Brothers
1988	**WHO FRAMED ROGER RABBIT?** Academy Award - Best Visual Effects British Academy Award - Best Visual Effects	Touchstone Pictures/Amblin
1988	**TUCKER: A MAN AND HIS DREAM**	Lucasfilm Ltd.
1988	**STAR TREK ATTRACTION** Universal Studios Tour	Universal/Paramount
1988	**WILLOW** Academy Award Nomination - Best Visual Effects	MGM/Lucasfilm Ltd.
1987	**EMPIRE OF THE SUN**	Warner Bros./Amblin
1987	**STAR TREK: THE NEXT GENERATION** "Journey to Farpoint"	Paramount Television
1987	**BATTERIES NOT INCLUDED** Academy Award - Technical Achievement	Universal/Amblin
1987	**INNERSPACE** Academy Award - Best Visual Effects	Warner Bros./Amblin

1987	**HARRY AND THE HENDERSONS**	Universal/Amblin
1987	**THE WITCHES OF EASTWICK** British Academy Award - Best Visual Effects	Warner Brothers
1987	**STAR TOURS** Simulator Ride for Disneyland	Disney/Lucasfilm Ltd.
1986	**THE GOLDEN CHILD**	Paramount
1986	**STAR TREK IV: THE VOYAGE HOME**	Paramount
1986	**CAPTAIN EO** 3D Film for Disneyland	Disney
1986	**HOWARD THE DUCK**	Universal
1986	**LABYRINTH**	TriStar/Henson Prod.
1986	**GENERAL CINEMA TRAILER**	General Cinema Corp.
1986	**THE MONEY PIT**	Universal/Amblin
1985	**OUT OF AFRICA**	Universal
1985	**ENEMY MINE**	20th Century Fox
1985	**YOUNG SHERLOCK HOLMES** Academy Award Nomination - Best Visual Effects	Paramount/Amblin
1985	**EWOKS: THE BATTLE FOR ENDOR** Emmy Award - Best Visual Effects	20th Century Fox Television/Lucasfilm Ltd.
1985	**AMAZING STORIES**	Universal Television/Amblin
1985	**MISHIMA**	Warner Brothers
1985	**EXPLORERS**	Paramount
1985	**BACK TO THE FUTURE** British Academy Award Nomination - Best Visual Effects	Universal/Amblin
1985	**COCOON** Academy Award - Best Visual Effects	20th Century Fox
1985	**THE GOONIES**	Warner Bros./Amblin
1984	**STARMAN**	Columbia
1984	**THE EWOK ADVENTURE** Emmy Award - Best Visual Effects	20th Century Fox Television/Lucasfilm Ltd.
1984	**THE NEVERENDING STORY**	Bavaria Studios
1984	**STAR TREK III: THE SEARCH FOR SPOCK**	Paramount
1984	**INDIANA JONES & THE TEMPLE OF DOOM** Academy Award - Best Visual Effects British Academy Award - Best Visual Effects	Paramount/Lucasfilm Ltd.
1983	**TWICE UPON A TIME**	Korty/Lucasfilm Ltd.
1983	**RETURN OF THE JEDI** Academy Award - Best Visual Effects British Academy Award - Best Visual Effects	20th Century Fox/Lucasfilm Ltd.
1982	**THE DARK CRYSTAL**	Henson Productions
1982	**E.T. THE EXTRA-TERRESTRIAL** Academy Award - Best Visual Effects	Universal
1982	**STAR TREK II: THE WRATH OF KHAN**	Paramount
1982	**POLTERGEIST** Academy Award Nomination - Best Visual Effects British Academy Award - Best Visual Effects	MGM/UA
1981	**DRAGONSLAYER** Academy Award Nomination - Best Visual Effects	Paramount
1981	**RAIDERS OF THE LOST ARK** Lucasfilm Ltd. Academy Award - Best Visual Effects	Paramount
1980	**THE EMPIRE STRIKES BACK** Academy Award - Best Visual Effects	20th Century Fox/Lucasfilm Ltd.
1977	**STAR WARS** Academy Award - Best Visual Effects	20th Century Fox/Lucasfilm Ltd.

TECHNOLOGY TIMELINE HIGHLIGHTS FOR THE LUCAS COMPANIES

1977
Industrial Light & Magic revolutionized special effects with *Star Wars*. The film marked the first use of a motion control camera.

1979
George Lucas set up the Computer Division to explore new uses of computers for digital imaging, electronic editing, and interactivity.

1982
Industrial Light & Magic, working with the Computer Division, created the "Genesis sequence" for *Star Trek II: The Wrath Of Khan*, which marked the first completely computer-generated sequence.

George Lucas formed the Games division to explore interactive entertainment.

1984
Lucasfilm pioneered film-oriented computerized electronic nonlinear editing for picture and sound and premiered EditDroid and SoundDroid at the National Association of Broadcasters conference.

1985
Industrial Light & Magic made further breakthroughs in computer graphics with the first completely computer-generated character with the "stained glass man" in *Young Sherlock Holmes.*

1987
The Games division leads the move from parser-driven interfaces to the "point-and-click" interface popular today with its new story engine SCUMM (Script Creation Utility for Maniac Mansion).

1988
Industrial Light & Magic created the first morfing sequence for motion pictures in the film *Willow*. ILM subsequently won a Technical Achievement Award for its development of Morf, a computer-graphics program allowing the fluid, onscreen transformation of one object to another.

1989
Industrial Light & Magic created the first computer generated three-dimensional character with the "pseudopod" in *The Abyss*.

1991
Industrial Light & Magic created the first computer graphics main character with the T-1000 in *Terminator 2: Judgment Day*.

Skywalker Sound introduced the first utilization of T-1 tie-lines for real-time digital audio transmission to distant locations. The projection of film at Skywalker Sound is synchronized, through patented technology, with the screening room projector at a filmmaker's office or home. With the combination of synchronized projection and real time digital audio transmission, it is no longer necessary for the filmmaker to leave his home or office.

LucasArts introduced its patented interactive sound system *iMUSE* (Interactive Music and Sound Effects) with MONKEY ISLAND 2: LE CHUCK'S REVENGE. *iMUSE* allows a game's soundtrack to be as interactive as the gameplay, responding seamlessly and spontaneously to unpredictable player choices. *iMUSE* composes sound and music on the fly, making the soundtrack of a game work like that of a film--creating mood, building suspense, and moving the experience forward. *iMUSE* now manages digital soundtracks for all LucasArts titles.

1992
Lucasfilm broke new ground in digital production by utilizing D1 digital video technology to complete post-production and visual effects on "The Young Indiana Jones Chronicles." The series won 10 Emmy Awards including one for visual effects which included digital replication of actors, digitally created matte paintings, and digital compositing.

1993
Industrial Light & Magic won its 12th Academy Award for its computer graphics work on *Death Becomes Her* and its fifth Academy Technical Achievement Award. This marked the first time human skin texture was computer generated.

Avid Technology acquired the EditDroid and SoundDroid technologies and joined forces with Lucasfilm to develop and produce the next generation of digital picture and sound editing systems.

Lucasfilm Entertainment Company, Ltd. LLC and Silicon Graphics formed an exclusive alliance to create JEDI, a unique networked environment for digital production. JEDI is a beta test sight for Silicon Graphics equipment and allows the artists and technicians at ILM to advise SGI on future developments.

LucasArts created a new proprietary video streaming engine, INSANE (Interactive Streaming Animation Engine), for its first exclusive CD-ROM game, REBEL ASSAULT. REBEL ASSAULT is one of the few elite PC titles to sell more than one million units.

1994
Industrial Light & Magic won its 13th Academy Award for its work on the computer-generated dinosaurs for Steven Spielberg's *Jurassic Park* and its sixth Academy Technical Achievement Award for pioneering work on film digitization. For the first time, digital technology was used to create a living, breathing character with skin, muscles, texture, and attitude. This breakthrough expanded the filmmaker's canvas and changed the cinematic art of storytelling.

1995
LucasArts developed the proprietary Jedi Engine for DARK FORCES. The new engine supports full 3D objects, a realistic lighting model, atmospheric effects such as haze and fog, and animating textures.

Industrial Light & Magic won its 14th Academy Award for its breakthrough work on *Forrest Gump*. Although the most obvious accomplishment is the manipulation of archival footage allowing seamless interaction with historical figures, a variety of "invisible" effects, such as the character who becomes a double amputee, computer-generated jets, helicopters, birds, crowds, and ping-pong balls, subtly help the filmmaker tell the story.

Industrial Light & Magic's computer animation work on *The Mask* garnered an Academy Award nomination. For the first time, the ILM team created a photo-real cartoon character. The artists and technicians turned a human being into a cartoon character.

Industrial Light & Magic created the first fully synthetic speaking characters with distinct personalities and emotions for *Casper*. Whereas *Jurassic Park* had six minutes of digitally animated dinosaurs on the screen, the ghosts in *Casper* are on the screen for more than 40 minutes.

Industrial Light & Magic created the first computer-generated photo-realistic hair and fur for the digital lion and monkeys in *Jumanji*. This movie also featured a stampede scene with dozens of elephants, rhinos, zebras and pelicans, all computer-generated.

1996
Industrial Light & Magic is awarded a Technical Achievement Award from the Academy for its pioneering work in digital film compositing.

With *Mission: Impossible*, ILM created a fully virtual set for the climactic action sequence, requiring a computer-generated train speeding through a computer-generated tunnel followed by a computer-generated helicopter; actors were digitally composited into the virtual set to complete the scene.

Twister's digital tornadoes were the stars of the box-office sensation of the summer movie season. These stunning images of one of nature's fiercest weather events were wholly computer-generated via particle systems animation software.

Industrial Light & Magic's proprietary facial animation software brought the 3D digital character of Draco, the star of *Dragonheart*, to life. With the voice and facial physique of Sean Connery as their guide, ILM's team of animators redefined what can be successfully shown on screen.

1997
Industrial Light & Magic's software team was awarded two Technical Achievement Awards by the Academy of Motion Picture Arts and Sciences, for the creation and development of the Direct Input Device, which allows stop-motion animators to bring their skill and artistry to computer animation; and for the development of a system to create and control computer-generated hair and fur in motion pictures. The Academy also awarded the ILM software team a Scientific and Engineering Award for the development of the Viewpaint 3D Paint System, which allows artists to color and texture details to computer-generated effects. ILM and its team of innovators and pioneers have won a total of twelve "sci-tech" awards from the Academy.

Skywalker Sound installed the largest digital audio console at any audio post-production facility worldwide. The Capricorn, manufactured by AMS Neve, can technologically match the artistry of the sound designers and mixers. Two of the first projects to be mixed on the Capricorn, *Contact* and *Titanic*, earned Academy Award nominations for best sound.
Utilizing more sound elements, including dialogue loops and sound effects, than any feature film in history, *Titanic* won best sound awards from the Academy, Motion Picture Sound Editors and Cinema Audio Society.

1998
ILM's research & development team is awarded two patents for proprietary techniques. One is for "hair, fur and feathers," as illustrated by the groundbreaking images of the computer-generated gorilla in *Mighty Joe Young*. The other patent, for facial animation software initially developed for the 1995 release *Casper*, was further enhanced and refined over the next several years on projects such as *Dragonheart* and *Men in Black*.

1999
"Caricature," the facial animation system awarded a patent, also earns a Technical Achievement Award by the Academy of Motion Picture Arts & Sciences for ILM's software developers. The award states: By integrating existing tools into a powerful interactive system, and adding an expressive multi-target shape interpolation-based freefrom animation system, the "Caricature" system provided a degree of subtlety and refinement not possible with other systems.

ILM's camera department receives a Technical Achievement Award from the Academy of Motion Picture Arts & Sciences for their pioneering work in motion-controlled, silent dollies.

The Mummy stars the most realistic digital human character ever seen in film. Featuring totally computer-generated layers of muscles, sinew and tissue, the ILM team again elevates its artistic and technical skill level in bringing a digital character to life.

With over 90% of George Lucas's *Star Wars: Episode I "The Phantom Menace"* featuring digital effects shots, a new method of filmmaking is achieved. Scenes which are fully computer-generated, featuring synthetic environments and digital terrain generation, computer graphic lead characters and thousands of digital extras are but some of the accomplishments, which were rewarded with an Academy Award nomination for best achievement in visual effects.

2000

The digital waves and weather created at ILM are the stars of *The Perfect Storm*, one of the summer's most anticipated film events.

2001
Industrial Light & Magic is nominated for best visual effects by the Academy of Motion Arts and Sciences for *Pearl Harbor* and *A.I. Artificial Intelligence*.

2002
Industrial Light & Magic's software team was awarded two Technical Achievement Awards by the Academy of Motion Picture Arts and Sciences, for the creation and development of its proprietary Motion and Structure Recovery System and Creature Dynamics System.

ILM Research and Development department received its fifteenth and sixteenth Technical Achievement Awards from the Academy of Motion Picture Arts and Sciences for the development of the ILM Motion and Structure Recovery System (MARS) and the ILM Creature Dynamics System.

The release of *Star Wars: Episode II "Attack of the Clones"* marks the first major motion picture to be shot completely on digital HD video. Over 2200 visual effects shots completed at ILM feature digital environments, synthetic human characters and a computer graphics Yoda, still beloved by audiences worldwide.

2003
With the release of *The Hulk*, ILM convincingly creates a digital human character with (green) skin, hair, muscles, clothing and most importantly, human emotions.